

CURRICULUM FOR DUAL INITIAL VOCATIONAL TRAINING FOR FARMERS













HG UNIVERSIT



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Introduction

The dual education programme for farmers offers a comprehensive education that combines general educational elements with specialised vocational training. This programme is designed for students aged 15 and up and emphasises the importance of integrating general education into the curriculum to ensure holistic development. This approach helps young learners to develop basic skills in areas such as science, language and geography, while also preparing them for the specific demands of the agricultural sector.

A key focus of the programme is to promote sustainable and environmentally friendly farming practices. During the course, students are introduced to organic farming methods that are aligned with environmental and economic standards and reflect the objectives of the European Union's agricultural policy for 2021-2027. By emphasising environmentally friendly techniques, the programme aims to equip future farmers with the knowledge and skills necessary to contribute to sustainable food systems and address global challenges such as climate change and resource management.

Practical training plays a central role in the programme, ensuring that students gain hands-on experience in real-life agricultural settings. The curriculum is designed to encourage collaboration between schools and farms, enabling students to learn directly from industry professionals and apply theoretical knowledge in practical tasks. This dual approach not only improves their technical skills but also prepares them for the realities of the labour market, increasing their employability and adaptability.

Aim of the Programme

The vocational training programme for farmers aims to provide students with a comprehensive education that combines elements of general education and specialised vocational training. Designed for students starting at the age of 15, the programme recognises the importance of integrating general education into the curriculum to ensure a well-rounded development. This approach helps young learners build foundational skills in areas such as science, language, and geography while simultaneously preparing them for the specialised demands of the agricultural sector.

A key focus of the programme is promoting sustainable and green farming practices. Throughout the training, students are introduced to organic farming methods that align with ecological and economic standards, reflecting the goals of the European Union's agricultural policies for 2021-2027. By emphasising environmentally friendly techniques, the programme aims to equip future farmers with the knowledge and skills necessary to contribute to sustainable food systems and address global challenges such as climate change and resource management.

Practical training plays a central role in the programme, ensuring that students gain hands-on experience in real-world agricultural environments. The curriculum is designed to foster cooperation between schools and agricultural enterprises, allowing students to learn directly from industry professionals and apply theoretical knowledge to practical tasks. This dual approach not only enhances their technical competencies but also prepares them for the realities of the job market, increasing their employability and adaptability.

Target groups

The vocational training programme for farmers is designed to address the needs of several key target groups, ensuring a broad and sustainable impact on both individual learners and the agricultural sector as a whole. These target groups include:





1. Young Students (Aged 15 and Above):

The primary target group for this programme is young individuals, typically starting at the age of 15. These students often enter the programme after completing their basic education and are looking for a pathway to develop both general and vocational skills. By incorporating elements of general education, the programme ensures that these students continue to build foundational competencies, such as scientific literacy, language skills, and critical thinking, alongside their specialised agricultural training.

2. Future Farmers in Italy and Lithuania:

The programme specifically targets young people in Italy and Lithuania, where traditional vocational education is largely school-based and lacks workplace-based learning components. By introducing a dual education system that combines classroom instruction with practical training in agricultural enterprises, the programme offers these students a more dynamic and hands-on learning experience. This approach enhances their employability and prepares them for the demands of the modern agricultural workforce.

3. Environmentally Conscious Learners:

Another important target group includes individuals who are interested in sustainable and green farming practices. The programme places a strong emphasis on organic farming and ecological agriculture, attracting students who are motivated to contribute to sustainable food systems and environmentally friendly agricultural methods. This group is critical for addressing global challenges such as climate change and the need for sustainable resource management.

4. Educational Institutions and Teachers:

Schools and teachers involved in vocational education are also a key target group. The programme provides these institutions with innovative curricula, teaching materials, and methodologies that integrate general education with vocational training. Teachers benefit from professional development opportunities and resources that enable them to deliver high-quality, practical, and interdisciplinary education.

5. The Agricultural Sector and Employers:

Agricultural enterprises and employers are indirect beneficiaries of the programme. By participating in the practical training components, they gain access to a pool of well-trained, competent, and motivated young professionals. This collaboration also helps address the skills gap and labour shortages in the agricultural sector, ensuring a steady supply of qualified workers.

6. Wider European Education Systems:

While initially focused on Italy and Lithuania, the programme has the potential to be adapted and transferred to other European countries. This makes it relevant for policymakers and educational stakeholders across Europe who aim to modernise vocational education and integrate workplace-based learning into their systems.

Duration of the training programme

The vocational training programme for farmers spans three years and is designed to provide students with a comprehensive education that combines theoretical knowledge, practical skills, and general education





elements. The total duration of the programme is structured through various modules, each with specified hours dedicated to different subjects and training activities.

The total classroom teaching for the

- Year 1: 330 Hours
- Year 2: 350 Hours
- Year 3: 350 Hours
- Year 4: 350 Hours

This equals to on average 2 days per week of classroom teaching. The other 60% of the training consists of practical learning on the farm. These practical hours can be conducted either at the own school farm, with practical instructors or in cooperation with local farms. The programme offers a range of flexibility here, as the conditions and specialisations in farms differ a lot and also seasonal factors need to be taken into account. The practical hours and tasks are recorded by the students and are part of the process of being admitted to the examinations.

1.4 Qualification level

The vocational training programme for farmers is aligned with EQF Level 4 (European Qualifications Framework).

1.5 Prerequisites to enter (minimum education required)

To enrol in the vocational training programme for farmers, students must meet the following minimum educational requirements:

- 1. Completion of Basic Education:
 - Students must have successfully completed their lower secondary education (or equivalent), typically around the age of 15. This ensures that they have foundational knowledge in core subjects such as mathematics, science, and language arts, which are essential for further education and vocational training.
- 2. Age Requirement:
 - The programme is designed for students aged 15 years and above, making it accessible to those transitioning from compulsory schooling to vocational education.
- 3. Interest in Agriculture and Sustainability:
 - While not a formal prerequisite, students should demonstrate an interest in farming, sustainability, and green practices, as the programme focuses heavily on organic farming and environmentally friendly agricultural methods.

Organisation of the training

The training programme is structured with 40% theoretical learning and 60% practical training, ensuring a balanced approach to education. On average, students spend two days per week in classroom-based lessons at the vocational school. The remaining 60% of the programme is dedicated to hands-on practical





learning, which takes place on farms. These practical sessions can be conducted either at the school's own farm under the guidance of practical instructors or in collaboration with local farms.

This flexible arrangement allows the programme to adapt to the unique conditions and specialisations of different farms, as well as to seasonal factors that influence agricultural activities. Students are required to keep detailed records of their practical hours and tasks, which are an integral part of the process for qualifying for the final examinations. This approach ensures that students gain both theoretical knowledge and real-world experience, preparing them thoroughly for a career in agriculture.

Examination and certification.

The vocational training programme for farmers is designed to ensure students acquire both theoretical knowledge and practical skills necessary for their future careers. The examination and certification process is a key component of the programme, structured to evaluate students' progress and competencies throughout their training. This process combines continuous assessments, semester-end evaluations, and compliance with modular plans to maintain a high standard of education and professional readiness.

Structure of Examinations

The examination process is divided into theoretical and practical assessments, depending on the module's focus. Each semester, students are required to complete two tests for every theoretical module. These tests assess their understanding of the subject matter covered during classroom lessons. In addition, many modules include practical tests, where students demonstrate their ability to apply theoretical knowledge in real-world agricultural settings. This dual approach ensures a comprehensive evaluation of both academic and hands-on skills.

The examination regulations for each module are clearly outlined by the teacher in the modular plan. This document specifies the types of tests, evaluation criteria, and any additional requirements for successful completion of the module. Students are expected to follow these guidelines closely to meet the standards set by the programme.

Semester-End Evaluations: 'Scrutiny

At the end of each semester, a formal process called 'scrutiny' is conducted to review and record the overall evaluations for each student. During this process, all teachers involved in the programme meet to discuss and assess the performance of every student across all topics and modules. This collaborative approach ensures a fair and thorough evaluation of each individual's progress.

The results of the scrutiny are officially recorded in meeting minutes, which serve as a formal document of the students' academic achievements for that semester. If a student's evaluation falls below the minimum required standard for a module, they are given the opportunity to retake the exams or tests during the following semester. This system allows students to improve their performance and ensures that they meet the necessary requirements to progress in the programme.

Completion of All Modules

To successfully complete the vocational training programme, students must pass all modules, including both theoretical and practical tests. This requirement emphasises the importance of mastering both aspects of the curriculum, as the programme aims to produce well-rounded professionals who are equipped to handle the challenges of modern agriculture. Students who fail to meet the minimum requirements in any module must retake the relevant tests until they achieve the necessary standard.





The certification process is designed to ensure that only those who have demonstrated competence in all areas of the programme receive their qualification. This rigorous approach guarantees that graduates are fully prepared for their future roles in the agricultural sector.

Certification

Upon successful completion of all modules, students receive a vocational training certificate, which is recognised as an official qualification in the agricultural field. This certification serves as evidence of their theoretical knowledge, practical skills, and ability to apply both in a professional context. It also aligns with the standards set by the European Qualifications Framework (EQF), ensuring that graduates are well-prepared for employment or further education.

The certification process reflects the programme's commitment to producing skilled and competent professionals who are ready to contribute to sustainable and innovative farming practices. By combining theoretical and practical assessments, semester-end evaluations, and adherence to modular plans, the programme ensures that its graduates meet the highest standards of excellence in the agricultural industry.





Year 1

ITA 'Emilio Sereni

PROGRAMMING CLASS ONE - CURRICULUM

Integrated Sciences Chemistry - Integrated Sciencies Chemistry

PROGRAMMING

Integrated Sciences Chemistry

MODULE 1: Matter and its transformations	SCIENTIFIC-TECHNOLOGICAL AXIS				
ADDRESS: AGRICULTURE, A	ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY				
SUBJECT: INTEGRATED SCI	ENCES 'CHEMISTRY				
TASK / PRODUCT	Production of a map relating to the physical states of matter and state transitions Product presentation by the students.				
TRAINING OBJECTIVES	Educating pupils to collaborate in the realisation of a common project by assuming responsibilities and roles Enhancement of individual skills Acquisition of discipline-specific scientific terminology Observe, describe and analyse phenomena belonging to natural and artificial reality Identifying the physical states of matter according to the particle model Constructing, reading and interpreting state transition graphs				
TARGETED SKILLS	Acquisition of fundamental training concepts for conducting design and research into the composition of matter; Guidance on the choice of working and research methods; Use of material suitable for project development.				
SPECIFIC LEARNING OBJECTIVES	Finding materials, sorting and cataloguing them Analysing and synthesising, also using challenging and complex texts Recognition of the various states of matter Observation and experimental analysis of natural phenomena reproduced in the laboratory Observation of the environment to recognise phenomena occurring in it				
USERS	Pupils of the FIRST classes				
PREREQUISITES	Being able to read a text carefully, identifying its fundamental concepts; Knowing how to compare and correlate information Knowing how to use the strategies and tools necessary for understanding texts Knowing how to explore reality				
INTERDISCIPLINARY LINKS	Integrated Sciences (Earth Sciences and Biology) and Geography, Italian, English.				
PERIOD OF APPLICATION	September - October				
CONTENTS and SEQUENCE IN PHASES	U.D.1 Matter and the particle model U.D.2				





	Pure substances and mixtures			
	<u>U.D.3 (Interdisciplinary U.D.A.)</u>			
	State Transitions			
TIMES	20 hours			
METHODS	Exhibition lectures			
	Expository lessons with participatory method			
	Laboratory exercises			
	Group activities			
	Flipped classroom			
	Group work			
	Peer education			
	Peer tutoring			
	DAD			
INSTRUMENTS	Manuals			
	Fact Sheets			
	Summary diagrams and maps			
	Computer supports			
	On-line materials (images, animations, videos, etc.)			
	Glassware, instruments and laboratory materials			
	GSuite platform			
	Viva Class			
HUMAN RESOURCES AND	Chemistry teacher			
RELATED TASKS	Practical technical lecturer			
	Laboratory technician			
EXPERIENCES	Laboratory experiences			
EVALUATION CRITERIA	Oral examinations in presence or via GSuite platform, in the form of a question,			
AND MODALITIES	interview, conversation or return of work done.			
	Written tests (entry test, end-of-module test) to be carried out in person or via GSuite			
	platform, in synchronous or asynchronous mode.			
	Practical tests, to be carried out in person or via GSuite platform.			
	Reality tasks, to be carried out in presence or via GSuite platform.			
	Oral and written tests (entry test, end-of-module test).			
	On-going and final checks and recovery.			
	Verification: Oral expositions also from the spot, and/or participative lessons through			
	dialogue, to constantly and periodically ascertain the learning of the class.			
	Structured individual or small group exercises for the application of the concepts learnt.			
	Structured/semi-structured written tests. Written reports.			
	Recovery: after the test with correction, clarification, review, exercises. If necessary and			
	possible remedial work with afternoon activities: remedial classes or disciplinary help			
	desk.			
	Observation and evaluation tables.			





MODULE 2: The structure of the atom	SCIENTIFIC-TECHNOLOGICAL AXIS
ADDRESS: ACRICULTURE	ACPIBLISINESS ACRO INDUSTRY
SUBJECT: INTEGRATED SCI	
SUBJECT: INTEGRATED SCI	
TASK / PRODUCT	Elaboration of a concept map relating to the structure of the atom.
TRAINING OBJECTIVES	Acquisition of discipline-specific scientific terminology.
	Consolidate the ability to move around safely in the laboratory using glassware
	and instruments appropriately.
	Consolidate the ability to draw up reference diagrams independently, to draw up a
	report of proposed laboratory experiences and to compile a data sheet.
	Ability to work in a team, cooperating and confronting peers by assuming
	responsibilities and roles.
	Enhancement of individual skills.
	Educating pupils to collaborate in the realisation of a common project by assuming
	Knowledge of subatomic particles and their location in the atom
	Knowledge of subatonne particles and then rocation in the atom.
TARGETED SKILLS	Classify and describe the main particles in an atom.
	Distinguish the concept of atomic number from mass number.
	Calculate the atomic mass of an element from the masses of its isotopes and their
	percentage abundance.
	Being able to grasp the first fundamental information and limitations of a model,
	particularly the atomic model.
	Describe the layered atomic model with ionisation energies.
	Explain the concept of the chemical orbital.
	Apply orbital filling rules for electronic configurations of atoms.
SPECIFIC LEARNING	Analysing and synthesising, also using challenging and complex texts.
OBJECTIVES	Recognise chemical elements by their chemical symbol and atomic number.
	Know the unreference between atomic number and mass number of an element.
	as a bridge between macroscopic systems (solids liquids gases) and microscopic
	systems (atoms, molecules, ions).
	Knowing how to represent the electronic configuration of an element.
USERS	Pupils of the FIRST classes
PREREQUISITES	Being able to read a text carefully, identifying its fundamental concepts.
	Knowing how to compare and correlate information.
	Knowing how to use the strategies and tools necessary for understanding texts.
	Knowing how to explore reality.
INTERDISCIPLINARY	Integrated Sciences (Earth Sciences and Biology) and Geography, Italian,
DEDIOD OF ADDI ICATION	Eligiisii. November Jenuery
CONTENTS and SEQUENCE	I D 1
IN PHASES	Atomic models and electronic structure of atoms
	U.D.2
	Atomic number, mass number, atomic weight, molecular weight, the mole; isotopes.
	U.D.3
	Electronic 'box' and Lewis configuration; the octet rule.
11MES METHODS	24 nours
METHODS	Exhibition lectures
	Expository ressons with participatory method
	Croup activities
	Flipped classroom
	Group work
	Group note





	Peer education		
	Peer tutoring		
	DAD		
INSTRUMENTS	Manuals		
	Fact sheets		
	Summary diagrams and maps.		
	Computer support.		
	On-line materials (images, animations, videos, etc.).		
	Glassware, instruments and laboratory materials		
	GSuite platform		
	Viva Class		
HUMAN RESOURCES AND	Chemistry teacher.		
RELATED TASKS	Practical technical lecturer.		
	Laboratory technician.		
EXPERIENCES	Laboratory experiences		
EVALUATION CRITERIA	Oral examinations in presence or via GSuite platform, in the form of a question,		
AND MODALITIES	interview, conversation or return of work done.		
	Written tests (entry test, end-of-module test) to be carried out in person or via GSuite		
	platform, in synchronous or asynchronous mode.		
	Practical tests, to be carried out in person or via GSuite platform.		
	Reality tasks, to be carried out in presence or via GSuite platform.		
	Oral and written tests (entry test, end-of-module test).		
	On-going and final checks and recovery.		
	Verification: Oral expositions also from the spot, and/or participative lessons through		
	dialogue, to constantly and periodically ascertain the learning of the class.		
	Structured individual or small group exercises for the application of the concepts learnt.		
	Structured/semi-structured written tests. Written reports.		
	Recovery: after the test with correction, clarification, review, exercises. If necessary and		
	possible remedial work with afternoon activities: remedial classes or disciplinary help		
	desk.		
	Observation and evaluation tables.		



MODULE 3:	SCIENTIFIC-TECHNOLOGICAL AXIS
The periodic table of	
elements	
ADDRESS: AGRICULTURE,	AGRIBUSINESS, AGRO-INDUSTRY
SUBJECT: INTEGRATED SC	CIENCES 'CHEMISTRY
TASK / PRODUCT	Written work on the main features of the modern periodic table.
TRAINING OBJECTIVES	Ability to explain disciplinary concepts correctly and in appropriate language Acquisition of discipline-specific scientific terminology. Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately. Consolidate the ability to draw up reference diagrams independently, to draw up a report of proposed laboratory experiences and to compile a data sheet. Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles. Enhancement of individual skills. Educating pupils to collaborate in the realisation of a common project by assuming responsibilities and roles. Knowing the main elements of the periodic system and being able to predict their behaviour.
TARGETED SKILLS	Explain the relationship between the properties of the elements and their position in the periodic table. Assigning valence electrons to elements in a group. Distinguish the chemical and physical properties of the elements of the different groups of the periodic table on the basis of their valence electrons.
SPECIFIC LEARNING OBJECTIVES	Analysing and synthesising, also using challenging and complex texts. Knowing how to identify metals, non-metals and semi-metals in the periodic table. Knowing how to identify the groups and periods of the periodic table.
USERS	Pupils of the FIRST classes
PREREQUISITES	Being able to read a text carefully, identifying its fundamental concepts. Knowing how to compare and correlate information. Knowing how to use the strategies and tools necessary for understanding texts. Knowing how to explore reality
INTERDISCIPLINARY LINKS	Integrated Sciences (Earth Sciences and Biology) and Geography, Italian, English.
PERIOD OF APPLICATION	February - March
CONTENTS and SEQUENCE IN PHASES	 U.D.1 Reading the periodic table: groups and periods; 'step' demarcation line for the classification of metals, non-metals and semi-metals. Noble gases. U.D.2 Periodic properties of the elements: energy of first ionisation, electron affinity, atomic radius. U.D.3 Periodic table groups and valence electrons.
TIMES	20 hours

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METHODS	Exhibition lectures		
	Expository lessons with participatory method		
	Laboratory exercises		
	Group activities		
	Flipped classroom		
	Group work		
	Peer education		
	Peer tutoring		
	DAD		
INSTRUMENTS	Manuals.		
	Fact sheets.		
	Summary diagrams and maps.		
	Computer support.		
	On-line materials (images, animations, videos, etc.).		
	Glassware, instruments and laboratory materials		
	GSuite platform		
	Viva Class		
HUMAN RESOURCES AND	Chemistry teacher		
RELATED TASKS	Practical technical lecturer		
	Laboratory technician		
EXPERIENCES	Laboratory experiences		
EVALUATION CRITERIA	Oral examinations in presence or via GSuite platform, in the form of a question,		
AND MODALITIES	interview, conversation or return of work done.		
	Written tests (entry test, end-of-module test) to be carried out in person or via GSuite		
	platform, in synchronous or asynchronous mode.		
	Practical tests, to be carried out in person or via GSuite platform.		
	Reality tasks, to be carried out in presence or via GSuite platform.		
	Oral and written tests (entry test, end-of-module test).		
	On-going and final verification and recovery.		
	Verification: Oral expositions also from the spot, and/or participative lessons through		
	dialogue, to constantly and periodically ascertain the learning of the class.		
	Structured individual or small group exercises for the application of the concepts learnt.		
	Structured/semi-structured written tests. written reports.		
	Recovery: after the test with correction, clarification, review, exercises. If necessary and		
	possible remedial work with afternoon activities: remedial classes or disciplinary help		
	Observation and evaluation tables		





MODULE 4:	SCIENTIFIC-TECHNOLOGICAL AXIS			
Chemical bonds and				
intermolecular forces				
ADDRESS: AGRICULTURE, A	AGRIBUSINESS, AGRO-INDUSTRY			
SUBJECT: INTEGRATED SC	IENCES 'CHEMISTRY			
TASK / PRODUCT	Concept map on Chemical bonds and intermolecular forces			
	Laboratory-prepared molecular models			
TRAINING OBJECTIVES	Ability to explain disciplinary concepts correctly and in appropriate language			
	Acquisition of discipline-specific scientific terminology.			
	Consolidate the ability to move around safely in the laboratory using glassware			
	and instruments appropriately.			
	report of proposed laboratory experiences and to compile a data sheet			
	Ability to work in a team, cooperating and confronting peers by assuming			
	responsibilities and roles.			
	Enhancement of individual skills.			
	Educating pupils to collaborate in the realisation of a common project by assuming			
	responsibilities and roles.			
	Predicting the behaviour of the elements of the periodic table in binding together to			
	form different compounds.			
TARGETED SKILLS	Compare the polarity of bonds, using electronogenities values			
	Represent the Lewis structure of a molecule			
	Represent the Lewis structure of a molecule.			
SPECIFIC LEARNING	Analysing and synthesising, also using challenging and complex texts.			
OBJECTIVES	Knowing how to classify a chemical bond between two atoms of two different			
	elements.			
	Being able to explain the structure of substances with ionic bonding, covalent			
LICEDC	Donaing.			
	Pupils of the FIRST classes			
FREREQUISITES	Knowing how to compare and correlate information			
	Knowing how to use the strategies and tools necessary for understanding texts.			
	Knowing how to explore reality			
INTERDISCIPLINARY	Integrated Sciences (Earth Sciences and Biology) and Geography, Italian,			
LINKS	English.			
PERIOD OF APPLICATION	March - May			
CONTENTS and SEQUENCE	U.D.I The homomolog and between olegication than the characteristics of the constant hand			
IN FHASES	I D 2			
	The dative bond, resonance structures.			
	U.D.3			
	The ionic bond and ionic compounds. Polyatomic ions			
	U.D.4			
	Notes on polar and non-polar molecules; intermolecular forces.			
TIMES	35 hours			
METHODS	Exhibition lectures			
	Laboratory exercises			
	Group activities			
	Flipped classroom			
	Group work			
	Peer education			
	Peer tutoring			
	DAD			
INSTRUMENTS	Manuals.			





	Fact sheets.
	Summary diagrams and maps.
	Computer support.
	On-line materials (images, animations, videos, etc.).
	Glassware, instruments and laboratory materials
	GSuite platform
	Viva Class
HUMAN RESOURCES AND	Chemistry teacher
RELATED TASKS	Practical technical lecturer
	Laboratory technician
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA	Oral examinations in presence or via GSuite platform, in the form of a question,
AND MODALITIES	interview, conversation or return of work done.
	Written tests (entry test, end-of-module test) to be carried out in person or via GSuite
	platform, in synchronous or asynchronous mode.
	Practical tests, to be carried out in person or via GSuite platform.
	Reality tasks, to be carried out in presence or via GSuite platform.
	Oral and written tests (entry test, end-of-module test).
	On-going and final verification and recovery.
	Verification: Oral expositions also from the spot, and/or participative lessons through
	dialogue, to constantly and periodically ascertain the learning of the class.
	Structured individual or small group exercises for the application of the concepts
	learnt.
	Structured/semi-structured written tests. Written reports.
	Recovery: after the test with correction, clarification, review, exercises. If necessary
	and possible remedial work with afternoon activities: remedial classes or disciplinary
	help desk.
	Observation and evaluation tables.



The application period given for each subject is purely indicative and may vary according to the needs of the classes.

01 .11	D 11	Mastery level			
SKIIIS	Evidence	initial	base	Intermediate	advanced
Expertise alphabetical functional	The learner understands and uses information from various types of documents	only if guided	autonomously but elementary	adequately	with full awareness
	The student communicates in oral form	roughly	in an elementary way	adequately	richly and effectively
	The student communicates in written form	roughly	in an elementary way	adequately	richly and effectively
	Media	D	С	В	А
Expertise staff, social and ability to learn to learn	The student recognises, selects, analyses and compares information and knowledge derived from personal experience and that of others	only if guided	autonomously but elementary	adequately	in an organised and critical manner
	The student works with others	passively	with performer duties	Acts proactively and makes decisions	assumes responsibility, mediates and facilitates the work of peers
	Media	D	С	В	A
Expertise with regard to citizenship	The student acts as a responsible citizen and participates fully in civic and social life	must be induced to respect the rules of associated life	respects the rules of associated life	Acts in the associated context in a responsible and constructive manner	in a fully responsible and constructive manner demonstrating internalisation of the rules of associated life
	Media	D	С	В	А
Expertise Digital	The student knows the operation and basic use of various devices, software and networks	in an unconscious manner	mechanically	consciously	critically
	The student uses digital technologies as an aid to active citizenship and social inclusion, collaboration with others and creativity	with the help of of comrades	mechanically but autonomously	consciously	with critical and creative contributions
	Media	D	C	В	А

Evaluation rubric for the "Task/Product" in the individual modules, according to EU competences:

Overall mastery level count

COMPETENCE	EVALUATION				
Alphabetical competence Functional	D= 1	C= 2	B= 3	A= 4	
Personal competence, social and	D= 1	C= 2	B= 3	A= 4	





learning to learn				
Relevant competence of citizenship	D= 1	C= 2	B= 3	A= 4
Digital competence	D= 1	C= 2	B= 3	A=4
Total sum				

Conversion table for evaluation in tenths

OVERALL LEVEL	EVALUATION IN TENTHS
4	4
5	4 1/2
6	5
7	51/2
8	6
9	61/2
10	7
11	71⁄2
12	8
13	81/2
14	9
15	91/2
16	10





ITA 'Emilio Sereni

PROGRAMMING CLASS ONE - CURRICULUM

Integrated Sciences Earth Science and Biology

PROGRAMMING

Integrated Sciences (Earth Sciences and Biology)

MODULE 1: The Earth and the	SCIENTIFIC-TECHNOLOGICAL AXIS			
Atmosphere				
ADDRESS: AGRICULTURE	ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY			
SUBJECT: INTEGRATED S	SCIENCES (Earth Sciences and Biology)			
Task/product	Concept map on the general characteristics of the Earth Written work on specific air pollution phenomena (acid rain, greenhouse effect).			
Learning objectives	Being able to use basic geographical vocabulary appropriately and meaningfully. Enhancement of individual skills Fostering the development of a method that starts from the observation of phenomena and leads to the interpretation of causes; Being aware of the value of everyone's contribution within a team.			
Targeted skills	Acquisition of fundamental training concepts for conducting research on the earth as a planet belonging to the solar system; Guidance on the choice of working and research methods;			
Specific learning objectives	Framing the Earth within the solar system. Identify the consequences of the Earth's rotational and revolutionary motions. Achieving the ability to know how to locate oneself both spatially and temporally on planet Earth. Knowing the methods of orientation during the day and night. Being able to describe the composition of the atmosphere. Knowing and being able to describe the various layers of the atmosphere.			
Users	Pupils in the first classes			
Prerequisites	Being able to read a text carefully, identifying its fundamental concepts Knowing how to compare and correlate information Knowing how to use the strategies and tools necessary for understanding texts Knowing how to explore reality;			
Interdisciplinary links	Integrated Science (Chemistry), Italian, English, History.			
Period of application	SEPTEMBER - NOVEMBER			
Times	16 hours			
Step sequence and content	 U.D.1 Rotational and revolutionary motion of the Earth. Consequences of the motion of rotation and revolution. Shape and size of the Earth The Moon's characteristics. The motions of the Moon and their consequences. U.D.2 The composition and subdivision of the atmosphere. Global warming. The grasphague offect 			





	Frontal lesson
	Participatory lesson
	Collective reading of the text and comprehension exercises
Mathada	Flipped classroom
Methods	Group work
	Peer education
	Peer tutoring
	DAD
	Manuals
	Audiovisual documents
	Computer supports
	Internet
Tools	Library
	Personal computer
	GSuite platform
	Viva Class
	Oral examinations in presence or via GSuite platform, in the form of a question,
	interview, conversation or return of work done
	Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite
	platform, in synchronous or asynchronous mode
	Practical tests, to be carried out in person or via GSuite platform.
Evaluation Criteria and	Reality tasks, to be carried out in presence or via GSuite platform.
Modalities	Individual assessment of acquired competences (Pollock grid)
	In itinere and final
	Observation and evaluation tables
	Correction of exercises carried out at home and at school
	Comprehensive group assessment through tests, exercises, questionnaires, summaries.
	oral expositions and guided dialogues



ProGREEN	

MODULE 2:	SCIENTIFIC-TECHNOLOGICAL AXIS				
Hydrosphere, Lithosphere					
ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY					
SUBJECT: INTEGRATED SCIENCES (Earth Sciences and Biology)					
Task/product	Cooperative learning on the study of the chemical and physical characteristics of mineral waters. Report on laboratory activities (recognition of rock samples)				
Learning objectives	Being able to use basic geographical vocabulary appropriately and meaningfully. Enhancement of individual skills Encourage the development of a method that starts from the observation of phenomena and leads to the interpretation of causes; Being aware of the value of everyone's contribution within a team.				
Targeted skills	Describe and interpret constant and variable phenomena that characterise the geosphere, through the observation of real images or models and through the analysis of diagrams, graphs or maps; Guidance on the choice of working and research methods; Communicating learnt content through oral, written and graphic forms of expression.				
Specific learning objectivesDistinguishing the three states of aggregation of matter Knowing the characteristics of surface water courses, glaciers and lakes. Identifying categories to characterise geological objects (rocks, minerals, fossils). Know how to describe the formation process of magmatic, sedimentary and metamorp rocks.					
Users	Pupils in the first classes				
Prerequisites	Being able to read a text carefully, identifying its fundamental concepts Knowing how to compare and correlate information Knowing how to use the strategies and tools necessary for understanding texts Knowing how to explore reality;				
Interdisciplinary links	Integrated Sciences (Chemistry), Italian, English.				
Period of application	NOVEMBER - FEBRUARY				
Times	20 hours				
Step sequence and content	U.D.2 (Interdisciplinary U.D.A.) The states of aggregation of matter. The water cycle. The distribution of water in the natural reservoirs of our planet. Continental waters: glaciers, groundwater, surface waters, lakes. U.D.3 Composition of the solid Earth. The characteristics and properties of minerals. Classification of minerals. The three main groups of rocks, formation and classification. The lithogenetic cycle.				
Methods	Frontal lesson Participatory lesson Collective reading of the text and comprehension exercises Flipped classroom Group work Peer education Peer tutoring DAD				





	Manuals
	Audiovisual documents
	Computer supports
Teele	Internet
10015	Library
	Personal computer
	GSuite platform
	Viva Class
	Oral examinations in presence or via GSuite platform, in the form of a question, interview,
	conversation or return of work done
	Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite
	platform, in synchronous or asynchronous mode
	Practical tests, to be carried out in person or via GSuite platform.
Evaluation Criteria and	Reality tasks, to be carried out in presence or via GSuite platform.
Modalities	Oral and written tests (entry test, end-of-module test)
	Individual assessment of acquired competences (Pollock grid)
	Observation and evaluation tables
	Correction of exercises carried out at home and at school
	Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral
	expositions and guided dialogues.



MODULE 3: The Earth's internal energy: seismic and	SCIENTIFIC-TECHNOLOGICAL AXIS				
volcanic phenomena					
ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY					
SUBJECT: INTEGRATED	SCIENCES (Earth Sciences and Biology)				
Task/product Historical reconstruction of the main seismic events in Lazio					
	Power Point presentation on the different modes of volcanic eruption.				
Learning objectives	 Being able to use basic geographical vocabulary appropriately and meaningfully. Enhancement of individual skills Fostering the development of a method that starts from the observation of phenomena and leads to the interpretation of causes; Being aware of the value of everyone's contribution within a team. 				
Targeted skills	Describe and interpret constant and variable phenomena that characterise the geosphere, through the observation of real images or models and through the analysis of diagrams, graphs or maps.illsClassify, formulate hypotheses, draw conclusions. Guidance on the choice of working and research methods. Communicating learnt content through oral, written and graphic forms of expression.				
Specific learning objectivesIntroducing the concept of an earthquake as a disturbance of the Earth's equilibrium. Define the magnitude and intensity of an earthquake. Explain how the seismograph works. Know what is meant by seismic risk. Define the flow of heat through the earth's crust. Know the mechanism of volcanic eruption. Ullustrate the typology of products of volcanic activity and volcanic buildings.					
Users	s Pupils in the first classes				
Prerequisites	Being able to read a text carefully, identifying its fundamental concepts Knowing how to compare and correlate information Knowing how to use the strategies and tools necessary for understanding texts Knowing how to explore reality;				
Interdisciplinary links Integrated Science (Chemistry), Italian, English, History.					
Period of application	MARCH - APRIL				
Times	16 hours				
Step sequence and content	 U.D.1 The seismic tremor. The effects of earthquakes. Springback theory, types of seismic waves and the seismograph. The magnitude. The intensity of an earthquake. The distribution of earthquake hypocentres on the earth's surface. Earthquake defence. The seismic risk in Italy. U.D.2 Volcanic phenomena. The products of volcanic activity. The different types of volcanic eruptions. Italian volcanoes. The distribution of volcanoes on the earth's surface. The phenomena associated with volcanic activity. The volcanic risk.				

ProGREEN





	Frontal lasson
	Frontal lesson
	Dialogue lesson
	Interactive lesson
	Inductive deductive method
	Work for heterogeneous groups
	Class group work coordinated by the teacher
Methods	Workshop activities
	Collective reading of the text and comprehension exercises
	Flipped classroom
	Group work
	Peer education
	Peer tutoring
	DAD
	Textbook
	Notes and handouts
	Supporting teaching texts
	Manuals
	Cards prepared by the teacher
	Specific videos and CDROMs
Tools	LIM
	Dedicated Internet sites
	Library
	Workshop
	Personal computer
	GSuite platform
	Viva Class
	Oral examinations in presence or via GSuite platform, in the form of a question, interview.
	conversation or return of work done
	Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite
	platform in synchronous or asynchronous mode
	Practical tests to be carried out in person or via GSuite platform
	Reality tasks to be carried out in presence or via GSuite platform
	Written tests (open questionnaires, multiple-choice, texts to be completed, exercises
Evaluation Criteria and	problem solving text comprehension)
Evaluation Criteria ana Modalities	Oral examinations (reports on activities carried out questions, speeches, discussions on
mouulles	study topics)
	Practical examinations (discipling specific exercises graphics)
	Individual assessment of acquired competences in progress and final (Pollock grid)
	Observation and evaluation tables
	Correction of avaraises carried out at home and at school
	Controllon of exercises carried out at nonite and at school
	Comprehensive group assessment inrough tests, exercises, questionnaires, summaries, oral
	expositions and guided dialogues.



MODULE 4: The evolution of the	SCIENTIFIC-TECHNOLOGICAL AXIS			
Earth's crust: plate	SCHATIFIC-TECHNOLOGICAL AMS			
tectonics				
ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY				
SUBJECT: INTEGRATED	SCIENCES (Earth Sciences and Biology)			
Task/product	Cooperative learning on the Wilson Cycle			
	Being able to use basic geographical vocabulary appropriately and meaningfully. Enhancement of individual skills			
Learning objectives	Fostering the development of a method that starts from the observation of phenomena and leads to the interpretation of causes:			
	Being aware of the value of everyone's contribution within a team.			
	Describe and interpret constant and variable phenomena that characterise the geosphere,			
	through the observation of real images or models and through the analysis of diagrams,			
Targeted skills	graphs or maps;			
	Guidance on the choice of working and research methods;			
	Communicating learnt content through oral, written and graphic forms of expression.			
	Applying the acquired methodology to new problems and situations			
	Describe how the theory of plate tectonics can explain most geological phenomena			
	Explain the interactions between plaque margins.			
Specific learning objectives	Describe and illustrate the internal structure of the Earth based on the composition and			
Specific learning objectives	state of aggregation of materials			
	Analysing the current state and modifications of the planet also with reference to the			
	exploitation of the Earth's resources.			
Users	Pupils in the first classes			
	Being able to read a text carefully, identifying its fundamental concepts			
	Knowing how to compare and correlate information			
Prerequisites	Knowing how to use the strategies and tools necessary for understanding texts			
	Knowing how to explore reality;			
Interdisciplinary links	Integrated Science (Chemistry), Italian, English, History.			
Period of application	APRIL - JUNE			
Times	14 hours			
	U.D.1			
	The internal structure of the Earth.			
	Isostasy.			
	The flow of heat.			
Step sequence and content	The Mechanism of Ocean Fund Expansion			
1 1	The lithospheric plates.			
	The types of margins between lithospheric plates and the plate movements associated with			
	them.			
	Convection currents			
	Frontal Jesson			
Methods	Dialogue lesson			
	Interactive lesson			
	Inductive deductive method			
	Work for heterogeneous groups			
	Class group work coordinated by the teacher			
	Workshop activities			
	Collective reading of the text and comprehension exercises			
	Flipped classroom			
	Group work			
	Peer education			
	Peer tutoring			
	DAD			

ProGREEN





MODULE 4: The evolution of the Earth's crust: plate tectonics	SCIENTIFIC-TECHNOLOGICAL AXIS
Tools	Textbook Notes and handouts Supporting teaching texts Manuals Cards prepared by the teacher Specific videos and CDROMs LIM Dedicated Internet sites Library Workshop Personal computer GSuite platform Viva Class
Evaluation Criteria and Modalities	Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Reality tasks, to be carried out in presence or via GSuite platform. Written tests (open questionnaires, multiple-choice, texts to be completed, exercises, problem solving, text comprehension) Oral examinations (reports on activities carried out, questions, speeches, discussions on study topics) Practical examinations (discipline-specific exercises, graphics) Individual assessment of acquired competences in itinere and at the end (Pollock grid) Observation and evaluation tables Correction of exercises carried out at home and at school Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.



The application period given for each subject is purely indicative and may vary according to the needs of the classes.

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Skille	Evidence	Mastery level			
SKIIIS		initial	base	intermediate	advanced
Expertise alphabetical functional	The student understands and use the information derived from documents of various kinds	only if driven	so autonomous but elementary	so suitable	with full awareness
	The student communicates orally	so approximate	so elementary	so suitable	richly and effective
	The student communicates in written form	so approximate	so elementary	so suitable	richly and effective
	Media	D	С	В	А
Expertise staff, social and ability to learn to learn	The student recognises, selects, analyses and compare the information and the derived knowledge from experience staff and other	only if driven	so autonomous but elementary	so suitable	so organised and critic
	The student works with the others	so passive	with tasks by executor	acts so proactive and makes decisions	it is assumed responsibility, mediates and facilitates the work of the comrades
	Media	D	С	В	A
Expertise with regard to citizenship	The student acts as responsible citizen and participates fully to life civic and social	must be induced to respect for rules of life associated	respects the rules of life associated	acts in the context associate so responsible and constructive	so fully responsible and constructive demonstrating internalisation of the rules of the associated life
	Media	D	С	В	А
Expertise Digital	The student knows operation and the basic use of different devices, software and networks	poorly aware	so mechanic	so aware	so critic
	The student uses digital technologies as an aid to active citizenship and social inclusion, the collaboration with the others and creativity	with the help of of comrades	so mechanical but autonomous	so aware	with contributions critical and creative



Media D C B A					
	Media	D	С	В	А

Overall mastery level count

COMPETENCE		EVALU	ATION	
Alphabetical competence Functional	D= 1	C= 2	B= 3	A= 4
Personal competence, social and learning to learn	D= 1	C= 2	B= 3	A= 4
Relevant competence of citizenship	D= 1	C= 2	B= 3	A= 4
Digital competence	D= 1	C= 2	B= 3	A= 4
Total sum				

Conversion table for evaluation in tenths

OVERALL LEVEL	EVALUATION IN TENTHS
4	4
5	4 1/2
6	5
7	51/2
8	6
9	61/2
10	7
11	71/2
12	8
13	81/2
14	9
15	91/2
16	10







ITA 'Emilio Sereni

PROGRAMMING CLASS ONE - CURRICULUM

English Foreign Language and Civilisation - English Foreign Language and Society

Prof. Mariangela Anderboni

PROGRAMMING Foreign Language and Civilisation English

LEARNING UNITS

LINGUISTIC AXIS

The linguistic axis aims to make the learner acquire mastery of language as reception and written and oral communication.

It is also intended to make the learner acquire knowledge of the foreign language, as it facilitates, in multicultural situations, mediation and understanding of other cultures, mobility and opportunities for study and work.

The language axis also aims to enable the pupil to acquire knowledge and use of multiple forms non-verbal expressions and appropriate use of information and communication technologies.

Another goal to be achieved is digital competence, which enriches the possibility of access to knowledge, enables the realisation of individual learning paths and the nurturing of personal creative expression.

The integration of different languages is a fundamental tool in the acquisition of new knowledge and the interpretation of reality in an autonomous and conscious manner.





WHAT THE	WHAT THE PUPIL	SKILLS/ABILITIES
 Presenting the UdA It defines goals and objectives, Guiding pupils in the reading and global comprehension of the text Uses the tools provided, explains the key points of each segment of the learning path, verifies, evaluates and plans the remedial phase 	Acquires awareness of the route to be taken Outline the process steps concerning the UdA Learn to use tools and organise your work also in terms of time.	Learning to use the typical language of the discipline in written and oral production Learning to work within a team. Taking notes during a lecture Interacting with peers and the teacher Reporting one's own knowledge-experience to the group peers





ENGLISH LANGUAGE FIRST YEAR OF THE FIRST TWO YEARS

- ✓ Reading and understanding texts on everyday life topics performed, recognising the most indicative sentence.
- ✓ Identifying the overall meaning of short mass-media messages (radio, cinema, TV) on topics of general interest, shows, news, etc.
- ✓ Reading and understanding texts on everyday life topics performed, recognising the most indicative sentence.
- ✓ Identifying the overall meaning of short mass-media messages (radio, cinema, TV) on topics of general interest, shows, news, etc.
- ✓ Understand the main and specific information of oral messages on topics of everyday, personal, social interest.
- ✓ Interact in short, simple conversations with appropriate pronunciation, rhythm and intonation.
- ✓ Express oneself, orally and in writing, in a simple manner on general topics in an effective and appropriate manner, appropriate to the context and situation, although not always formally correct.
- ✓ Produce simple functional texts of a personal, everyday and imaginative nature, even with a minimum margin of error and interference with the Italian language and its dialects, with other cultures, provided comprehension is not impaired.
- ✓ Identify and make appropriate use of linguistic structures and mechanisms operating at different levels:
- ✓ textual, semantic-lexical, phonological and morpho-syntactic.
- ✓ Identify the specific cultural contribution of the foreign language and compare it with that of the Italian language or of
- \checkmark other languages.
- Basic vocabulary on topics of general interest, language functions and fundamental grammatical structures to be used in simple conversations
 Listening to monologues dialogues presented viva voce or recorded, concerning
- Listening to monologues dialogues presented viva voce or recorded, concerning communicative situations of everyday life: conversations, interviews, radio and television news, commercials, sports reports.
- Production of simple messages, letters of various types, reports, summaries, concerning topics previously discussed in class, answers to questionnaires, completions and dialogue compositions.
- ✓ Authentic documents concerning everyday life, relating to various aspects of life and culture in foreign countries, focusing on comparisons Italian culture.
- ✓ Reflection on language with a view to intercultural and interlinguistic comparison; expressing one's thoughts in
- \checkmark simple way on general topics.
- ✓ Using the bilingual dictionary

It should also be noted that following the European Recommendation of 2006, the decree regulating the fulfilment of compulsory education in Italy (Ministerial Decree 139/2007) was issued, containing the description of knowledge with reference to four cultural axes (language axis; mathematical axis; scientific-technological axis; historical-social axis), in a single learning process that includes the mutual integration and interdependence between the knowledge, skills and competences thus outlined:

- 1. learning to learn;
- 2. design;
- 3. communicating;
- 4. collaborate and participate;
- 5. act autonomously and responsibly;





- 6. solving problems;
- 7. identify connections and relationships;
- 8. acquire and interpret information;

Based on this Recommendation, the following programming is also outlined on the knowledge listed above





MODULE 1 3 LEARNING UNITS	: Starter Unit / Unit 1 / Unit 2	LINGUISTIC AXIS a.s. (2021/22)
SUBJECT: ENGLISH	I LANGUAGE	
USERS/RECIPIEN	First two-year class	
PREREQUI SITES	 Basic grammatical knowledge (A Basic PC and Internet use Knowing your way around refere 	1); nce tools: dictionary, atlas, maps
PERIOD OF	First four-month period	
PHASED SEQUENCE	 Preparation and research of material uda presentation to the class, usin Creation of working groups Laboratory lessons and research, (PROBLEM SETTING, PROBL Realisation of the Task/Product Verification of skills and objective display of the final product Recovery 	rial by lecturers and learners ng selected excerpts production and processing EM SOLVING, PERFORMANCE) yes through presentation and
METHO DS	 Lectures and dialogues through approach Creation of working groups (fo tasks) Group work in the computer-lin alaseroom 	the functional-communicative rmation of groups, assignment of nguistic laboratory and in the
INSTRUM ENTS	 Student's Book, Visual Tra (Worksheets, Tests, Tests MP3 allowing access to audio recordi and tablets, digital content availabte Computer-linguistic laboratory Dictionaries, atlases and journals Photocopies of various materials 	iner, Teacher's Resource Pack 3 Audio Disk), use of QR codes ngs and videos from mobile phones ole on the Oxford University website
EVALUATION CRITERIA AND MODALITIES	 Formative tests (structured and Placement Test, Starter Test, U Tests and Resource Pack: Work Disk) Recovery and Enhancement (T Worksheets, Tests, Tests MP3 Summative tests (structured, set form of Sector Test Heiter 	I semi-structured) in the form of Unit Test - Units 1 and 2 (Teacher's Asheets, Tests, Tests MP3 Audio Feacher's Tests and Resource Pack: Audio Disk) emi-structured and skills) in the

Specific learning objectives (OSA)





KNOWLEDGE

Communicative functions

Asking for and providing personal information Talking about nationality Talking about possession Describing one's physical appearance Describe your room Understanding English in the classroom

Talking about oneself and one's interests Talking about one's habits Talking about one's lifestyle Describe your routine (daily and weekly) Ask for the time and answer appropriately

Grammatical structures

Verb 'to be' and verb 'to have' (got): Present Simple Personal subject pronouns: I, you, he/she/it/we/you/they Possessive adjectives:me/your/his/her/its/our/your/their Demonstrative adjectives: there is /there are Definite article: the Indeterminative article: a, an Demonstrative pronouns: this, that, those Plural nouns Present simple and prepositions of time Adverbs of frequency Frequency expressions

Pronunciation: 'h', '-s', '-es'

Lexicon

	A1/A2 1
Countries and nationalities	A2 I can
The Alphabet	describe
Cardinal and ordinal numbers	
Colours	WKIII
Days of the week, months and seasons	A1 Loo
Objects in the classroom	hv writi
Terminology pertaining to the physical description	and add
of the person	A1 I ca
Terminology relating to the furniture of a teenager's	myself
bedroom	A2 I c
Daily and weekly routine activities	message
The clock and time	
	Learni
	Listenii

Civilisation and Interculture

SKILLS

<u>UNDERSTANDING</u> Oral reception (listening)

A1 I can recognise familiar words and very simple expressions referring to myself, as long as I speak slowly and clearly

A1 I can understand the numbers

A2 I can understand basic information about the person

A2 I can understand sentences, expressions and words if they deal with topics with very immediate meanings: basic information about my person, my room, class language

Written reception (reading)

A1 I can understand data on people A1 I can understand familiar names and people A1 I can understand very simple sentences A2 I can read very short and simple texts and find predictable information

PARLATO

Oral interaction

A1 I can interact in a simple manner if the interlocutor is willing to repeat or rephrase certain things more slowly and if he helps me to formulate what I am trying to say A1 I can ask and answer simple questions on topics concerning immediate needs

Oral production

A1 I can give information about myself A1 I can use simple expressions and sentences to describe my room, my physical appearance A1/A2 I can give information about other people A2 I can use a series of expressions and phrases to describe myself and other people in simple words

WRITTEN PRODUCTION

A1 I can fill in forms with personal data by writing my name, surname, nationality and address
A1 I can write simple sentences about myself
A2 I can take simple notes and write short messages on topics concerning immediate needs.
Learning strategies
Listening strategies: listening for information specifications





General

Formative tests (structured and semi-structured) in the form of Placement Test, Starter Test, Unit Test - Units 1 and 2 (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk). Recovery and enhancement activities where deemed necessary for Starter Unit, Unit 1 and Unit 2 and enhancement activities.

Observation by the teacher, of each individual student or a small group at a time, and recording of varving degrees of English language proficiency.

Summative assessment

Summative tests (structured, semi-structured and skills) in the form of Summative Tests, Units 1 and 2 (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk).





MODULE 2 2 LEARNING UNITS: Unit 3 / Unit 4		LINGUISTIC AXIS a.s. (2021/2022)	
SUBJECT: ENGLISH	I LANGUAGE		
USERS/RECIPIEN	First two-year class		
PREREQUISITES	 Basic grammatical knowledge (A1); Basic PC and Internet use Knowing your way around reference tools: dictionary, atlas, maps 		
PERIOD OF APPLICATION	Second period of the first quarter/ First	st period of the second quarter	
PHASED SEQUENCE	 Preparation and research of material by lecturers and learners uda presentation to the class, using selected excerpts Creation of working groups Laboratory lessons and research, production and processing (PROBLEM SETTING, PROBLEM SOLVING, PERFORMANCE) Realisation of the Task/Product Verification of skills and objectives through presentation and display of the final product Recovery 		
METHODS	 Lectures and dialogues throug approach Creation of working groups (f tasks) Group work in the computer- cleasereem 	gh the functional-communicative formation of groups, assignment of linguistic laboratory and in the	
INSTRUMENTS	 Student's Book, Visual Trainer, Teacher's Resource Pack (Worksheets, Tests, Tests MP3 Audio Disk), use of QR codes allowing access to audio recordings and videos from mobile phones and tablets, digital content available on the Oxford University website Computer-linguistic laboratory Dictionaries, atlases and journals Photocopies of various materials 		





EVALUATION CRITERIA AND MODALITIES	 Formative tests (structured and semi-structured) in the form of Unit Tests - Units 3 and 4 (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk) Recovery and Enhancement (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk) Summative tests (structured, semi-structured and skills) in the form of Summative Test Units 3 and 4, Row A/Row B (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio
	Disk)

Specific learning objectives (OSA)


KNOWLEDGE

Communicative functions

Talking about one's leisure time Talking about one's abilities Talking about likes and dislikes

Talking about clothing and style Talking about events and situations taking place in the present time Talking about the present

Grammatical structures

Can (ability to do something) Adverbs of manner Verbs of like and Present Comparisons and differences between present simple and present continuous Verbs of state and verbs of action

Pronunciation

Pronunciation: 'can', 'can't'; '-n', '-ng'

Lexicon

Leisure activities Sports The verbs 'to play', 'to do', 'to go'. Adjectives describing personality Clothing and accessories Adjectives describing clothes and accessories Shops and shopping

Civilisation and Interculture:

Sights in London

SKILLS **UNDERSTANDING Oral reception (listening)**

A2 I can understand sentences, expressions and words if they deal with very immediate topics

- A2 I can extract essential information from short audio recordings spoken slowly and clearly on everyday, predictable topics: leisure time activities, sports, weekend activities, subjects studied by a young person; information on places to visit, arrangements made by two friends on how to spend the
- A2 I can understand frequently used expressions and words related to things that directly concern me (e.g. very basic information about myself and my shopping, surroundings, family, favourite activities). I can catch the main points in short, clear, simple messages and announcements.

Written reception (reading)

A1/A2 I can read very short and simple texts

- A1/A2 I can find specific and predictable information in everyday material
- A2 I can gather important information from wellstructured websites and blogs with many figures, names, illustrations and titles
- A2 I can understand a passage about some parts of London, about a secondary school in England
- A2/B1 I can deduce the meaning of unknown single words from the context

PARLATO

interaction

- A1/A2 I can ask and answer simple questions on very familiar topics or relating to immediate needsfamily memberspersonal objects, proper names, leisure activities
- A2 I can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities. I can take part in short conversations although I do not understand enough to usuallv sustain the conversation.
- A2 I can ask questions concerning leisure time activities, being a teenager

Oral production

- A2 I can use a series of expressions and phrases to describe in simple terms my leisure time, the activities I like to do, different types of sports, the way I dress, the main features of my personality
- A2 I can express what I appreciate and what I do







 WRITTEN PRODUCTION A1/A2 I can use simple sentences and expressions to write a short text about aspects of everyday lifemy family, my weekend activities, a friend or family member A2 I can introduce myself briefly in an email with sentences and expressions A2 I can write a short piece on a tourist attraction Learning strategies Listening strategies: listening for information specifications Deducing the meaning of a word from the context
General

Use simple self-assessment and self-correction strategies.

Implementing autonomy, self-control and self-confidence behaviours.

Working independently, pairs, in groups, cooperating and respecting

rules. Helping and respecting others.

Achieve through the use of a language other than one's own an awareness of the importance of communicating.

Talking and communicating with peers by exchanging questions and information.

Using the voice to imitate and reproduce sounds and phrases

alone or in groups. Interpret images and photos.

Propose hypotheses.

Take interest and pleasure in learning a foreign language.

Demonstrate openness and interest in the culture of other countries

Citizenship and

Affectivity: talk about the characteristics of introverts and extroverts.

Citizenship: Young people and social media, between real and virtual.

Interdisciplinary activities and transversal skills

Geography: recognising where London's major tourist attractions are located.

Transversal skills used in the Starter course: analysing, classifying, understanding, communicating, comparing, deducing, distinguishing, hypothesising, reading, ordering, memorising, predicting, planning, recognising, evaluating.

Formative assessment and evaluation





Formative tests (structured and semi-structured) in the form of Unit Tests - Units 3 and 4 (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk). Recovery and enhancement activities where deemed necessary for Starter Units, Unit 3 and Unit 4 and enhancement activities.

Observation by the teacher, of each individual student or a small group at a time, and recording of varying degrees of English language proficiency.

Summative assessment

Summative tests (structured, semi-structured and skills) in the form of Summative Tests, Units 3 and 4 (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk).



MODULE 3 2 LEARNING UNITS	: Unit 5 / Unit 6	LINGUISTIC AXIS (s.y. 2021/2022)	
SUBJECT: ENGLISH LANG	UAGE		
USERS/RECIPIENTS	First two-year class		
PREREQUI SITES	 Basic grammatical knowledge (A1); Basic PC and Internet use Knowing your way around reference tools: dictionary, atlas, maps 		
PERIOD OF	Second four-month period		
PHASED SEQUENCE	 Preparation and research of material by lecturers and learners uda presentation to the class, using selected excerpts Creation of working groups Laboratory lessons and research, production and processing (PROBLEM SETTING, PROBLEM SOLVING, PERFORMANCE) Realisation of the Task/Product Verification of skills and objectives through presentation and display of the final product Recovery 		
METHO DS	 Lectures and dialogues through the functional-communicative approach Creation of working groups (formation of groups, assignment of tasks) Group work in the computer-linguistic laboratory and in the classroom Individual work on the consolidation of language structures and functions Oral exposition 		
INSTRUM ENTS	 Student's B (Worksheets, allowing acce and tablets, website Computer-lin Dictionaries, Photocopies of 	ook, Visual Trainer, Teacher's Resource Pack Tests, Tests MP3 Audio Disk), use of QR codes ess to audio recordings and videos from mobile phones digital content available on the Oxford University guistic laboratory atlases and journals of various materials	







EVALUATION CRITERIA AND	 Formative tests (structured and semi-structured) in the form of Unit Tests - Units 5 and 6 (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk)
MODALIT	- Recovery and enhancement (Teacher's Tests and Resource Pack:
IES	Worksheets, Tests, Tests MP3 Audio Disk)
	 Summative tests (structured, semi-structured and skills) in the form of Summative Test Units 5 and 6, Row A/Row B (Teacher's Tests and Resource Pack: Worksheets, Tests, Tests MP3 Audio Disk)

Specific learning objectives (OSA)





KNOWLEDGE

Communicative functions

Talking about food and drink Talking about quantities of food Talking about diet Talking about food waste Talking about one's family Talking about experiences, events or situations that happened in the past

Grammatical structures

Numerable and uncountable nouns Quantifies: some, any, no Much, many, a lot of/lots of, a few, a little, too much, too many, (not) enough, too+ adj., (not) + adj.+ enough Past simple: the verb 'to be Past simple: the verb 'can Past simple: regular verbs

Pronunciation: the 'o', '-ed' sounds

Lexicon

Food and drink Portions Containers Adjectives describing food and drink The family Jobs and trades Expressions to indicate the past

Civilisation and Interculture

Tea time in Britain The British Royal Family

SKILLS <u>UNDERSTANDING</u> Oral reception (listening)

A2 extract essential information from short audio recordings spoken slowly and clearly on everyday, predictable topics

- B1 understand the main points of a simple audio recording on familiar topics (own family, food, experiences)
- B1 I can understand the main points of clear standard speech on familiar matters regularly encountered in school, leisure time, etc. I can understand the main points of clear standard speech. I can understand the main points of many radio or TV programmes on current affairs or topics of personal or professional interest to me provided the delivery is relatively slow and clear.

Written reception (reading)

- B1 I can understand everyday written texts related to the everyday sphere. I can understand descriptions of events in texts, letters or personal e-mails.
- B1 I can understand the main points of short newspaper articles, websites and blogs on current and known topics
- B1 I can deduce the meaning of individual words from the context

PARLATO

interaction

- A2 I can ask and answer skill-related
- A2 I can express what I appreciate and what I do not appreciate

A2 I can report activities and personal experiences: my holiday

A2 I can order something to eat and

Oral production

A2 I can use a series of expressions and phrases to describe in simple words my family and other people, my living conditions, my diet, my experiences

B1 I can describe, by linking simple expressions, experiences and events. I can briefly justify and explain opinions

WRITTEN PRODUCTION

- A2 I can describe an event in simple sentences: my most holiday
- A2/B1 I can write, in simple sentences and expressions, a short text on aspects of everyday life: me and my family, a healthy and balanced diet, an event experienced in the past
- B1 I can write simple, coherent texts on topics that are familiar or of interest to me. I can write



Skills	Knowledge	Skills	Minimum objectives
SkillsAdequate use of basic grammatical structuresDescribe situations related to the personal sphere in a simple mannerProduce short, simple and coherent texts on familiar topics of personal interestInteract in short, clear conversations on topics of personal or everyday interestUse appropriate strategies to find information and understand essential points in messages clear, shortwritten and oral on topics of personal or everyday interestUse a lexical repertoire and basic expressions to describe experiences of the type	KnowledgeCommunicative, socio-linguistic and paralinguistic aspects of interaction and oral production (describing, narrating) in relation to context and interlocutorsBasic grammatical structures of the language, phonological system, sentence rhythm and intonation, spelling.Strategies for selective global comprehension of simple and clear written, oral and multimedia texts and messages on known topics related to the personal, social or topicality.Vocabulary relating to topics of everyday, social or current life.User of dictionaries, including	SkillsListening to dialogues to extract personal informationgiving and asking for personal informationreading a text or dialogueread a text containing instructionscomplete a table complete a dialogueWriting a short text giving personal informationExpressing preferences and opinionsAsking, giving and denying permissionReading an article containing informationCompleting a questionnaire	Minimum objectives Using the foreign language for the main communicative and operational purposes Perform simple tasks in known situations Use basic grammatical structures adequately Understand the main points of simple and clear messages and announcements on topics of personal and everyday interest Describe experiences and events related to personal and social spheres in a simple way Interacting in short, simple conversations Describe in simple terms whether themselves, their family, the place where they live and their routines Narrating past events, activities and personal experiences in a simple way Knowledge of basic
Use a lexical repertoire and basic expressions to describe experiences of	topics of everyday, social or current life. User of dictionaries	Reading an article containing information	Narrating past events, activities and personal experiences in a simple way
the type personal or family	including multimedia dictionaries.	questionnaire Reading an e-mail	Knowledge of basic vocabulary on everyday life topics
	Variety of registers. In the area of written production, referring to short, simple and coherent texts, characteristics of the different types (informal letters, descriptions, narratives, etc.).	message Reading a text in the past tense Writing a short text on a past period Describing a photograph	Correct pronunciation of a reduced repertoire of memorised words and phrases in common use
	Syntactic structures and vocabulary appropriate to the contexts. Socio-cultural aspects of the countries whose language is studied.		









ITA 'Emilio Sereni

PROGRAMMING CLASS ONE - CURRICULUM

General and Economic Geography

PROGRAMMING

General and Economic Geography

MODULE 1: The ABC of Geography	SCIENTIFIC-TECHNOLOGICAL AXIS		
ADDRESS: AGRICULTURE, A	GRIBUSINESS, AGRO-INDUSTRY		
SUBJECT: GENERAL AND E	CONOMIC GEOGRAPHY		
Task/product	Mental map of Italy		
Learning objectives	Being able to use basic geographical vocabulary appropriately and meaningfully. Enhancement of individual skills Fostering the development of a method that starts from the observation of phenomena and leads to the interpretation of causes; Being aware of the value of everyone's contribution within a team.		
Targeted skills	develop the use of cartographic and geo-graphic language as part of general language competence; search, analyse and process information of spatial interest and effectively translate it from verbal and numerical language into graphic and cartographic language		
Specific learning objectives	Read and interpret geographic and thematic maps at different scales. Achieving the ability to know how to locate oneself both spatially and temporally on planet Earth. Representing spatial organisation patterns in thematic maps, graphs, tables. Describe and analyse a territory, using methods, tools and concepts of Geography.		
Users	Pupils in the first classes		
Prerequisites	 Being able to read a text carefully, identifying its fundamental concepts Knowing how to compare and correlate information Knowing how to use the strategies and tools necessary for understanding texts Knowing how to explore reality; 		
Interdisciplinary links	Italian, English.		
Period of application	SEPTEMBER - OCTOBER		
Times	6 hours		
Step sequence and content	U.D.1 Introduction to Geography Maps Orientation Digital cartography Statistical data and the main types of graphs The problems of the globalisation era		
Methods	Frontal lesson Participatory lesson Collective reading of the text and comprehension exercises Flipped classroom Group work Peer education Peer tutoring		





	DAD
	Manuals
	Audiovisual documents
	Computer supports
Tools	Internet
10013	Maps
	Personal computer
	GSuite platform
	Viva Class
Evaluation Criteria and Modalities	Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Reality tasks, to be carried out in presence or via GSuite platform. Oral and written tests (entry test, end-of-module test) Individual assessment of acquired competences (Pollock grid) In itinere and final Observation and evaluation tables Correction of exercises carried out at home and at school Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues







MODULE 2: The environmental crisis and	SCIENTIFIC-TECHNOLOGICAL AXIS		
population growth			
ADDRESS: AGRICULTURE, A	GRIBUSINESS, AGRO-INDUSTRY		
SUBJECT: General and econom	nic geography		
Product task	Comparison of population pyramids of industrialised and developing countries.		
I comuine chiestines	Being able to use basic geographical vocabulary appropriately and meaningfully. Enhancement of individual skills		
Learning objectives	and leads to the interpretation of causes:		
	Being aware of the value of everyone's contribution within a team.		
	Describe and interpret constant and variable phenomena that characterise the geosphere, through the observation of real images or models and through the analysis of diagrams,		
	graphs or maps;		
	comparing epochs and in a synchronic dimension by comparing geographical and cultural		
	areas:		
Targeted skills	Analysing the processes of change in the contemporary world;		
	To broadly analyse a territorial system, identifying its main constituent elements, both		
	physical and anthropic, and their most obvious interdependencies;		
	Identify factors influencing the location of economic activities;		
	Guidance on the choice of working and research methods;		
	Relate the characteristics of the Earth's motions to the distribution of climates and		
	biomes.		
	Analysing the causes of the planet's environmental crisis.		
	Define the concept of 'ecological footprint'.		
	Identify the spatial distribution of resources and identify the resources of a territory.		
	Acquire awareness of the consequences of the environmental crisis.		
	Understanding environmental problems: from pollution to the greenhouse effect.		
	biodiversity.		
	Analysing the current state and modifications of the planet also with reference to the		
Specific learning objectives	exploitation of the Earth's resources.		
Specific learning objectives	Understand the common origin of the world's population.		
	Analysing the processes of change in the contemporary world.		
	Recognise the factors that have influenced and those that currently influence the distribution of the population		
	Analysing population structure through the use of graphs and tables.		
	Interpreting the demographic transition model.		
	Recognising the causes and consequences of migratory movements.		
	Analysing the processes of change in the contemporary world.		
	Describe the phenomenon of urbanisation.		
	Compare the metropolises of developed and developing countries		
[]sors	Pupils in the first classes		
	Being able to read a text carefully, identifying its fundamental concepts		
	Knowing how to compare and correlate information		
Prerequisites	Knowing how to use the strategies and tools necessary for understanding texts		
	Knowing how to explore reality		
	Content of the previous teaching unit.		
Interdisciplinary links	Italian, English.		
Period of application	NOVEMBER - MARCH		
Times	14 hours		





	UD1 (Interdisciplinary UDA)
Step sequence and content	U.D.1 (Interdisciplinary U.D.A.) The Earth: movements and time zones Earth's environments and biomes Man's pressure on the planet Pollution and the distribution of natural resources Global warming Water scarcity Sustainable Development U.D.2 The distribution of population on Earth. How the population structure changes. National and international migration and the main social problems arising from it. U.D.3 The urban explosion Megacities and the landscape of the diffuse city The metropolises of developed countries Metropolises in developing countries
Methods	Participatory lesson Participatory lesson Collective reading of the text and comprehension exercises Flipped classroom Group work Peer education Peer tutoring DAD
Tools	Manuals Audiovisual documents Computer supports Internet Descriptive maps Personal computer GSuite platform Viva Class
Evaluation Criteria and Modalities	Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Reality tasks, to be carried out in presence or via GSuite platform. Oral and written tests Individual assessment of acquired competences (Pollock grid) Observation and evaluation tables Correction of exercises carried out at home and at school Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





MODULE 3:	SCIENTIFIC-TECHNOLOGICAL AXIS			
The Global Economic System				
ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY				
SUBJECT: General and econom	SUBJECT: General and economic geography			
Task/product	Cooperative learning on monitoring the activities of multinational consumer goods companies.			
Learning objectives	Being able to use basic geographical vocabulary appropriately and meaningfully. Enhancement of individual skills Fostering the development of a method that starts from the observation of phenomena and leads to the interpretation of causes; Being aware of the value of everyone's contribution within a team.			
Targeted skills	Describe and interpret constant and variable phenomena that characterise the geosphere, through the observation of real images or models and through the analysis of diagrams, graphs or maps; Compare the spatial planning of different spaces; Communicating learnt content through oral, written and graphic forms of expression.			
Specific learning objectives	Define the concept of economic globalisation. Analysing the globalisation process in terms of causes and effects. Examine the consequences of the globalisation crisis. Understand the impact of globalisation on different regions of the world. Analysing the process and drivers of change in the global geography of work. Recognise scientific and technological research as the engine of development in the most advanced countries. Understand the meaning of 'global village'. Examine the different aspects of inequalities in today's world with regard to wealth distribution, food, agriculture and trade, health and education, gender and child gaps, and development aid.			
Users	Pupils in the first classes			
Prerequisites	Being able to read a text carefully, identifying its fundamental concepts Knowing how to compare and correlate information Knowing how to use the strategies and tools necessary for understanding texts Knowing how to explore reality Contents of previous teaching units.			
Interdisciplinary links	Integrated Sciences (Chemistry), Italian, English.			
Period of application	APRIL - MAY			
Times	9 hours			
Step sequence and content	U.D.1 Globalisation and its current crisis. The new world economic geography. Multinationals and the new geography of work. Advanced technology productions. The global village. U.D.2 The gap between rich and poor today. Does world hunger still exist? Imbalances in the primary sector and global trade Imbalances in health and education Gender gaps and children's rights Development aid and the new millennium goals.			
Methods	Frontal lesson Participatory lesson Collective reading of the text and comprehension exercises Flipped classroom Group work Peer education			





	Peer tutoring			
	DAD			
	Manuals			
	Audiovisual documents			
	Computer supports			
	Internet			
Tools	Descriptive maps			
	Personal computer			
	Viva Class			
	Oral examinations in presence or via GSuite platform, in the form of a question,			
	interview, conversation or return of work done			
	Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite			
	platform, in synchronous or asynchronous mode			
	Practical tests, to be carried out in person or via GSuite platform.			
Evaluation Criteria and	Reality tasks, to be carried out in presence or via GSuite platform.			
Modalities	Oral and written tests (entry test, end-of-module test)			
	Individual assessment of acquired competences (Pollock grid)			
	Observation and evaluation tables			
	Correction of exercises carried out at home and at school			
	Comprehensive group assessment through tests everyises questionnaires summaries			
	Comprehensive group assessment unough tests, exercises, questionnaires, summaries,			
	oral expositions and guided dialogues.			



The application period given for each subject is purely indicative and may vary according to the needs of the classes.

	Evaluation rubric for the	"Task/Product"	' in the individual modules	, according to EU	J competences:
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Claille	Evidence	Mastery level			
SKIIIS	Evidence	initial	base	intermediate	advanced
Expertise alphabetical functional	The student understands and use the information derived from documents of various kinds	only if driven	so autonomous but elementary	so suitable	with full awareness
	The student communicates orally	so approximate	so elementary	so suitable	richly and effective
	communicates in written form	approximate	elementary	suitable	and effective
	Media	D	С	В	А
Expertise staff, social and ability to learn to learn	The student recognises, selects, analyses and compare the information and the derived knowledge from experience staff and other	only if driven	so autonomous but elementary	so suitable	so organised and critic
	The student works with the others	so passive	with tasks by executor	acts so proactive and makes decisions	it is assumed responsibility, mediates and facilitates the work of the comrades
	Media	D	С	В	А
Expertise with regard to citizenship	The student acts as responsible citizen and participates fully to life civic and social	must be induced to respect for rules of life associated	respects the rules of life associated	acts in the context associate so responsible and constructive	so fully responsible and constructive demonstrating internalisation of the rules of the associated life
	Media	D	С	В	А
Expertise Digital	The student knows operation and the basic use of different devices, software and networks	poorly aware	so mechanic	so aware	so critic
	The student uses digital technologies as an aid to active citizenship and social inclusion, the collaboration with the	with the help of of comrades	so mechanical but autonomous	so aware	with contributions critics and creatives







others and creativity				
Media	D	С	В	А

Overall mastery level count

COMPETENCE	EVALUATION			
Alphabetical competence Functional	D= 1	C= 2	B= 3	A= 4
Personal competence, social and learning to learn	D= 1	C= 2	B= 3	A= 4
Relevant competence of citizenship	D= 1	C= 2	B= 3	A= 4
Digital competence	D= 1	C= 2	B= 3	A=4
Total sum				

Conversion table for evaluation in tenths

OVERALL LEVEL	EVALUATION IN TENTHS
4	4
5	4 1/2
6	5
7	51/2
8	6
9	61/2
10	7
11	71/2
12	8
13	81/2
14	9
15	91/2
16	10





ITA 'Emilio Sereni

PROGRAMMING CLASS ONE - CURRICULUM

Technology and techniques of graphic representation

PROGRAMMING

Graphic representation technology and techniques

MODULE 1	TECHNOLOGY	
DENOMINATION	MEASURING SYSTEMS AND INSTRUMENTS	
TASK/PRODUCT	• Measuring objects with various instruments	
TRAINING OBJECTIVES	• Must be able to choose measuring instruments according to the different types of measurement	
TARGETED SKILLS	<i>S</i> • <i>Knowledge and mastery of measuring instruments</i>	
SPECIFIC LEARNING OBJECTIVES	• Finding materials, sorting and cataloguing them	
	• Knowing how to compare and correlate information	
USERS/RECIPIENTS	First two-year class	
PREREQUISITES	• Having acquired basic concepts of mathematics and Euclidean geometry	
PERIOD OF APPLICATION	September-October-November	
TIMES(*)	 8 hours divided as follows 3 hours for learning 3 hours for practical exercises 1 hour for recovery and reinforcement of basic concepts 1 hour verification and evaluation 	
PHASED SEQUENCE	 1st phase: UDA presentation and prerequisite recovery 2nd phase: Explanation using the book 3rd phase: Practical exercise 4th phase: Recovery and reinforcement of basic concepts 5th phase: Verification and Evaluation 	
CONTENTS	 Measurement concept Unit systems Main measuring instruments 	
METHODS	Individual and group workWorkshop	
INSTRUMENTS	TextbookMeasuring instruments	
HUMAN RESOURCES AND RELATED TASKS	TeacherITP	
EXPERIENCES	Measuring objects with various instrumentsCataloguing collected data	





EVALUATION CRITERIA AND MODALITIES	On-going evaluations	
	• Individual assessment of acquired competences (Pollock grid)	
	Global evaluation of learners	





MODULE 2	TECHNOLOGY	
DENOMINATION	MATERIALS IN INDUSTRIAL PRODUCTION	
TASK/PRODUCT	Final Report	
TRAINING OBJECTIVES	 Knowing how to observe and choose a suitable material for the development of a project Understanding the interaction between environment and materials 	
TARGETED SKILLS	• Know the origin, basic properties and most common uses of the main materials used in industrial production	
SPECIFIC LEARNING OBJECTIVES	Using different information sources correctlyKnowing how to compare and correlate information	
USERS/RECIPIENTS	First two-year class	
PREREQUISITES	• Possess sufficient general knowledge acquired in the previous cycle of studies	
PERIOD OF APPLICATION	• November-December-January-February-March-April-May	
TIMES(*)	 28 hours divided as follows: 18 hours for learning 5 hours for recovery and reinforcement of basic concepts 5 hours of verification and evaluation 	
PHASED SEQUENCE	 Ist phase: UDA presentation and prerequisite recovery 2nd phase: Explanation, using the book and video, or production of material by pupils 3rd phase: Recovery and strengthening 4th phase: Verification and Evaluation 	
CONTENTS	 THE Wood Metallic materials (iron and its alloys, non-ferrous metallic materials) Sintered materials Plastics Building materials in construction 	
METHODS	 Individual and group work Flipped Open or parallel class work 	
INSTRUMENTS	TextbookMultimedia tools	
HUMAN RESOURCES AND RELATED TASKS	 Teacher ITP 	
EXPERIENCES	• Research, classification and comparison of materials	
EVALUATION CRITERIA AND MODALITIES	 On-going evaluations Individual assessment of acquired competences (Pollock grid) Global evaluation of learners 	





MODULE 1	TECHNICAL DRAWING	
DENOMINATION	DRAWING AS A LANGUAGE	
TASK/PRODUCT	Bibliographic researchGraphical tables	
TRAINING OBJECTIVES	 The student must know the milestones in the historical evolution of design Must be familiar with the various types of design Must understand the importance of design 	
TARGETED SKILLS	 Knowing how to use technical drawing tools correctly Knowledge of basic graphic conventions 	
SPECIFIC LEARNING OBJECTIVES	Acquisition of the typical language of the disciplineUnderstanding a graphic design	
USERS/RECIPIENTS	• First two-year class	
PREREQUISITES	• Possess sufficient general skills acquired in the previous cycle of studies	
PERIOD OF APPLICATION	September - October	
TIMES(*)	 8 hours divided as follows 6 hours for learning and graphic exercises 1 hour for recovery and reinforcement of essential concepts 1 hour verification and evaluation 	
PHASED SEQUENCE	 Ist phase: UDA presentation and prerequisite recovery 2nd phase: Explanation using book, blackboard and computer 3rd phase: Graphic exercises 4th phase: Recovery and reinforcement of basic concepts 5th phase: Verification and Evaluation Visual Communication The drawing Technical drawing Graphic Standards and Conventions Dimensional scales 	
METHODS	Individual and group work	
INSTRUMENTS	TextbookTechnical drawing material	
HUMAN RESOURCES AND RELATED TASKS	• Teacher	
EXPERIENCES	Research workGraphic exercises	
EVALUATION CRITERIA AND MODALITIES	 On-going evaluations Individual assessment of acquired competences (Pollock grid) Overall assessment of individual learners 	





MODULE 2	TECHNICAL DRAWING
DENOMINATION	PLANE GEOMETRY CONSTRUCTIONS
TASK/PRODUCT	• Produce a graphic work respecting graphic conventions
TRAINING OBJECTIVES	• The ability to formalise graphically, according to given conventions, the representation of the plan
TARGETED SKILLS	• Knowing how to correctly represent plane figures
SPECIFIC LEARNING OBJECTIVES	• Knowing how to apply and use geometric constructions for drawing theoretical models or real objects
USERS/RECIPIENTS	• First two-year class
PREREQUISITES	 Knowing and being able to use technical drawing tools correctly Knowing and being able to apply basic graphic conventions
PERIOD OF APPLICATION	October-November-Decembe
TIMES(*)	 8 hours divided as follows 6 hours for learning and graphic exercises 1 hour for recovery and reinforcement of essential concepts 1 hour verification and evaluation
PHASED SEQUENCE	 Ist phase: UDA presentation and prerequisite recovery 2nd phase: Explanation with graphic examples 3rd phase: Graphic exercises 4th phase: Recovery and reinforcement of basic concepts 5th phase: Verification and Evaluation
CONTENTS	 Elementary constructions of plane geometry Applications of plane geometry constructions
METHODS	Individual work
INSTRUMENTS	 Textbook Technical drawing material
HUMAN RESOURCES AND RELATED TASKS	Teacher
EXPERIENCES	Targeted graphic exercises
EVALUATION CRITERIA AND MODALITIES	 On-going evaluations Individual assessment of acquired competences (Pollock grid) Overall assessment of individual learners

MODULE 3	TECHNICAL DRAWING
DENOMINATION	ORTHOGONAL PROJECTIONS
TASK/PRODUCT	• Produce a graphic work respecting graphic conventions
TRAINING OBJECTIVES	• The ability to formalise graphically, according to given conventions, the plane representation of spatial 'objects';
	• The ability to visualise the spatial view of 'objects' from symbolic plane representations
TARGETED SKILLS	The student must be able to correctly perform Orthogonal Projections and Axonometric Projections
SPECIFIC LEARNING OBJECTIVES	 Understand that Projections. Orthogonals are fundamental to design and Axonometries to control what is designed.
	• Being able to critically apply what has been learnt
	• Knowing how to read and correctly interpret a graphic work
	• Developing an adequate capacity for abstraction





USERS/RECIPIENTS	First two-year class	
PREREQUISITES	 Knowing how to use technical drawing tools correctly Knowledge of measuring systems and instruments Knowledge of plane geometry constructions 	
PERIOD OF APPLICATION	• January - February - March - April - May	
TIMES(*)	TIMES(*) 20 hours divided as follows: 15 hours for learning and graphic exercises 2 hours for recovery and reinforcement of essential concepts 3 hours verification and evaluation	
PHASED SEQUENCE	 1st phase: UDA presentation and prerequisite recovery 2nd phase: Explanation with graphic examples 3rd phase: Graphic exercises 4th phase: Recovery and reinforcement of basic concepts 5th phase: Verification and Evaluation 	
CONTENTS	 Technical drawing as a means of expressing a project Orthogonal Projections Axonometric protections 	
METHODS	Individual work	
INSTRUMENTS	TextbookTechnical drawing material	
HUMAN RESOURCES AND RELATED TASKS	• Teacher	
EXPERIENCES	Targeted graphic exercises	
EVALUATION CRITERIA AND MODALITIES	 On-going evaluations Individual assessment of acquired competences (Pollock grid) Overall assessment of the work performed 	





MODULE 4	AUTOCAD
DENOMINATION	BASIC ELEMENTS OF 2D CAD DRAWING
TASK/PRODUCT	Drawing simple objects with Autocad
TRAINING OBJECTIVES	• Being aware of the potential of technologies with respect to the cultural and social context in which they are applied
TARGETED SKILLS	Knowing how to draw simple objects with Autocad
SPECIFIC LEARNING OBJECTIVES	 Knowing the basic features and commands of Autocad Getting to know the capabilities of Autocad
USERS/RECIPIENTS	• First two-year class
PREREQUISITES	 Knowing the basic graphic standards of technical drawing Being able to use operating system commands with sufficient autonomy
PERIOD OF APPLICATION	• All year round
PHASED SEQUENCE	 Ist phase: Exercise presentation and prerequisite recovery 2nd phase: Explanation with practical examples 3rd phase: Guided exercise 4th phase: In itinere verification 5th stage Recovery and reinforcement of basic knowledge 6th phase: Verification and Evaluation
CONTENTS	 Starting the programme and activating commands Design organisation Drawing with Autocad Drawing commands Editing and construction commands
METHODS	Individual work in the topography laboratory
INSTRUMENTS	TextbookComputers
HUMAN RESOURCES AND RELATED TASKS	• Teacher
EXPERIENCES	Guided exercises
EVALUATION CRITERIA AND MODALITIES	 On-going evaluations Individual assessment of acquired competences (Pollock grid) Global evaluation of learners

(*) The timing and division of the hours may change as the pandemic develops. Lecture hours could be partly or totally replaced by distance learning, synchronous or asynchronous.

ITA 'Emilio Sereni

PROGRAMMING CLASS ONE - CURRICULUM

Information Technologies - Information Technologies

PROGRAMMING

Information Technology

Basic skills at the end of compulsory education





The teaching of the subject of Information Technology in the first year has as its primary aim that of enabling students to acquire the basic skills mentioned below:

- Recognise the functional characteristics of a computer (calculation, processing, communication)
- Recognise and use the basic functions of an operating system
- ◆ Use elementary writing, calculation, graphics, web applications
- ✤ Gathering, organising and representing information
- ✤ Set up and solve problems using block diagrams and simple algorithms
- Using the Internet to search for information
- ✤ Using the network for interpersonal communication activities
- Recognising the limits and risks of network use.

WHAT THE TEACHER DOES	WHAT THE PUPIL DOES	SKILLS/ABILITIES PROMOTED
 Introduces the unit, defines its aims and objectives Guiding pupils in the reading and global comprehension of the text Uses the tools Explains the key nodes of each segment of the learning pathway Check, evaluate and plan the recovery phase 	 Acquires awareness of the path to be followed Outline the steps of the process related to the O.A.U. Learn to use tools and organise their work also in terms of time Learn to use information technology Identifies the characteristics of an electronic computer 	 Learning to use the typical language of the discipline in written and oral production Learning to work within a team Interacting with peers and the teacher Relating one's knowledge - experience to the peer group Acquisition of the concept of 'defining Takes notes, recognising and analysing the fundamental components of the operations illustrated



MODULE I: FOUNDATIONS OF COMPUTERS and I.C.T.

PREREQUISITES

- > Elementary knowledge of basic IT concepts and a computer
- > Being able to read and express one's knowledge in appropriate language
- > Being able to solve problems, understand and interpret a text
- > Knowledge of basic mathematical and logical concepts

OBJECTIVES

Knowledge	Competences - Skills	
•Commonly used computer terminology	• Recognise and use basic computer terminology	
•Binary numbering system	• Working with numbering systems in bases other than	
•Analogue and digital	ten and recognising their usefulness in the field of	
• Structure and hardware components of a computer	computing	
•Definition and characteristics of an algorithm	• Converting numerical values from one base to another	
•Block diagrams	• Identifying the units that make up the processing	
•Fundamental constructs of structured programming	system	
• The <i>Scratch</i> language and the development of simple	• Realising simple algorithms	
programmes	 Developing computational thinking 	
	• Know how to use the <i>Scratch</i> programming	
	environment and be able to code algorithms in Scratch	

LEARNING UNITS OF MODULE I

U.D.A. 1 Basic terminology and I.C.T.

- U.D.A. 2 Numbering systems
- U.D.A. 3 Computer architecture and computer types
- U.D.A. 4 Data protection
- U.D.A. 5 Algorithms
- **U.D.A. 6** Control structures

U.D.A. 7 Development environment and visual programming language *Scratch* (computational thinking and problem solving)

	Contents	
U.D.A. 1 1. What is Information Technology and I.C.T.		What is Information Technology and I.C.T.
	2.	Hardware and Software
	3.	Information and data
	4.	Bits and Bytes
	5.	Analogue and digital
	6. Coding systems (ASCII)	
U.D.A. 2	7.	Numbering systems
	8.	Binary -Optal - Hexadecimal
	9.	Binary/decimal conversion
	10.	Decimal/binary conversion
U.D.A. 3	11.	Hardware structure of a computer
	12.	Conceptual diagram of the elaboration process
	13.	The Processor
	14.	Main memories







	15. The Auxiliary Memoirs/Massa
	16. The units for measuring memory capacity
	17. The Input Units
	18. The Output Units
	19. The I/O units
	20. Computer types
	21. Information technology and society
U.D.A. 4	22. Data Security
	23. Viruses and antivirus
	24. Software Rights
	25. Technological Worlds: Open Source and Freeware
U.D.A. 5	26. What is an algorithm
	27. Characteristics of algorithms
	28. The representation of algorithms: block diagram and pseudocoding
	29. From algorithm to programme
UDA 6	30 Sequence
0.2.11.0	31 Simple selection
	32 Iteration
	33 Designing simple algorithms with control structures
	55. Designing simple algorithms with control structures
U.D.A. 7	34. Introduction and account creation for using
	35. Scratch 2.0 programme interface and objects
	36. Operations for creating, opening, saving and closing a project in Scratch
	37. Control structures in Scratch

METHODOLOGY

- Frontal and participatory lesson
- Interactive lesson
- Individual and group laboratory exercises
- Individual consolidation work.

INSTRUMENTS

- Textbook
- Personal Computer
- Notes
- Specific sites
- Internet searches
- Dispensatory and compensatory tools for students with BES (cf. student's PDP drawn up by the C.d.C.; ref. Law 170/2010 and C.M. no. 8 of 06-03-2013)
- Computer aids

CRITERIA AND MODALITIES OF EVALUATION

- In itinere verifications through short questions are foreseen
- Structured verification tests
- Control of laboratory exercises
- Correction of exercises and/or homework assignments
- A summative assessment is envisaged at the end of the module, which may be carried out using the following instruments: structured tests, laboratory practical test, written test, oral test. The assessment of the summative tests





takes into account the grid defined within the subject department.

• For BES students, the assessment will take into account the students' strengths and weaknesses and will be calibrated against the PDP.

TIMES

September/October

MINIMUM END-OF-MODULE OBJECTIVES

Know the main terms used in computing and know the hardware structure of a computer.





MODULE II: THE OPERATING SYSTEM - COMPUTER USE AND FILE MANAGEMENT

PREREQUISITES

> Knowing how to recognise and use the hardware structures of a computer.

OBJECTIVES

Knowledge	Competences - Skills
• Basic characteristics and functions of a processing	• Identifying the basic functions of an operating system
system	• Becoming familiar with the use of a PC
• Overview of the processing system and operating logic	• Working with the graphical interface
• WINDOWS operating system	• Knowing how to work with windows: recognising the
• Difference between data and information	various parts of a window
• Files, Folders and Subfolders	• Knowing how to organise files: understanding the
• File properties	concept and basic structure of folders and subfolders
	• Creating folders, subfolders, knowing how to rename,
	copy and move them
	•Copying and pasting files
	• Use cut and paste functions; use the ' <i>search</i> ' tool to locate
	files or folders, including advanced searches
	• Knowing how to compress a file
	• Being aware of the choices made during laboratory
	exercises

LEARNING UNITS OF MODULE II

U.D.A. 1 The Operating System

U.D.A. 2 Using computers

U.D.A. 3 Files and their management

		Contents
U.D.A. 1	1.	Basic and application software
	2.	The operating system as a resource manager
	3.	The WINDOWS operating system and notes on other OSs
	4.	The standard application interface
U.D.A. 2	5.	GUI features
	6.	The Start Menu
	7.	The desktop
	8.	Windows icons and windows
	9.	The online help
	10.	Control Panel
	11.	Devices and printers
U.D.A. 3	12.	Files, types and their extensions
	13.	Storage units
	14.	The Structure of Explore Resources
	15.	File system
	16.	Management and operations with files and folders
	17.	Drag and drop' technique
	18.	Searching for a file



19. File Compression

METHODOLOGY

- Frontal and participatory lesson
- Interactive lesson
- Individual and group laboratory exercises
- Individual consolidation work.

INSTRUMENTS

- Textbook
- Personal Computer
- Notes
- Specific sites
- Internet searches
- Dispensatory and compensatory tools for students with BES (cf. student's PDP drawn up by the C.d.C.; ref. Law 170/2010 and C.M. no. 8 of 06-03-2013)
- Computer aids

CRITERIA AND MODALITIES OF EVALUATION

- In itinere verifications through short questions are foreseen
- Structured verification tests
- Control of laboratory exercises
- Correction of exercises and/or homework assignments
- A summative assessment is envisaged at the end of the module, which may be carried out using the following instruments: structured tests, laboratory practical test, written test, oral test. The assessment of the summative tests takes into account the grid defined within the subject department.
- For BES students, the assessment will take into account the students' strengths and weaknesses and will be calibrated against the PDP.

TIMES

October/November

MINIMUM END-OF-MODULE OBJECTIVES

Know what an OS is, know how to perform elementary operations with a PC and know how to use the main functions for organising files.





MODULE III: THE SPREADSHEET (EXCEL)

PREREQUISITES

- Recognising basic computer terminology
- > Knowing how to interact with the Windows operating system interface
- > Knowing how to use the main functions for organising files
- > Being able to solve problems and understand a text of medium complexity
- > Knowledge of basic mathematical and logical concepts

OBJECTIVES

Knowledge	Competences - Skills
 Knowledge of the Excel work 	 Knowing how to perform basic operations
environment	in a worksheet
 Knowing the basic options of the 	• Using a spreadsheet to process and present
multifunction bar	numerical and statistical data in an
• Know the meaning of the main commands	appropriate form
in the multifunctional tab bar	• Knowing how to use and implement
• Knowing the difference between formula	predefined formulae and functions
and function	• Knowing how to make tables and graphs
• Know the difference between relative and	• Being able to read graphs and derive information from
absolute reference	data
• Tables and graphs	• Knowing how to set up a worksheet for printing
	• Being aware of the choices made during laboratory
	exercises
	• Knowing how to work in a team

LEARNING UNITS OF MODULE III

U.D.A. 1 The Microsoft Excel spreadsheet

- U.D.A. 2 Creating and archiving a workbook
- U.D.A. 3 Formulas and functions
- U.D.A. 4 Graphs

U.D.A. 5 The press

		Knowledge
U.D.A. 1	A. 1 1. What is a spreadsheet and what it is used for	
	2.	Excel spreadsheet structure and interface
	3.	Main Window Features
	4.	Cell addresses and ranges
U.D.A. 2	5.	Saving, opening and deleting a workbook
	6.	Working with worksheets
	7.	Data entry, editing and selection
	8.	Copy, Cut and Paste
	9.	Assigning names to cells
	10.	Organising cells, rows and columns
	11.	Move cells and sort data
	12.	Resizing rows and columns
	13.	Deleting or adding rows and columns
	14.	Formatting text and numbers
	15.	Inserting text, images and comments







U.D.A. 3	16.	Difference between formula and function
	17.	Creating formulas and functions
	18.	Arithmetic, logical, reference operators
	19.	Entering formulas for performing simple calculations
	20.	Data series and automatic filling
	21.	Relative, absolute and mixed references
	22.	The functions SUM; MAX; MIN; etc.
	23.	Percentage calculations
	24.	Statistical functions: AVERAGE; COUNT.IF; COUNT.NUMBERS; COUNT.VALUES
	25.	The logical functions: SE; E; O
U.D.A. 4	26.	Meaning of table as starting point of a graph
	27.	Graph types
	28.	Creating a graph (recommended graphs)
	29.	Construction of the data set
	30.	Changing the Graph Type
	31.	Graph formatting and options
U.D.A. 5	32.	Basic Printing Options
	33.	Print Preview
	34.	Print area
	35.	Printing a worksheet or an entire folder
	36.	Printing a part of the worksheet or a finite set of cells

METHODOLOGY

- Frontal and participatory lesson
- Interactive lesson
- Individual and group laboratory exercises
- Individual consolidation work.

INSTRUMENTS

- Textbook
- Personal Computer
- Notes
- Specific sites
- Internet searches
- Dispensatory and compensatory tools for students with BES (cf. student's PDP drawn up by the C.d.C.; ref. Law 170/2010 and C.M. no. 8 of 06-03-2013)
- Computer aids

CRITERIA AND MODALITIES OF EVALUATION

- In itinere verifications through short questions are foreseen
- Structured verification tests
- Control of laboratory exercises
- Correction of exercises and/or homework assignments
- A summative assessment is envisaged at the end of the module, which may be carried out using the following instruments: structured tests, laboratory practical test, written test, oral test. The assessment of the summative tests takes into account the grid defined within the subject department.
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TIMES

November/January





MINIMUM END-OF-MODULE OBJECTIVES

Knowing what a spreadsheet is and its uses, being able to perform elementary operations with cells, knowing how to implement simple formulas and functions.



MODULE IV: WORD PROCESSING

PREREQUISITES

- ➢ Knowing how to read a text
- > Knowing how to use a mouse, keyboard and other standard peripherals
- > Knowing how to interact with the operating system interface
- > Knowing how to use the main functions to manage files and folders

OBJECTIVES

Knowledge	Competences - Skills	
Word processing	• Knowing what Word processors are and what they are	
• The working environment of Word and other Word	used for	
processors	 Knowing how to edit a document by moving and 	
• Meaning of the main multifunction bar commands	copying text passages	
• Basic group options in the ribbon	• Knowing how to align a text	
• Formatting a text document	• Knowing how to assign the main types of formatting (font type, size, style and colour) to a text	
	• Knowing how to work with existing text documents	
	 Knowing how to apply formatting to a document with particular specifications 	
	• Knowing how to work with tables and graphic objects	
	 Knowing how to prepare a document for printing 	
	• Being aware of the choices made during laboratory	
	exercises	
	• Knowing how to work in a team	

LEARNING UNITS OF MODULE IV

U.D.A. 1 Word processing and main Word commands

U.D.A. 2 Creating and formatting documents

		Contents
U.D.A. 1	1.	What a Word processor is for
	2.	Types of word processors
	3.	The Microsoft Word Interface
	4.	The features of the main window
	5.	The multifunction bar
	6.	Creating, saving and editing a document
	7.	The various formats for saving
	8.	The selection of words, lines, paragraphs in the document
	9.	Cut/Copy/Paste
U.D.A. 2	10.	Page formatting
	11.	Paragraph formatting: alignments, indents and spacing
	12.	Operations to change font type and size, colour, highlighter and text effects
	13.	The copy format function
	14.	Show All' command (hidden paragraph marks and formatting symbols)
	15.	Bulleted and numbered lists
	16.	Page, column and section breaks
	17.	Line spacing







Γ	18. Tabulations
l	19. Hyphenation
l	20. The Header and Footer
l	21. Edges and backgrounds
l	22. Find' and 'replace' command
l	23. Spell-checking
l	24. Tables
l	25. Images and graphic objects
l	26. Printing a document

27. Union print

METHODOLOGY

- Frontal and participatory lesson
- Interactive lesson
- Individual and group laboratory exercises
- Individual consolidation work.

INSTRUMENTS

- Textbook
- Personal Computer
- Notes
- Specific sites
- Internet searches
- Dispensatory and compensatory tools for students with BES (cf. student's PDP drawn up by the C.d.C.; ref. Law 170/2010 and C.M. no. 8 of 06-03-2013)
- Computer aids

CRITERIA AND MODALITIES OF EVALUATION

- In itinere verifications through short questions are foreseen
- Structured verification tests
- Control of laboratory exercises
- Correction of exercises and/or homework assignments
- A summative assessment is envisaged at the end of the module, which may be carried out using the following instruments: structured tests, laboratory practical test, written test, oral test. The assessment of the summative tests takes into account the grid defined within the subject department.
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TIMES

January/February

MINIMUM END-OF-MODULE OBJECTIVES

Operate in word using main formatting functions for a text document.



MODULE V: NETWORKS - WEB AND COMMUNICATION

PREREQUISITES

- > Know how to use mouse, keyboard and other standard peripherals
- > Knowing how to interact with the operating system interface
- Knowing how to manage files and folders
- ➤ Knowing the most common file extensions
- > Be in possession of an e-mail address and a network connection

OBJECTIVES

Knowledge	Competences - Skills	
• Characteristics and organisation of computer networks	• Knowing how to identify the various devices in a	
• The modalities of data transmission	network	
• Internet and the WWW	• Knowing how to surf the Internet using a browser	
Browsers and Search Engines	• Knowing how to use the Internet for research and	
• Electronic Mail	interpersonal communication activities	
• Knowing the risks and limitations in using the Internet	• Using the main functions provided by an e-mail	
	programme	
	• Knowing how to send and receive messages with	
	attachments	
	• Knowing how to use the e-mail address book and how	
	to organise various messages	
	• Knowing how to save, print web pages and download	
	files from the Internet	

LEARNING UNITS OF MODULE V

U.D.A. 1 Computer networks

U.D.A. 2 Searching and surfing the Internet

U.D.A. 3 Communicating via e-mail

		Contents
U.D.A. 1	1.	The structure and types of computer networks
	2.	The modalities of data transmission
	3.	The topology of networks
	4.	The components of networks
U.D.A. 2	5.	Internet and its services
	6.	World Wide Web
	7.	The transmission protocol
	8.	Search Engines
	9.	Browsers
	10.	Searching for information on the web
	11.	Operations on web pages
U.D.A. 3	12.	Electronic mail and PEC
	13.	The e-mail message
	14.	Sending attachments
	15.	The Contact Directory
	16.	E-mail and privacy



METHODOLOGY

- Frontal and participatory lesson
- Interactive lesson
- Individual and group laboratory exercises
- Individual consolidation work.

INSTRUMENTS

- Textbook
- Personal Computer
- Notes
- Specific sites
- Internet searches
- Dispensatory and compensatory tools for students with BES (cf. student's PDP drawn up by the C.d.C.; ref. Law 170/2010 and C.M. no. 8 of 06-03-2013)
- Computer aids

EVALUATION CRITERIA AND MODALITIES

- In itinere verifications through short questions are foreseen
- Structured verification tests
- Control of laboratory exercises
- Correction of exercises and/or homework assignments
- A summative assessment is envisaged at the end of the module, which may be carried out using the following instruments: structured tests, laboratory practical test, written test, oral test. The assessment of the summative tests takes into account the grid defined within the subject department.
- For BES students, the assessment will take into account the students' strengths and weaknesses and will be calibrated against the PDP.

TIMES

March/April

MINIMUM END-OF-MODULE OBJECTIVES

Know how to use any browser, know how to use and search for information on the Internet, know how to send and receive messages with e-mail attachments.




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MODULE VI: MULTIMEDIA PRESENTATIONS (Power Point)

PREREQUISITES

- ➢ Knowing how to interact with the operating system interface
- ➤ Knowing how to use the main functions for organising files
- Knowing how to apply basic text formatting
- > Synthesis skills

OBJECTIVES

Knowledge	Competences - Skills
• Knowing the meaning of multimedia, hypertext and	• Being able to work with information, documents and
hypermedia	multimedia objects
• Knowing the peripherals and modes of sound, image	• Using software applications to organise and present
and video capture	multimedia information in public
 PowerPoint working environment 	• Knowing how to design the structure of a presentation
• Slide structures	ensuring easy orientation and conveying information
• Hyperlinks	in a meaningful way
• Know the criteria for creating a multimedia	• Knowing how to set up different types of slide layouts
presentation	• Knowing how to insert images, films and sounds
	 Knowing how to create hyperlinks
	• Setting up a reading path using navigation buttons
	• Being able to add set and customised animations
	• Being able to choose the type of slide transition

LEARNING UNITS OF MODULE VI

U.D.A. 1 Multimedia tools

U.D.A. 2 Creating and setting up a presentation

U.D.A. 3 Presentations with effects and animations

		Contents
U.D.A. 1	1.	Multimedia
	2.	The sounds
	3.	Digital images
	4.	Digital video
U.D.A. 2	5.	What is a multimedia presentation
	6.	Microsoft Power Point interface
	7.	The possible uses of a presentation
	8.	Slide layout and structure
	9.	Display modes
	10.	Slide operations (insert, copy, move and delete)
U.D.A. 3	11.	The insertion of images, films and sounds
	12.	Action buttons
	13.	Slide Transition
	14.	Customised animations
	15.	Hyperlinks
	16.	Starting the presentation

METHODOLOGY

• Frontal and participatory lesson



- Interactive lesson
- Individual and group laboratory exercises
- Individual consolidation work.

INSTRUMENTS

- Textbook
- Personal Computer
- Notes
- Specific sites
- Internet searches
- Dispensatory and compensatory tools for students with BES (cf. student's PDP drawn up by the C.d.C.; ref. Law 170/2010 and C.M. no. 8 of 06-03-2013)
- Computer aids

CRITERIA AND MODALITIES OF EVALUATION

- In itinere verifications through short questions are foreseen
- Structured verification tests
- Control of laboratory exercises
- Correction of exercises and/or homework assignments
- A summative assessment is envisaged at the end of the module, which may be carried out using the following instruments: structured tests, laboratory practical test, written test, oral test. The assessment of the summative tests takes into account the grid defined within the subject department.
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TIMES

May/June

MINIMUM END-OF-MODULE OBJECTIVES

Know the term multimedia and presentation, know how to work with PowerPoint using main functions for creating slides and their presentation.







ITA 'Emilio Sereni PROGRAMMING CLASS ONE - CURRICULUM Italian Language and Literature - Italian Language and Literature

Prof. Cinzia Maggio

PROGRAMMING

Italian Language and Literature

WHAT THE TEACHER DOES	WHAT THE PUPIL DOES	SKILLS/ABILITIES
 Presenting the UD Defines the goals and objectives, guides learners to reading and overall comprehension of the text, uses the tools provided, explains the key points of each segment of the learning path, verifies, evaluates and plans the remedial phase 	 It acquires awareness of the path to be followed, Outline the process steps related to the UD They learn to use tools and organise their work also in terms of time. 	 Learning to use the typical language of the discipline in written and oral production. Learning to work within a team. Taking notes during a lecture Interacting with peers and the teacher Relating one's knowledge- experience to the group

ITALIAN LANGUAGE DISCIPLINARY OBJECTIVES - FIRST TWO YEARS

- Reading and understanding texts on everyday life topics.
- Identifying the overall meaning of short messages from the mass media (radio, cinema, TV).
- Understand the main and specific information of oral messages on topics of everyday, personal, social interest.
- Interact in short, simple conversations.
- Express oneself, orally and in writing, effectively and appropriately on general topics, appropriate to the context and situation.
- Producing texts of a personal and imaginative nature, and texts for use.
- Identify and make appropriate use of linguistic structures and mechanisms operating at different levels: textual, semantic-lexical, phonological and morpho-syntactic.
- Identify the specific cultural contribution of the Italian language and compare it with that of other languages.
- Use specific vocabulary on topics of literary theory, language functions and fundamental grammatical structures.
- Producing written and oral messages.
- Reflecting on language from an intercultural and interlinguistic comparative perspective.
- Using dictionaries.





DEPARTMENTAL TEACHING DESIGN OF ITALIAN LANGUAGE AND LITERATURE Class I sec. A

Lecturer: Prof. Cinzia Maggio

	UDA	A WRITING WORKSHOP				
		THE DESCRIPTIVE TEX	T: MYSELF AND	OTHERS		
	OBJECTIVES	• Using different linguistic medic	a and forms of commun	ication responsibly.		
		• Being aware of the value of eve	eryone's contribution w	ithin a team		
	SKILLS	- Mastering the expressive tools (oral and written) to manage communicative interaction in human, geographical and environmental contexts				
SPECIFIC OBJ	ECTIVES	• Interact effectively and appropriate communication;	riately at an acceptable	e level of		
		• Being able to understand basic information about the person and the environment;				
		• To be able to describe using co	llected data;			
		• Being able to understand the m	ain points of a text			
		First class				
1	PREREQUISITE	Basic grammatical knowledge;				
		• Basic use of PC and Internet browsing;				
		• Use of alctionaries, indexes and glossaries				
PERIOD OF October						
	TIME	2-3 hours per				
	SEQUENCE	• Presentation of the UD to the c	lass, using selected exc	cerpts.		
		• Lectures also with parallel class	sses on grammar, langi	uage functions related		
		to the module topic.				
		• Creation of working groups.				
		• Laboratory lessons and research, production and processing.				
		• Verification of skills and objectives				
		• Kecover				
CONTENTS		UDA 1 WRITING WORKSHOP The Descriptive Text (Me And The Others)				
		GRAMMATICS				
	LANGUAGE FUNCTIONS		SKILLS	VOCABULAR		
		LITERARY THEORY				





	 Listen Read Understan Re-elaborate Synthesise Produce 	 UDA 1 Elements of phonology UDA 2 Morphology: article, noun, adjective UDA 3 Speaking and writing: elements of communication and introduction to theory 	 Read Understand Re-elaborate Synthesise Produce 	 Unit-specific semantics Use of vocabulary as a vocabulary enrichment tool 	
METHOD	 Lectures and dialogues through the functional-communicative approach Creation of working groups (formation of groups, assignment of tasks) Problem setting, problem solving Parallel class work with open classes Individual work on the consolidation of language structures and functions Oral exposition 				
INSTRUMENT	 Adopted textbooks Dictionaries, newspapers and magazines Photocopies of materials 				
CRITERIA AND MODE OF	 Individual assessment Comprehensive gradient semi-structured term 	nent of acquired competences (roup assessment through tests, o sts, summaries, oral exposition	Pollock grid) exercises, homework corre s and guided dialogues	ection, structured and	





	UDA 2 L	LITERARY GENRES FABLE AND TALE			
TRAINING O	BJECTIVES .	Understanding the value of for the opinions of others.	f interaction in the clas.	sroom and respect	
	•	Develop an ecological min part of the world in a resp	ndset, respect for the env onsible way	vironment and feel	
TARGE	TED SKILLS -	Mastering the expressive too communicative interaction contexts	ols (oral and written) to a in human, geographica	manage 11 and environmental	
SPECIFIC LEARNI OBJECTIVES	NG .	Interact effectively and ap communication.	propriately at an accept	table level of	
		Being able to understand a environment.	basic information about	the person and the	
		To be able to describe usin	ng collected data.		
	•	Being able to understand	the main points of a text		
	•	Understanding the narrati	ve structure of the litera	ary texts examined.	
	•	• Re-elaborate and explain orally and in writing the content learned.			
		• Enrich one's vocabulary and cultural background by developing a good command of the use of dictionaries			
PRER	REQUISITES .	Grammatical knowledge			
	•	Basic PC and Internet use			
	•	 Knowing how to find one's way around reference tools: textbooks, dictionaries, newspapers 			
	PERIOD OF	November			
	TIMES	2 hours per			
	SEQUENCE .	• Presentation of the UD to the class, using excerpts chosen			
		• Frontal lessons also with parallel classes			
	•	Creation of working group	fworking groups		
		• Lectures, research, text production and editing			
		• Verification of skills and objectives achieved			
		Recovery.			
CONTENTS LANGUAGE FUNCTION		UDA 2: LITE The Fable An	RARY GENRES		
		GRAMMATICS			
		THEORY LITERARY	SKILLS	VOCABULAR	





	 Listen Read Re-elaborate Talking Write 	 UDA 1 Morphology: pronoun, adverb, preposition UDA 2 The fable: characteristics of the genre over time; lexical elements characterising the text UDA 3 The fairy tale: characteristics of the genre over time; lexical elements characterising the text 	☐ Identify the fundamental elements of narrative text analysis (fable, fairy tale, novella).	 Identifying the meaning of key words in literary production Relate the issues addressed to events and situations in the world 	
METHOD	• Lectures and die	alogues through the function	nal-communicative ap	proach	
	• Creation of working groups (formation of groups, assignment of tasks)				
	Problem setting, problem solving				
	Parallel class work with open classes				
	Group work in class				
	Individual consolidation work				
	Oral exposition and written production				
INSTRUMENT	Adopted textbooks -				
	Dictionaries, newspapers and				
	magazines				
	Photocopies	s of various materials			
EVALUATION CRITERIA	• Individual asses	sment of acquired competer	ices (Pollock grid)		
AND MODALITIES	• Assessment through structured tests, grammar and text analysis exercises, open-ended questionnaires, oral expositions and guided dialogues				





UDA	THE SHORT STORY AND THE NOVEL		
OBJECTIVES	 Using different linguistic media and forms of communication responsibly; Being aware of the value of everyone's contribution within a team 		
SKILLS	 Recognise the genres of the short story and the novel, identify their characteristics and briefly explain their evolution Recognising the themes addressed in texts belonging to the same genre, comparing the way they are developed and the different points of view proposed 		
	- Mastering the expressive tools (oral and written) so as to be able to discuss issues related to the texts and authors read		
SPECIFIC OBJECTIVES	• Interact effectively and appropriately at an acceptable level of communication;		
	• Being able to understand basic information about the person and the environment;		
	• Being able to describe using the data collected;		
	• Being able to understand the main points of a text		
PREREQUISITE	Basic grammatical knowledge;		
	• Production of summaries and simple descriptive texts;		
	• Knowing how to use the dictionary, indexes and		
PERIOD OF	December and January		
TIME	2 hours per		
SEQUENCE	• Presentation of the UD to the class, using selected excerpts.		
	• Lectures also with parallel classes on topics related to the module topic, also through the use of multimedia tools, film forums, meetings with authors.		
	• Creation of working groups.		
	• Laboratory lessons and research, production and processing.		
	• Verification of skills and objectives achieved.		
	• Recovery.		

CONTENTS		LITERAK UDA 3: The Sh	RY GENRES ort Story And The	
	FUNCTIONS	GRAMMAR AND LITERARY THEORY	SKILLS	VOCABULAR





METHOD	 Listen Read Re-elaborate Talking Write Write Lectures and dialo Creation of workin Problem setting, p Parallel class work Group work in cla Individual work on 	UDA 1 Elements of morphology: the verb, verb modes and forms UDA 2 Elements of theory literary: the short story UDA 3 History of the novel and its genders. Selected texts. rgues through the function of roblem solving k with open classes ss the consolidation of la	Recognising different literary genres and identifying their specific characteristics	Identifying keywords and fields pproach tasks) functions
INSTRUMENT	 Adopted textbooks Dictionaries, newspapers and magazines 			
	Photocopies of materials			
CRITERIA AND MODE OF	 Individual assessm Comprehensive gr questionnaires, sur 	nent of acquired compet oup assessment through mmaries, oral expositio	tences (Pollock grid) h structured tests, exerc ns and guided dialogue	rises, open-ended 25





UDA 4	MANZONI AND THE PROMESSI READING, ANALYSIS AND COMMENTARY ON THE
TRAINING OBJECTIVES	 Understanding the value of interaction in the classroom and respect for the opinions of others. Addressing the theme of travel as an opportunity to deepen
TARGETED SKILLS	 Deepen some psychological aspects of the novel's protagonists Reflecting on the value of the work as a training novel, also from a gender perspective Mastering the expressive tools (oral and written) to manage communicative interaction also in contexts
SPECIFIC LEARNING OBJECTIVES	• Interact effectively and appropriately at an acceptable level of communication.
	• Being able to understand basic information about the person and the environment.
	• To be able to describe using collected data.
	• Being able to understand the main points of a text.
	• Understanding the narrative structure of the literary texts examined
	• <i>Re-elaborate and explain orally and in writing the content learned.</i>
	• Enrich one's vocabulary and cultural background by developing a good command of the use of dictionaries
	• Interact effectively and appropriately at an acceptable level of communication.
	• Being able to understand basic information about the person and the environment.
	• To be able to describe using collected data.
	 Being able to understand the main points of a text. Understanding the narrative structure of the literary texts
	examined.
	• <i>Re-elaborate and explain orally and in writing the content learned.</i>
	• Enrich one's vocabulary and cultural background by developing a good command of the use of dictionaries.
	• Being able to grasp the function of the landscape.
	• Knowing how to use landscape description techniques in oral and written production





PREREQUISITES			• Knowledge of grammar, vocabulary and text analysis;			
			Ability to understand and analyse a text in its linguistic and metalinguistic aspects:			
			 Basic use of PC and Internet browsing: 			
			Knowing hor	v to find one's way around refe	erence tools:	
			dictionaries,	newspapers		
	PERI	OD OF	From Janua	ry		
		TIMES	1 or 2 hours pe	2r		
РНА	SED SEQ	QUENCE	• Preparation	and research of material by le	cturers and learners	
			• UD presenta	tion to the class, using selected	d excerpts	
			• Frontal lesso	ons also with parallel classes		
			Creation of v	vorking groups		
			• Lectures, res	earch, text production and edi	ting	
			• Verification	of skills and objectives achieve	24	
			• Recover			
CONTENTS			MANZON	MANZONI AND THE PROMESSI		
		U	DA 4: Reading,	ing, analysis and commentary on the		
		CRAM	MATICS AND			
		GRAM T	MATICS AND THEORY ITERARY	SKILLS	VOCABULAR	
		UDA 1	The work and	☐ Identify in texts how	□ Identify the	
		elemen	ts of theory	characters are presented	meaning of key	
		literary UDA 2	, The landscape	and characterised	words in Manzoni's poetics	
		in the n	novel		poenes	
		Manzoi	nia	• Idontifising kay		
				moments in the evolution of their inner		
				journey		
				• Updating the subject matter through in-		
				depth studies		
				thematic.		
METHOD	• Lect	tures and d	ialogues through t	he functional-communicative a	pproach	
	• Creation of working groups (fo			nation of groups, assignment o	f tasks)	
	• Prot	blem settin	g, problem solving			
	• Pare	Parallel class work with open classes				
	• Gro	up work in	class			
	• Indi	viaual con:	solidation work	uction		
	• Ora	i expositioi	i ana written prodi	d written production		





INSTRUMENT	 Adopted textbooks Dictionaries, newspapers and magazines
	Audiovisual material
	Educational visits
	Photocopies of various materials
CRITERIA AND	Individual assessment of acquired competences (Pollock grid)
MODALITIES	• Assessment through structured tests, grammar and text analysis exercises, open-ended questionnaires, oral expositions and guided dialogues





UDA 5	MYTHOLOGY AND EPIC 'THE JOURNEY THROUGH MYTHOLOGY AND CLASSICAL EPICS
TRAINING OBJECTIVES	 Understanding the value of interaction in the classroom and respect for the opinions of others. Addressing the theme of travel as an opportunity to deepen self- knowledge
TARGETED SKILLS	 To know the symbolic value of mythological tales of different peoples in an intercultural perspective. Reflecting on myth as a means of knowledge and celebration of the origins of a people whose values it embodies. Know the assumptions about Homer's existence. Getting to know the main features of the Homeric poems through selected passages relevant to the module's theme
SPECIFIC LEARNING OBJECTIVES	Interact effectively and appropriately at an acceptable level of communication

level of communication.
 Being able to understand basic information about the person and the environment.
• To be able to describe using collected data.
• Being able to understand the main points of a text.
• Understanding the narrative structure of the literary texts examined.
• <i>Re-elaborate and explain orally and in writing the content learned.</i>
• Enrich one's vocabulary and cultural background by developing a good command of the use of dictionaries
• Knowledge of grammar, vocabulary and text analysis;
• Ability to understand and analyse a text in its linguistic and metalinguistic aspects;
• Basic use of PC and Internet browsing;
 Knowing how to find one's way around reference tools: dictionaries, newspapers
March - May
1-2 hours per





	PHASED SEQUENCE	 Preparation and research of material by lecturers and learners 			
	• • •	• Presentation of the UD to the class, using excerpts chosen			
	•	Frontal lessons also with para	llel classes		
	•	Creation of working groups			
	•	Lectures, research, text produc	tion and editing		
	•	Verification of skills and object	tives achieved		
	•	Recover			
CONTENTS	M	YTHOLOGY AND			
	UDA 5: The Journ	ey in Mythology and Class	ical Epics		
	GRAMMATIC				
	LITERARY THEORY	SKILLS	VUCADULAK		
	 UDA 1 The story mythological and its meanings UDA 2 The Homeric poems an elements of literary theory UDA 3 The Aeneid UDA 4 The lexicon: the figurative language and the semantic fields 	 Paraphrase epic and mythological text. Identify the basic elements of the narrative through the analysis of passages. 	 Identify in literary production the meaning of key words in the cultural context of the works covered. Actualising the subject matter through insights filmic, iconographic 		
METHOD	- Lectures and dialogues through the functional-communicative approach				
	 Creation of working groups (formation of groups, assignment of tasks) Problem setting, problem solving Parallel class work with open classes Group work in class Individual consolidation work Oral exposition and written production 				
INSTRUMENT	Adopted textbooks				
	Dictionaries, newspapers and magazines				
	Audiovisual material				
	Educational visits				
	• Photocopies of materials				
CRITERIA AND	• Individual assessment of acquired	competences (Pollock grid)			
MODALITIES	 Assessment through structured tests, grammar and text analysis exercises, open-ended questionnaires, oral expositions and guided dialogues 				





OBJECTIVES OF THE LANGUAGE AXIS AT THE END OF THE FIRST YEARS

- Mastery of the Italian language;
- *Mastering the expressive and argumentative tools essential for managing verbal communicative interaction in various contexts;*
- Reading, understanding and interpreting written texts of various types;
- Produce texts of various types in relation to different communicative purposes;
- Use a foreign language for the main communicative and operational purposes;
- Use the basic tools for an informed enjoyment of the artistic and literary heritage;
- Using and producing multimedia texts

The language axis aims to make the learner acquire mastery of language as written and oral reception and communication.

The aim is for the learner to acquire knowledge of the foreign language as it facilitates, in multicultural contexts, mediation and understanding of other cultures, mobility and opportunities for study and work. The language axis also aims to enable pupils to acquire knowledge and enjoyment of multiple non-verbal forms of expression and an appropriate use of information and communication technologies. Another objective to be achieved is digital competence, which enriches the possibility of access to knowledge, enables the realisation of individual learning paths and the nurturing of personal creative expression.

The integration of different languages is a fundamental tool in the acquisition of new knowledge and the interpretation of reality in an autonomous and conscious manner.







ITA 'Emilio Sereni PROGRAMMING CLASS ONE - CURRICULUM Law and Economics

PROGRAMMING Law and Economics

RIGHT

MODULE	U.D.A.	KNOWLEDGE	SKILLS	SKILLS	MINIMUM OBJECTIVES	TRANSVERS AL OBJECTIVES / DISCIPLINES INVOLVED	PERIOD	AUDITS/ASSES SMENTS U.D.A.
LEGAL SYSTEM	The legal norm	 The legal norm: structure characters Effectiveness and regulatory interpretation The hierarchy of sources and the different nature of sources 	 Mastering legal language Recognising the structure and character of the legal norm Recognising the different criteria for regulatory interpretation Recognising the different regulatory sources and identifying the hierarchy of sources of production Knowing how to identify subjects/objects of law and active/passive legal situations Knowing how to recognise the different capabilities of the physical person 	Critically relate the content learnt Listening to and understanding legal language Recognise the main regulatory sources, identifying the Constitution as the Supreme Source par excellence	 Acquisition of the value of rules in social life Acquisition of the basic elements of the legal norm 	Acquisition of the concept of citizenship: historical-legal- social profiles History Civic Ed. IRC	Second half of September- November	Multiple-choice tests/ open Oral/written papers Individual oral/written assessment Global evaluation of working groups







The l relati hip	 Iegal ions The Subjects and Object of Law The natural persor Capacity and incapacity of the natural person Legal persons and de facto entities 	 Knowing how to distinguish between absolute and relative incapacity Knowing how to recognise the distinctive features of legal persons and de facto entities Knowing how to distinguish the 	Relate the content learnt to legal and social reality Identifying the most suitable tools for processing relations and	• Acquisition of the concept of a natural person and its significance	December- first half of January	
The S	 Active and passive legal situations The State and its constituent elements From the Statuto Albertino to the Constitution The Fundamental Principles of the Constitution The rights and duties of citizens The distinction between civic duties and mandatory duties Freedom in its various constitutional expressions and its difficult journey: historical and legal profiles 	 concept of State from that of Nation Being able to identify the constituent elements of the state Being able to distinguish the different features of the Statuto Albertino from those of the Constitution, also through the historical context of reference of the two normative documents Recognising the fundamental role of the first twelve articles of the Constitution Being able to identify inviolable rights and fundamental freedoms and interpret them in a historical and legal perspective Knowing how to distinguish between civic duties and duties 	Consciously recognise their role as citizens, holders of rights- duties-freedoms, in a national and supranational context	 Acquisition of the fundamental role of the Constitution for the democratic life of a country Acquisition of the importance of the first twelve articles of the Constitution 	Second half of January- May	







ECONOMICS

MODULE	U.D.A.	KNOWLEDGE	SKILLS	SKILLS	MINIMUM OBJECTIVES	TRANSVERS AL OBJECTIVE S/ DISCIPLINE S INVOLVED	PERIOD	U.O.A. AUDITS/ASSESS MENTS
SUBJECTS AND OBJECT OF THE ECONOMY	Goods and economic needs	 Economic goods: characters and types Economic needs: characters and types 	 Mastering the language of economics Recognising characters and types of economic goods/needs Being able to identify the market concept and being able to discriminate the 	Critically relate the content learnt Listening to and understanding economic language Linking economic content to everyday reality	 Acquisition of the concept of an economic good Acquisition of the concept of need Acquisition of the distribution of the concept of the distribution of the distributic of the distribution of the dist	Acquisition of the logical- mathematical function of graphs to detect and interpret data of socio- economic reality	First half of January- first half of March Second half of	Multiple-choice tests/ open Oral/written papers Individual oral/written assessment Global avaluation
	i ne mai ket	 The market: price, the law of demand and the law of supply Market types Money: types of money Consumption, saving, investment 	 discriminate the characteristics of different types of markets Understanding the role of demand Understanding the role of supply Being able to identify the role of price and being able to determine the equilibrium price Recognising the role of money in its function and historical evolution Recognising the different meanings of 	suitable tools for processing reports and solving problem situations Understanding the value of money and the main market dynamics	 Acquisition of the concept of money and its value 	Mathematics	March-first half of May	of working groups







	consumption, saving,			
	investment			



ITA 'Emilio Sereni

PROGRAMMING CLASS ONE - CURRICULUM

Mathematics

PROGRAMMING Mathematics

MATHEMATICAL AXIS

The mathematical axis aims to enable students to acquire knowledge and skills that will enable them to make sound judgements and to know how to orient themselves consciously in the various contexts of the contemporary world.

Mathematical competence, which is not exhausted in disciplinary knowledge, nor does it only concern the operational fields of reference, consists in the ability to identify and apply procedures that allow problem situations to be expressed and addressed through formalised languages.

Mathematical competence involves the ability and willingness to use mathematical models of thinking (dialectical and algorithmic) and of graphical and symbolic representation (formulae, models, constructs, graphs, charts), the ability to understand and adequately express qualitative and quantitative information, to explore problem situations, to pose and solve problems, to design and construct models of real situations. The aim of the mathematical axis is the acquisition at the end of compulsory education of the skills necessary to apply basic mathematical principles and processes in the everyday context of the domestic sphere and at work, as well as to follow and examine the logical coherence of one's own and others' arguments in a variety of contexts of cognitive investigation and decision-making.

Basic skills at the end of compulsory education

• Use arithmetic and algebraic calculation techniques and procedures, also representing them graphically

- Compare and analyse geometric figures, identifying invariants and relationships.
- Identify appropriate strategies for problem solving.

• Analysing data and interpreting them by developing deductions and reasoning about them also with the aid of graphical representations, consciously using calculation tools and the potential offered by specific computer applications.

WHAT THE TEACHER DOES	WHAT THE PUPIL DOES	SKILLS/ABILITIES PROMOTED
 Introduces the uda, defines goals and objectives It guides learners in the reading and global comprehension of 	 It acquires awareness of the path to be followed, Outline the process steps 	• Learning to use the typical language of the discipline in written and oral production.
 Uses the tools provided, 	 Learn to use tools and organise their work also in terms of time 	 Interacting with peers and the teacher



First classes





• Explains the key nodes of each segment,	• It distinguishes an 'innate concept' from a 'definition'.	• Relating one's knowledge- experience to the peer group
 Check, evaluate and plan the recovery phase Explains in natural language the rules of operations between sets by making certain key words explicit. 	 Learn to translate symbolic language into natural language and vice versa Identifies features and invariants 	 Acquisition of the concept of 'defining Takes notes, recognising and analysing the fundamental components of the operations illustrated





NAME MODULE 0	The numbers
I^ LEARNING UNIT 2ND LEARNING UNIT	Natural and Integer Numbers The Rational and Real numbers
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Fulfil their school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 distinguish between the set of natural numbers, the set of integers and the set of rational numbers; operate on the sets N, Z, Q, and R; apply the properties of operations in simplifying expressions.
SPECIFIC LEARNING OBJECTIVES	 represent numerical sets; recognising properties; solving problems by applying mathematical concepts.
PREREQUISITES	• Basic knowledge relating to numbers
PERIOD OF APPLICATION	September -
TIMES	• 28 hours
CONTENTS	 Operations, sorting and properties in sets of natural, integer, rational and real numbers Natural numbers N, whole numbers Z, rational numbers Q, real numbers R Operations and their properties Algebraic expressions
METHODS	 Frontal and interactive lectures; Small group work in the classroom; Individual consolidation work; Blackboard exercises;





INSTRUMENTS	 Adopted textbooks Notes; blackboard.
EVALUATION CRITERIA AND MODALITIES	 The following will be assessed: possession of content, use of specific language in oral presentation, ability to apply calculation techniques in solving exercises and problems using Written and oral on-going assessments Individual assessment of acquired skills Assessment through tests, exercises, questionnaires, oral presentations and workbook check.



NAME MODULE 1	The numbers
LEARNING UNITS INTERDISCIPLINARY	Ratios and percentages
DISCIPLINES CONCERNED	Chemistry Physics TTRG Law and Economics
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 distinguish between the set of integers and the set of rational numbers; operate on the sets N, Z, Q, and R; identify appropriate strategies for solving problems in everyday situations apply the properties of operations in simplifying expressions.
SPECIFIC LEARNING OBJECTIVES	 represent numerical sets; recognising properties; solving problems by applying mathematical concepts.
PREREQUISITES	• Basic knowledge relating to numbers
PERIOD OF APPLICATION	October -
TIMES	8 hours
CONTENTS	 Ratio between two numbers Relationship between homogeneous and non-homogeneous quantities Proportions and their properties Percentages
METHODS	 Frontal and interactive lectures; Small group work in the classroom; Individual consolidation work; Blackboard exercises;
INSTRUMENTS	 Adopted textbooks Notes; blackboard.





EVALUATION CRITERIA AND MODALITIES	The following will be assessed: possession of content, use of specific language in oral presentation, ability to apply calculation techniques in solving exercises and problems using
	 Individual assessment of acquired skills Assessment through tests, exercises, questionnaires, oral presentations and workbook check.





NAME MODULE 2	Sets, relations and functions
I^ LEARNING UNIT	The sets
2ND LEARNING UNIT	Relationships and functions
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Representing sets and subsets, operate with sets; Identifying relationships between elements and sets; representing relationships; classifying and ordering; use the Cartesian plane; classifying functions; recognising directly and inversely proportional quantities
SPECIFIC LEARNING OBJECTIVES	 Use relationships and functions to describe situations associated with natural and social phenomena represent sets of objects of various natures; represent problems;
PREREQUISITES	Basic knowledge of numbers and geometric figures
PERIOD OF APPLICATION	November - December
TIMES	• 16 hours
CONTENTS	 Sets, elements and subsets The intersection between sets The union between sets Cartesian product Relations in a set The properties of relations Correspondences and functions The graph of a function Direct and inverse proportionality





METHODS	 Frontal and interactive lectures; Small group work in the classroom; Individual consolidation work; Blackboard exercises;
INSTRUMENTS	 Adopted textbooks Notes; blackboard.
EVALUATION CRITERIA AND MODALITIES	 The following will be assessed: possession of content, use of specific language in oral presentation, ability to apply calculation techniques in solving exercises and problems using Written and oral on-going assessments Individual assessment of acquired skills Assessment through tests, exercises, questionnaires, oral presentations and workbook check.



NAME MODULE 3	Literal calculation
I^ LEARNING UNIT 2ND LEARNING UNIT 3RD LEARNING UNIT	Monomials and polynomials Factor decomposition of a polynomial Algebraic fractions
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 working with monomials, polynomials and algebraic fractions; determine the M.C.D. and M.C.M. of monomials and/or polynomials; quickly calculate some remarkable products; calculating polynomial expressions; perform integer division between polynomials, factor a polynomial by choosing the most appropriate method
SPECIFIC LEARNING OBJECTIVES	• generalising a calculation using letters
PREREQUISITES	 The properties of operations in R The properties of powers The order of execution of operations and the role of brackets The algorithm of division between integers
PERIOD OF APPLICATION	January to
TIMES	• 58 hours





• Monomials
Operations with monomials
• The M C D and the m c m of monomials
Operations with polynomials
Some notable products
Literal expressions
Division between polynomials
 Decompose polynomials into factors by
highlighting
• Decomposing polynomials into factors using remarkable products
• The Ruffini Theorem
• The M.C.D. and M.C.M. of polynomials
Algebraic fractions
• Frontal and interactive lectures;
• Small group work in the classroom;
• Individual consolidation work;
• Blackboard exercises;
Adopted textbooks
• Notes;
• blackboard.
 The following will be assessed: possession of content, use of specific language in oral presentation, ability to apply calculation techniques in solving exercises and problems using Written and oral on-going assessments Individual assessment of acquired skills Assessment through tests, exercises, questionnaires, oral presentations and workbook check.





NAME MODULE 4	Euclidean geometry and congruence
LEARNING UNITS INTERDISCIPLINARY	Plane geometry and triangles
DISCIPLINES CONCERNED	TTRG - TTI - History
TRAINING OBJECTIVES	Assiduous and participative follow-up of teaching activities; Fulfil their school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 recognise hypotheses and theses in a theorem; recognising congruent figures; Identify parallel and perpendicular lines;
SPECIFIC LEARNING OBJECTIVES	 understand that geometry is one of the possible models of reality; solving geometric problems.
PREREQUISITES	 Basic geometric nomenclature Basic set-related terminology
PERIOD OF APPLICATION	Transversal
TIMES	• 30 hours
CONTENTS	 Axioms and theorems Congruence The congruence criteria for triangles. the isosceles triangle Parallel lines Perpendicular lines Parallelism Criteria Remarkable points of a triangle
METHODS	 Frontal and interactive lectures; Small group work in the classroom; Individual consolidation work; Blackboard exercises;
INSTRUMENTS	 Adopted textbooks Notes; blackboard.





EVALUATION CRITERIA AND MODALITIES	 The following will be assessed: possession of content, use of specific language in oral presentation, ability to apply calculation techniques in solving exercises and problems using Written and oral on-going assessments Individual assessment of acquired skills Assessment through tests, exercises, questionnaires, oral presentations and workbook check.
MINIMUM OBJECTIVES	 Know how to operate with integers and rational numbers by applying the properties of powers. Knowing how to work with monomials and polynomials, recognising remarkable products and solving simple expressions including with remarkable products. Know how to do simple decompositions of polynomials into irreducible factors. Knowledge of the main concepts of Euclidean plane geometry. Know the congruence criteria for triangles









Year 2 ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

Applied Sciences and Technologies

PROGRAMMING

Applied Sciences and Technologies

GENERAL OBJECTIVES:

- □ Knowing the main elements of climate;
- $\hfill\square$ Knowing the characteristics of biomes and their evolution;
- □ Knowing how to classify and describe plants;
- □ Knowledge of the agri-food system.

PROGRAMMING CONTENT AND TEACHING ORGANISATION CLASS SECOND B

MODULE 1: THE CLIMATESCHOOL YEAR 2024/2025

Title: AGRARIA, AGROALIMENTARY, AGROINDUSTRY

SUBJECT: Applied Science & Technology	
TRAINING OBJECTIVES	 Identify significant features of environmental contexts, describe significant characteristics of a terrain; analysing the influence and management of climate on agricultural crops; know the paths followed by agricultural products all the way to the end consumer.
TARGETED SKILLS	 Can recognise detection tools of climate data (1.A, 1.B, 1.C). Recognising climatic factors and their characteristics (1.C, 1.D, 1.E). Being able to describe the water cycle (1.C, 1.D).
SPECIFIC LEARNING OBJECTIVES	 Structure and function of: roots, stem, leaves and reproductive organs; concepts of the ecosphere;





	• biomes and ecosystems;
	• analysis of the ecosystem and its trophic levels;
	• study of different ecosystems;
	• Climate, solar radiation and light; temperature; hydrometeor; evapotranspiration; wind;
	• pedogenesis; physical, chemical and biological properties of soils;
	• water and air in the soil; organic matter;
USERS / RECIPIENTS	Secondary school students
PREREQUISITES and INTERDISCIPLINARY JOINTS	Biology, physics and chemistry
PERIOD OF APPLICATION	September - October: (20 hours)
CONTENTS and SEQUENCE IN PHASES	 UDA.1 (20 hours) Climate and environment: What is climate; The elements of climate; Solar radiation and terrestrial radiation; Light and photoperiod; Temperature; Water and its different forms; Atmospheric pressure and wind; Climate factors; Climate types.
TIMES	20 hours
SKILLS LINGUISTICS	CONTENTS
TalkingDescribeWrite	 UDA.1 (20 hours) Climate and environment: Being able to use scientific terms appropriate to the content addressed; Being able to describe the climate and its elements in scientific language; Be able to write down the phenomena that occur in different climates and influence the geographical distribution of plants.
METHODS	 Exhibition lectures Expository lessons with participatory method Laboratory exercises Group activities Inductive method Deductive method





	Flipped classroom
INSTRUMENTS	 Supporting teaching texts Notes and handouts Fact Sheets Summary diagrams and maps Computer aids - interactive whiteboard On-line materials (images, animations, videos, etc.) Laboratory materials Personal computer Viva Class
HUMAN RESOURCES AND RELATED TASKS	 Lecturer in Applied Science & Technology Practical technical lecturer
EXPERIENCES	• Outdoor experiences in the field
EVALUATION CRITERIA AND MODALITIES	 Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Individual assessment of acquired competences in itinere and at the end. Oral examinations: Oral expositions also from the spot, and/or participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class. Structured/semi-structured written tests. Written reports on field experiences.



MODULE 2: THE SOIL	SCHOOL YEAR 2024/2025
Title: AGRARIA, AGROALIMENTARY, AGROINDUSTRY	
SUBJECT: Applied Science & Tech	hnology
TRAINING OBJECTIVES	 Identify significant features of environmental contexts, describe significant characteristics of a terrain; analysing the influence and management of climate on agricultural crops; know the paths followed by agricultural products all the way to the end consumer.
TARGETED SKILLS	 Knowing how to describe the phenomenon of pedogenesis and the technical classification of soils Knowing the properties of soil and its relationship with water.
SPECIFIC LEARNING OBJECTIVES	 Structure and function of: roots, stem, leaves and reproductive organs; concepts of the ecosphere; biomes and ecosystems; analysis of the ecosystem and its trophic levels; study of different ecosystems; Climate, solar radiation and light; temperature; hydrometeor; evapotranspiration; wind; pedogenesis; physical, chemical and biological properties of soils; water and air in the soil; organic matter;
USERS / RECIPIENTS	Secondary school students
PREREQUISITES and INTERDISCIPLINARY JOINTS	Biology, physics and chemistry
PERIOD OF APPLICATION	November (10 hours)
CONTENTS and SEQUENCE IN PHASES	 UDA.2 (05 hours) Land formation: Soil and pedogenesis; Factors in pedogenesis; Soil stratigraphy; Topographical characteristics of the terrain;






	 The climatic classification of soils; The classification of soils based on their origin; Technical soil classifications. Aquatic biomes Agroecosystems UDA. 3 (05 hours) The properties of the land: The soil and its functions; The different aspects of the terrain; The solid phase; The relationship between water and soil; The management of excess water.
TIMES	10 hours
SKILLS LINGUISTICS	CONTENTS
 Talking Describe Write 	 UDA.2 (05 hours) Land formation: Being able to use specific terms in the verbal language related to soil formation processes; Being able to describe the factors of pedogenesis in scientific language; Being able to write the different types of land classification. UDA.3 (05 hours) The properties of the land: Being able to use specific terms in verbal language related to soil properties; Being able to describe soil properties in scientific language; Being able to write down the relationships between water and soil.
METHODS	 Exhibition lectures Expository lessons with participatory method Laboratory exercises Group activities Inductive method Deductive method Flipped classroom
INSTRUMENTS	 Supporting teaching texts Notes and handouts Fact Sheets Summary diagrams and maps Computer aids - interactive whiteboard On-line materials (images, animations, videos, etc.) laboratory materials Personal computer Viva Class





HUMAN RESOURCES AND RELATED TASKS	 Lecturer in Applied Science & Technology Practical technical lecturer 		
EXPERIENCES	• Outdoor experiences in the field		
EVALUATION CRITERIA AND MODALITIES	 Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Individual assessment of acquired competences in itinere and at the end. Oral examinations: Oral expositions also from the spot, and/or participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class. Structured/semi-structured written tests. Written reports on field experiences. 		



MODULE 3: BIOMES AND ECOSYSTEMS	SCHOOL YEAR 2024/2025		
Title: AGRARIA, AGROALIMENTARY, AGROINDUSTRY			
SUBJECT: Applied Science & Tech	hnology		
TRAINING OBJECTIVES	 Identify significant features of environmental contexts, describe significant characteristics of a terrain; analysing the influence and management of climate on agricultural crops; know the paths followed by agricultural products all the way to the end consumer. 		
TARGETED SKILLS	 Being able to explain the concept of biome and ecosystem (1.D, 1.E); Knowing how to interpret the relationships between different organisms (1.A, 1.B, 1.C). 		
SPECIFIC LEARNING OBJECTIVES	 Structure and function of: roots, stem, leaves and reproductive organs; concepts of the ecosphere; biomes and ecosystems; analysis of the ecosystem and its trophic levels; study of different ecosystems; Climate, solar radiation and light; temperature; hydrometeor; evapotranspiration; wind; pedogenesis; physical, chemical and biological properties of soils; water and air in the soil; organic matter; 		
USERS / RECIPIENTS	Secondary school students		
PREREQUISITES AND INTERDISCIPLINARY LINKS	Biology, physics and chemistry		
PERIOD OF APPLICATION	December - January (19 hours)		
CONTENTS and SEQUENCE IN PHASES	UDA.4 (13 hours) The factors of the environment: - Environment and ecosystem; - The biotope; - The biocenosis;		







	 The evolution of the community; Trophic levels in ecosystems; The relationships between organisations; Biomes; Terrestrial biomes; Aquatic biomes; Agro-ecosystems. UDA.5 (06 hours) The study of populations: Introduction to the study of populations; The characteristics of a population; The spatial distribution of a population; Demographic variables; Population dynamics; The growth curves of populations.
TIMES	19 hours
SKILLS LINGUISTICS	CONTENTS
 Talking Describe Write 	 UDA.4 (13 hours) The factors of the environment: Being able to use specific terms in verbal language relating to environment and ecosystem, biotope and biocenosis, being able to use scientific terms relating to the relationships between organisms; Being able to describe terrestrial and aquatic biomes and agro-ecosystems in scientific language, being able to describe ecosystems, the biotope and biocenosis; Being able to write about the evolution of communities and trophic levels in ecosystems. UDA.5 (06 hours) The study of populations: Being able to use specific terms in the verbal language related to the characteristics of populations, their variables and dynamics; Being able to describe in scientific language the concept of populations and their dynamics, being able to describe the demographic variables of populations;
METHODS	 Exhibition lectures Expository lessons with participatory method Laboratory exercises Group activities Inductive method Deductive method Flipped classroom
INSTRUMENTS	 Supporting teaching texts Notes and handouts Fact Sheets





	Summary diagrams and maps Computer aids - interactive whiteboard On-line materials (images, animations, videos, etc.) laboratory materials Personal computer Viva Class	
HUMAN RESOURCES AND RELATED TASKS	 Lecturer in Applied Science & Technology Practical technical lecturer 	
EXPERIENCES	• Outdoor experiences in the field	
EVALUATION CRITERIA AND MODALITIES	 Oral examinations in presence or via the G-Suite platform, in the form of a question, interview, conversation or return of work carried out Written tests (entry test, end-of-module test) to be carried out in presence or via G-Suite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Individual assessment of acquired competences in itinere and at the end. Oral examinations: Oral expositions also from the spot, and/or participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class. Structured/semi-structured written tests. Written reports on field experiences. 	





MODULE 4: BOTANY AND SYSTEMATIC BOTANY	SCHOOL YEAR 2024/2025			
Title: AGRARIA, AGROFood, AGROINDUSTRY				
SUBJECT: Applied Science & Tech	hnology			
TRAINING OBJECTIVES	 Identify significant features of environmental contexts, describe significant characteristics of a terrain; analysing the influence and management of climate on agricultural crops; know the paths followed by agricultural products all the way to the end consumer. 			
TARGETED SKILLS	 Recognising the fundamental elements of evolutionary process (1.A, 1.D, 1.E). Knowing how to classify plants, interpret and analysing phenomena related to evolution (1.A, D, 1.E). 			
SPECIFIC LEARNING OBJECTIVES	 Structure and function of: roots, stem, leaves and reproductive organs; concepts of the ecosphere; biomes and ecosystems; analysis of the ecosystem and its trophic levels; study of different ecosystems; Climate, solar radiation and light; temperature; hydrometeor; evapotranspiration; wind; pedogenesis; physical, chemical and biological properties of soils; water and air in the soil; organic matter; 			
USERS / RECIPIENTS	Secondary school students			
PREREQUISITES AND INTERDISCIPLINARY LINKS	Biology, physics and chemistry			
PERIOD OF APPLICATION	February - March - April - May (50 hours)			
CONTENTS and SEQUENCE IN PHASES	UDA.6 (10 hours) Plant structure and functions: - The cell and plant tissues;			





	Plant metabolism;The main organs of plants.				
	 UDA.07 (40 hours) Agricultural botany: The classification of plants; The evolution of plants; Bryophytes; Tracheophytes: Pteridophytes; The spermatophytes: the Gymnosperms; The spermatophytes: the Angiosperms; Dicotyledons: the Leguminosae; Dicotyledons: the Solanaceae Dicotyledons: the Cruciferae; Dicotyledons: the Rosaceae; Dicotyledons: the tree crops of the Mediterranean. 				
TIMES	50 hours				
SKILLS LINGUISTICS	CONTENTS				
 Talking Describe Write 	 UDA.6 (10 hours) Plant structure and functions: Being able to use specific terms in the verbal language related to the plant cell, plant tissue and metabolism ; Being able to describe the tissues and organs of plants in scientific language and being able to describe the organelles of the plant cell; To be able to write content related to the structure and functions of the plant cell. UDA.07 (40 hours) Agricultural botany: Being able to use specific terms in the verbal language relating to the classification of plants, being able to use appropriate terms relating to the evolution of plants; Being able to describe in scientific language the classification of plants the characters that distinguish the various botanical divisions and families; To be able to write content related to the classification of plants and the terms that distinguish the various divisions and families. 				
METHODS	 Exhibition lectures Expository lessons with participatory method Laboratory exercises Group activities Inductive method Deductive method Flipped classroom 				
INSTRUMENTS	 Supporting teaching texts Notes and handouts Fact Sheets 				





	Summary diagrams and maps Computer aids - interactive whiteboard On-line materials (images, animations, videos, etc.) laboratory materials Personal computer Viva Class	
HUMAN RESOURCES AND RELATED TASKS	 Lecturer in Applied Science & Technology Practical technical lecturer 	
EXPERIENCES	• Outdoor experiences in the field	
EVALUATION CRITERIA AND MODALITIES	 Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Individual assessment of acquired competences in itinere and at the end. Oral examinations: Oral expositions also from the spot, and/or participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class. Structured/semi-structured written tests. Written reports on field experiences. 	

The application period given for each subject is purely indicative and may vary according to the needs of the classes.

> MINIMUM OBJECTIVES of the discipline:

- □ Knowing the essentials of climate;
- □ Know the main tools for determining climatic parameters;
- □ Knowing the essential characteristics of biomes and their evolution;
- □ Knowing how to describe the concept of population and community;
- Being able to describe the basic organelles of the plant cell and the various tissues in plants;
- Being able to describe the flower organs and the various fruits;
- □ Being able to describe the differences in plants between gymnosperms and angiosperms;
- □ Knowing the properties of soil;
- □ Knowing how to define the concept of agri-food chain.

Evaluation rubric for the ''Task/Product'' in the individual modules, according to EU competences:

Skills Evic	Evidence	Mastery level			
	Evidence	initial	base	Intermediate	advanced
Expertise	The student	only if	SO	SO	with full
alphabetical	understands	driven	autonomous but	suitable	awareness





functional	and use the information derived from documents of various kinds		elementary		
	The student communicates orally	so approximate	so elementary	so suitable	richly and effective
	The student communicates in written form	so approximate	so elementary	so suitable	richly and effective
	Media	D	С	В	А
Expertise staff, social and ability to learn to learn	The student recognises, selects, analyses and compare the information and the derived knowledge from experience staff and other	only if driven	so autonomous but elementary	so suitable	so organised and critic
	The student works with the others	so passive	with tasks by executor	acts so proactive and makes decisions	it is assumed responsibility, mediates and facilitates the work of the comrades
	Media	D	С	В	А
Expertise with regard to citizenship	The student acts as responsible citizen and participates fully to life civic and social	must be induced to respect for rules of life associated	respects the rules of life associated	acts in the context associate so responsible and constructive	so fully responsible and constructive demonstrating internalisation of the rules of the associated life
	Media	D	С	В	А
Expertise Digital	The student knows operation and the basic use of different devices, software and networks	poorly aware	so mechanic	so aware	so critic
	The student uses digital technologies as an aid to active citizenship and social inclusion, the collaboration with the others and creativity	with the help of of comrades	so mechanical but autonomous	so aware	with contributions critical and creative
	Media	D	C	B	А

Overall mastery level count

COMPETENCE	EVALUATION			
Alphabetical competence Functional	D= 1	C= 2	B= 3	A= 4





Personal competence, social and learning to learn	D= 1	C= 2	B= 3	A= 4
Relevant competence of citizenship	D= 1	C= 2	B= 3	A= 4
Digital competence	D= 1	C= 2	B= 3	A=4
Total sum				

Conversion table for evaluation in tenths

OVERALL LEVEL	EVALUATION IN TENTHS
4	4
5	4 1/2
6	5
7	51/2
8	6
9	61/2
10	7
11	71⁄2
12	8
13	81/2
14	9
15	91/2
16	10





ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

Integrated Sciences Biology

PROGRAMMING

Biology

MODULE 1:	SCIENTIFIC-TECHNOLOGICAL AXIS			
Living matter				
ADDRESS: AGRICULTURE, A	AGRIBUSINESS, AGRO-INDUSTRY			
SUBJECT: INTEGRATED SC	IENCES (Earth Sciences and Biology)			
Task/product	Elaboration of a table relating the nutrient intakes of different types of meat.			
Learning objectives	Enhancement of individual skills Encourage the development of a method that starts from the observation of phenomena and leads to the interpretation of causes; Guidance on choice of working and research methods Being aware of the value of everyone's contribution within a team. Apply the acquired methodology to new problems and situations. Acquiring and interpreting information. Identifying links and relationships. Knowing how to make logical connections.			
Targeted skills	 Explain the formation of a hydrogen bond. Explain why water can stick to the walls of a container and an insect can walk on water. Justify why water heats and cools more slowly than other substances. Link the polarity of water with its ability to behave as a solvent. Explain why ice floats on water. Explain the differences between an acidic and basic aqueous solution. Reading and interpreting the pH scale. Explain the structure of polymers. Relating macromolecules to their constituent monomers. Describe the synthesis and demolition reactions of polymers. Identify simple carbohydrates as the main sources of immediate energy. Distinguishing between a saturated and an unsaturated fatty acid, linking these structural characteristics to dietary fats. Explain the structural difference between a triglyceride and a phospholipid. Explain the biological function of waxes and steroids. List the numerous biological functions of proteins. Recognising the functional groups of amino acids. Explain how a peptide bond is formed by identifying a condensation reaction in it. Describe the basic structure of a nucleotide by listing its components. Describe the structure of RNA. Describe the structure of ATP. 			





Specific learning objectives	Understand that matter, even living matter, is made up of a combination of basic elements. Understanding that the particular characteristics of the water molecule make it indispensable to life Understand the importance for living organisms of maintaining limited pH variations in the internal environment and the mechanisms put in place to achieve this condition Understand that the great variety of organic molecules is due to the properties of carbon, which plays a central role in the construction of such molecules and the polymers derived from them. Understanding the biological function of carbohydrates, proteins lipids and nucleic acids. Being able to relate the complexity of proteins to their specificity. Understand that the information contained in nucleic acids resides in a sequence of nitrogenous bases, while energy transfer is related to the acquisition or loss of phosphate groups by ATP.
Users	Second grade students
	Being able to read a text carefully, identifying its fundamental concepts
Proronuisitos	Knowing how to compare and correlate information
11010441151105	Knowing how to use the strategies and tools necessary for understanding texts
· · · · · · · · · · ·	Knowing how to explore reality;
Interdisciplinary links	Integrated Sciences (Chemistry), Italian, English.
Period of application	SEPTEMBER - OCTOBER
Times	8 hours
Step sequence and content	 U.D.1 The consequences of hydrogen bonding: the properties of the water molecule. Acidic and basic solutions. The pH scale. U.D.2 Macromolecules: synthesis and demolition Carbohydrates: structure and function. Lipids: structure and function. Proteins: structure and function. Nucleic acids: structure and function. THE ATP.
Methods	Dialogue lesson Interactive lesson Inductive deductive method Work for heterogeneous groups Class group work coordinated by the teacher Workshop activities Collective reading of the text and comprehension exercises Flipped classroom Group work Peer education Peer tutoring DAD
Tools	Textbook Notes and handouts Supporting teaching texts Manuals Cards prepared by the teacher Specific videos and CDROMs LIM Dedicated Internet sites Library Workshop Personal computer





	GSuite platform
	Viva Class
	Oral examinations in presence or via GSuite platform, in the form of a question,
	interview, conversation or return of work done
	Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite
	platform, in synchronous or asynchronous mode
	Practical tests, to be carried out in person or via GSuite platform.
	Reality tasks, to be carried out in presence or via GSuite platform.
	Written tests (open questionnaires, multiple-choice, texts to be completed, exercises,
Evaluation Criteria and	problem solving, text comprehension)
Modalities	Oral examinations (reports on activities carried out, questions, speeches, discussions on
	study topics)
	Practical examinations (discipline-specific exercises, graphics)
	Individual assessment of acquired competences in progress and final (Pollock grid)
	Observation and evaluation tables
	Correction of exercises carried out at home and at school
	Comprehensive group assessment through tests, exercises, questionnaires, summaries,
	oral expositions and guided dialogues.





MODULE 2:SCIENTIFIC-TECHNOLOGICAL AXISThe cellSCHOOL YEAR 2024-2025			
ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY			
SUBJECT: INTEGRATED SCI	ENCES (Earth Sciences and Biology)		
Task/product	Written report on a laboratory activity.		
Learning objectives	Enhancement of individual skills Fostering the development of a method that starts from the observation of phenomena and leads to the interpretation of causes; Guidance on choice of working and research methods Being aware of the value of everyone's contribution within a team. Identifying links and relationships. Knowing how to make logical connections. Acquiring and interpreting information. Apply the acquired methodology to new problems and situations.		
Targeted skills	Enunciating cell theory Explain why cells are limited in size. Relate the size of cells to the instruments used to observe them. Distinguishing the optical microscope from the electron microscope. Describe the prokaryotic cell. Distinguish the eukaryotic cell from the prokaryotic cell based on size and the presence of the nuclear membrane. Describe the eukaryotic cell by highlighting the presence of cell organelles. Highlight the differences between animal and plant cells. Describe the eukaryotic cell organical and plant cells. Describe the structure and function of different cell organelles. Linking the malfunctioning of mitochondria with the onset of certain diseases. Describe the cell junctions of animal cells. Correctly interpret the function of cells in their diversity, understand the interaction of the cell with the environment and cellular energy transformations; List the different types of energy. Distinguishing potential energy from kinetic energy. Enunciating the principles of thermodynamics. Distinguishing an exoergonic reaction from an endoergonic one. Illustrate the role of ATP in coupled reactions. Describe the course of a chemical reaction by specifying the significance of activation energy and the function of catalysts. Describe the chemical nature of enzymes, their relationship to substrates and their task in cells. Explain the reasons why enzymes need specific conditions to work optimally. Describe the structure of the plasma membrane based on the fluid mosaic model. Classify the different types of integral membrane proteins by specifying the plasma membrane.		





Specific learning objectives	Understand the substantial unity of living things by recognising the cell as the fundamental constitutive unit of all organisms. Understand that to correctly construct a protein, the cell uses several organelles in close cooperation with each other. Understand that the presence of an internal system of membranes allows the cell to simultaneously perform very different, incompatible functions in a single environment. Understanding the role of chloroplasts and mitochondria in the energy transformations taking place in the cell. Understand the different structures that support cells, allow them to move and communicate with other cells. Understand how different forms of energy transform into each other in living beings. Understand the importance of enzyme specificity and the relationships between enzyme functionality and environment. Understanding the complex structure of the plasma membrane and relating it to the cell's ability to communicate with the external environment. Understand the importance for the cell to possess a plasma membrane capable of regulating the passage of substances through it.
II.sous	Second grade students
Users	Being able to read a text carefully identifying its fundamental concepts
Derene envision	Knowing how to compare and correlate information
Frerequisues	Knowing how to use the strategies and tools necessary for understanding texts
	Knowing how to explore reality;
Interdisciplinary links	Integrated Sciences (Chemistry), Italian, English.
Period of application	OCTOBER - FEBRUARY
Times	18 hours
	U.D.1 - The world of the cell
	Cellular theory.
	The size of cells.
	The light microscope and the electron microscope.
	The power of magnification and resolution.
	The prokaryotic cell.
	I D 2 - Cell activity
Step sequence and content	The different forms of energy.
	The principles of thermodynamics.
	The chemical energy of ATP.
	Exoergonic and endoergonic reactions.
	Coupled reactions.
	The activation energy.
	Diological calalysis. The plasma membrane: structure and functions
	Frontal lesson
	Dialogue lesson
	Interactive lesson
	Inductive deductive method
Mathada	Work for heterogeneous groups
<i>wieinous</i>	Class group work coordinated by the teacher
	Workshop activities
	Collective reading of the text and comprehension exercises
	Group work





	Peer education
	Peer tutoring
	DAD
	Textbook
	Notes and handouts
	Supporting teaching texts
	Manuals
	Cards prepared by the teacher
	Specific videos and CDROMs
Tools	I IM
10013	Dedicated Internet sites
	Library
	Workshop
	workshop
	Personal computer
	GSuite platform
	Viva Class
Evaluation Criteria and Modalities	Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Reality tasks, to be carried out in presence or via GSuite platform. Written tests (open questionnaires, multiple-choice, texts to be completed, exercises, problem solving, text comprehension) Oral examinations (reports on activities carried out, questions, speeches, discussions on study topics) Practical examinations (discipline-specific exercises, graphics) Individual assessment of acquired competences in progress and final (Pollock grid) Observation and evaluation tables Correction of exercises carried out at home and at school
	Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





MODULE 3:	SCIENTIFIC-TECHNOLOGICAL AXIS		
Genetics	SCHOOL YEAR 2024-2025		
ADDRESS: AGRICULTUR	E, AGRIBUSINESS, AGRO-INDUSTRY		
SUBJECT: INTEGRATED	EGRATED SCIENCES (Earth Sciences and Biology)		
Task/product	Concept map on how eukaryotic and prokaryotic cells reproduce.		
	Enhancement of individual skills		
	Fostering the development of a method that starts from the observation of phenomena and		
	leads to the interpretation of causes;		
	Guidance on choice of working and research methods		
	Apply the acquired methodology to new problems and situations		
Learning objectives	Acquiring and interpreting information		
	Knowing how to make logical connections.		
	Being able to apply acquired knowledge to real life.		
	Knowing how to recognise and establish relationships.		
	Knowing how to solve problem situations using specific languages.		
	Knowing how to draw conclusions based on the results obtained.		
	Explain that with cell division, two identical cells are generated from a mother cell.		
	Highlight the importance of cell division in the growth of organisms.		
	Recognise similarities and differences between asexual and sexual reproduction processes.		
	Describe the stages of binary splitting.		
	Describe the events that occur in the G ₁ , S and G ₂ phases of the cell cycle.		
	Describe the eukaryotic chromosome.		
	Define the diploid chromosome set as distinct from the haploid one.		
	Describe the mitotic process by distinguishing the salient events of each stage.		
	Compare the cytokeresis of animal cells with that of plant cells.		
	Describe the common characteristics of cancer cells.		
	Explain the similarities and differences between nomologous chromosomes and describe the		
	Distinguishing between autosomes and sex chromosomes		
	Explain the importance of crossing-over and fertilisation for genetic variability		
	Analysing the phases of meiosis I, identifying the events that lead to the formation of two		
	haploid nuclei.		
	Describe the stages of meiosis II, emphasising the similarities with the mitotic process.		
Targeted skills	Recognise the meiotic phases in which non-disjunction phenomena can take place.		
-	Explain the causes of Down syndrome by listing aspects common to carriers of this		
	syndrome.		
	Describe the phenomena that can alter chromosome structure: deletion, duplication, inversion		
	and translocation.		
	Enunciate the character-mixing hypothesis.		
	Use the specific language of genetics correctly		
	Enunciate Mendel's laws, commenting on them		
	Set up Punnett squares of hybrid crosses, for one, two or more characters, to define the		
	proportions of genotypes and phenotypes of the offspring.		
	Relating Mendel's experiments to the laws of probability.		
	Define test cross.		
	Using a cross test, derive the unknown genotype of a phenotype showing the dominant		
	character.		
	Define autosomal recessive and dominant genetic defects.		
	Constructing a family tree of human genetic traits.		
	Describe the stages of protein synthesis.		



Specific learning objectives	Understand how, depending on the type of reproduction, the characteristics of the offspring are determined. Understand the importance of the cell cycle in enabling the continuity of life in all eukaryotic organisms by highlighting the precision with which each mitotic phase leads to a correct distribution of genetic material between the two daughter cells. Understand how precise regulation of the cell cycle is indispensable for the body to remain healthy, while errors in cycle control may be responsible for the possible onset of cancer. Understand the significance of meiosis as the process of halving the genetic heritage of the two parents so that, with fertilisation, an entire heritage can be reformed. Understand the consequences for offspring of errors that may occur during the meiotic process of gamete formation. Understand that Mendel's studies related the transmission of hereditary traits and the formation of gametes. Being able to construct, read and interpret graphs representing the transmission of hereditary traits. Understanding that new genetic studies have extended Mendel's knowledge and explained, for example, why certain traits appear in a population with a huge gradation of different phenotypes. Relating protein synthesis to gene expression.	
Users	Second grade students	
Prerequisites	Being able to read a text carefully, identifying its fundamental concepts Knowing how to compare and correlate information Knowing how to use the strategies and tools necessary for understanding texts Knowing how to explore reality;	
Interdisciplinary links	Integrated Sciences (Chemistry), Italian, English.	
Period of application	ration FEBRUARY - MAY	
Times	25 hours	
Step sequence and content	U.D.1 - Cellular reproduction and heredity The cell cycle and mitosis Controlling the cell cycle Meiosis and asexual reproduction Mendel's Laws U.D.2 - The Language of Life (U.D.A. Interdisciplinary) The structure of DNA Protein synthesis Mutations change the meaning of genes	
Methods	Frontal lesson Dialogue lesson Interactive lesson Inductive deductive method Work for heterogeneous groups Class group work coordinated by the teacher Workshop activities Collective reading of the text and comprehension exercises Flipped classroom Group work Peer education Peer tutoring DAD	
ToolsTextbook Notes and handouts Supporting teaching texts Manuals Cards prepared by the teacher Specific videos and CDROMs		





	LIM
	Dedicated Internet sites
	Library
	Workshop
	Personal computer
	GSuite platform
	Viva Class
	Oral examinations in presence or via GSuite platform, in the form of a question, interview,
	conversation or return of work done
	Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite
	platform, in synchronous or asynchronous mode
	Practical tests, to be carried out in person or via GSuite platform.
	Reality tasks, to be carried out in presence or via GSuite platform.
	Written tests (open questionnaires, multiple-choice, texts to be completed, exercises, problem
Evaluation Criteria and	solving, text comprehension)
Modalities	Oral examinations (reports on activities carried out, questions, speeches, discussions on study
	topics)
	Practical examinations (discipline-specific exercises, graphics)
	Individual assessment of acquired competences in progress and final (Pollock grid)
	Observation and evaluation tables
	Correction of exercises carried out at home and at school
	Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral
	expositions and guided dialogues.





The application period given for each subject is purely indicative and may vary according to the needs of the classes.

-	Evaluation rubric for the	"Task/Product"	' in the individual modules,	, according to EU compe	etences:
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Claille	Evidence	Mastery level			
SKIIIS	Evidence	initial	base	Intermediate	advanced
Expertise alphabetical functional	The student understands and use the information derived from documents of various kinds	only if driven	so autonomous but elementary	so suitable	with full awareness
	The student communicates orally	so approximate	so elementary	so suitable	richly and effective
	The student communicates in written form	so approximate	so elementary	so suitable	richly and effective
	Media	D	С	В	А
Expertise staff, social and ability to learn to learn	The student recognises, selects, analyses and compare the information and the derived knowledge from experience staff and other	only if driven	so autonomous but elementary	so suitable	so organised and critic
	The student works with the others	so passive	with tasks by executor	acts so proactive and makes decisions	it is assumed responsibility, mediates and facilitates the work of the comrades
	Media	D	С	В	А
Expertise with regard to citizenship	The student acts as responsible citizen and participates fully to life civic and social	must be induced to respect for rules of life associated	respects the rules of life associated	acts in the context associate so responsible and constructive	so fully responsible and constructive demonstrating internalisation of the rules of the associated life
	Media	D	С	В	А
Expertise Digital	The student knows operation and the basic use of different devices, software and networks	poorly aware	so mechanic	so aware	so critic
	The student uses digital technologies as an aid to active citizenship and social inclusion, the collaboration with the others and creativity	with the help of of comrades	so mechanical but autonomous	so aware	with contributions critics and creatives





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Promoting and Upgrading Green Skills in Agriculture ProGREEN

Media D C B A	

Overall mastery level count

COMPETENCE		EVALU	JATION	
Alphabetical competence Functional	D= 1	C= 2	B= 3	A= 4
Personal competence, social and learning to learn	D= 1	C= 2	B= 3	A= 4
Relevant competence of citizenship	D= 1	C= 2	B= 3	A= 4
Digital competence	D= 1	C= 2	B= 3	A= 4
Total sum				

Conversion table for evaluation in tenths

OVERALL LEVEL	EVALUATION IN TENTHS
4	4
5	4 1/2
6	5
7	51/2
8	6
9	61/2
10	7
11	71/2
12	8
13	81/2
14	9
15	91/2
16	10





ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

Integrated Sciencies Chemistry

PROGRAMMING

Integrated Sciences Chemistry

AXIS

ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY

SUBJECT: Integrated Sciences CHEMISTRY

MODULE 1: Nomenclature of inorga	nic chemical compounds
TASK / PRODUCT	Outline or concept map drawn up by pupils on the main inorganic compounds studied.
TRAINING OBJECTIVES	Ability to explain disciplinary concepts correctly and in appropriate language
	Acquisition of discipline-specific scientific terminology.
	Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately.
	Activate the ability to draw up reference diagrams independently, to draw up a report of the proposed laboratory experiences and to compile a data sheet.
	Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles.
	Enhancement of individual skills.
	Educating pupils to collaborate in the realisation of a common project by assuming responsibilities and roles.
	Being able to recognise and classify different inorganic compounds.
	Acquire knowledge of the main IUPAC and traditional nomenclature rules concerning the main binary and ternary compounds.
TARGETED SKILLS	Assign the oxidation number to the elements in a compound.
	Write the formula of a covalent compound knowing its name.
	Name a covalent compound knowing its formula.
	Write the formula of an ionic compound using an ion pair.
	Name an ionic compound knowing its formula.
SPECIFIC OBJECTIVES OF LEARNING	Analysing and synthesising, also using challenging and complex texts.



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	Knowing how to classify a chemical bond between atoms of two different elements.
	Being able to explain the structure of substances with ionic bonding, covalent bonding and metallic bonding.
	Classify compounds according to ionic, molecular, binary, ternary nature.
	Use the rules of IUPAC or traditional nomenclature to write the formulas of compounds.
USERS	Secondary school students
PREREOUISITES	
	Being able to read a text carefully, identifying its fundamental concepts.
	Knowing how to compare and correlate information.
	Knowing the main characteristics of the elements based on their position in the periodic table and predicting the type of bond formed as a result of interaction between different types of elements.
PERIOD OF APPLICATION	September - November
CONTENTS and SEQUENCE IN	UDA.1 (6 hours)
PHASES	Valence and oxidation number
	UDA.2 (6 hours)
	Valence, nomenclature and structure formulae of basic oxides and anhydrides.
	UDA 3 (8 hours)
	Valence, nomenclature and structure formulae of binary acids, binary salts, hydrides.
	UDA 4 (8 hours)
	Valence, nomenclature and structure formulae of ternary acids and ternary salts
	UDA.5 (8 hours)
	Valence, nomenclature and structure formulae of hydroxides, oxoacids and ternary salts.
TIMES	36 hours
METHODS	Expository lectures; expository lectures with participatory method
	Participatory exercises on applications of theoretical concepts
	Laboratory exercises
	Group activities
INSTRUMENTS	Textbook
	Fact Sheets
	Summary diagrams and maps
	Computer supports
	Glassware instruments and laboratory materials
HUMAN RESOURCES AND	Chemistry teacher
RELATED TASKS	Practical technical lecturer
	Laboratory technician
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA	Formal and formative tests , with Rubrics and observation and evaluation grids:
AND MODALITIES	• Oral expositions; purposeful participation in lessons with relevant interventions,
	including in-depth studies; participative lessons through dialogue, in order to
	constantly and periodically ascertain the learning of the class.
	• Structured individual or small group exercises for the application of the concepts
	learnt.
	• Structured/semi-structured written tests. Written reports.
	-





Recovery : after the test with correction, clarification, review, exercises. If necessary and
possible remedial work with remedial courses or disciplinary help.



MODULE 2:	
Chemical solutions	
TASK / PRODUCT	Outline or concept map on solutions (definition, solubility, concentrations, colligative properties, etc.).
	Written work on the properties of solutions and determining the concentration of solutes in solutions.
	Solutions of known concentration prepared in the laboratory.
TRAINING OBJECTIVES	Acquisition of discipline-specific scientific terminology.
	Observe, describe and analyse phenomena belonging to natural and artificial reality.
	Understand and explain the cause-effect relationship of the phenomena considered and the various experiences carried out in the laboratory.
	Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately.
	Consolidate the ability to draw up reference diagrams independently, to draw up a report of proposed laboratory experiences and to compile a data sheet.
	Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles.
	Enhancement of individual skills.
	Know the components of solutions (solute and solvent), properties and the concept of concentration of solutions.
TARGETED SKILLS	Predicting the behaviour of a solute in water according to its properties.
	Determine the mass or volume of a given substance, in the laboratory, using appropriate instruments, prepare solutions of a given concentration.
	Explain the properties of solutions by referring to the kinetic-molecular model.
SPECIFIC LEARNING	Test the solubility of a substance in polar solvents, particularly water, and in apolar solvents.
Objectives	Knowing the behaviour of different chemical species in water, the formation of electrolytes and the electrical conductivity of aqueous solutions.
	Know how the solubility of a solute varies in water as a function of temperature.
	Know the different ways of expressing the concentration of solutions (mass and volume percentages, ppm, molarity, normality).
	Describe the colligative properties of solutions.
USERS	Secondary school students
PREREQUISITES	Knowing how to distinguish between pure substances and mixtures and between heterogeneous and homogeneous mixtures.
	Knowing how to distinguish between ionic and molecular compounds.
	Knowing how to identify the ions forming a compound by correctly assigning their electrical charges.
	Knowing how to calculate the molar mass of a substance.





	Knowing how to use the respective units of measurement, with their multiples and submultiples, for the various quantities (mass, volume, mole).
	Knowing how to calculate a percentage and how to carry out first degree equations.
	Knowing how to move around in the laboratory while respecting basic safety rules.
	Knowing how to write a technical report of the activities carried out in the laboratory.
PERIOD OF APPLICATION	December - February
CONTENTS and SEOUENCE	UDA.1 (10 hours)
IN PHASES	Components of an aqueous solution. Electrolytic dissociation. Solubility of chemical
	compounds; influence of temperature on solubility
	UDA. 2 (10 hours)
	Concentration of solutions and its expression in molarity, normality, m/m percentage, V/V
TIMES	20 hours
TIMES METHODS	20 nours
METHODS	Expository lectures; expository lectures with participatory method
	Participatory exercises on applications of theoretical concepts
	Keversed class
	Laboratory exercises
	Group activities
	Problem solving
INSTRUMENTS	Textbook
	Fact Sheets
	Summary diagrams and maps
	Computer supports
	<i>Online</i> materials (presentations, animations, videos, questionnaires and quizzes etc.).
	Glassware, instruments and laboratory materials
HUMAN RESOURCES AND	Chemistry teacher
RELATED TASKS	Practical technical lecturer
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA	Formal and formative tests , with Rubrics and observation and evaluation grids:
AND MODALITIES	• Oral expositions; purposeful participation in lessons with relevant interventions,
	including in-depth studies; participative lessons through dialogue, in order to constantly
	and periodically ascertain the learning of the class.
	• Structured individual or small group exercises for the application of the concepts learnt.
	• Structured/semi-structured written tests. Written reports.
	Decomposition of the first of the second sec
	Recovery: after the test with correction, clarification, review, exercises. If necessary and
	possible remedial work with remedial courses of disciplinary help.





MODULE 3	
Chemical reactions, read	ction kinetics and chemical equilibrium
TASK / PRODUCT	Written work on the balancing of chemical reactions, classification of chemical reactions, predicting the course of a reaction as a function of the equilibrium constant.
	Report and/or data sheet of laboratory experiences.
TRAINING OBJECTIVES	Acquisition of discipline-specific scientific terminology.
	Observe, describe and analyse phenomena belonging to natural and artificial reality.
	Understand and explain the cause-effect relationship of the phenomena considered and the various experiences carried out in the laboratory.
	Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately.
	Consolidate the ability to draw up reference diagrams independently, to draw up a report of proposed laboratory experiences and to compile a data sheet.
	Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles.
	Enhancement of individual skills.
	Knowledge of reaction types, quantitative aspects of chemical reactions, energy variations in reactions, reaction speed and factors influencing it, chemical equilibrium and factors affecting it.
TARGETED SKILLS	Balancing chemical reactions.
	Describe the energy variations and spontaneity of reactions.
	Describe the factors influencing the speed of a reaction.
	Explain the evolution of chemical systems towards equilibrium.
SPECIFIC LEARNING OBJECTIVES	Apply Lavoisier's and Proust's laws to chemical reactions.
	Interpreting a chemical reaction as an equation.
	Classify the main chemical reactions.
	Explain the energy variations of reactions by predicting their spontaneity.
	Explain how the speed of a reaction varies as a function of various factors.
	Use Le Châtelier's principle to predict the effect of changing concentration, volume or temperature on the equilibrium position.
USERS	Secondary school students
PREREQUISITES	Knowing how to identify reactants and products, atoms and molecules in a chemical reaction.
	Knowing how to interpret a chemical reaction in relation to Lavoisier's Law and of Proust's Law.
	Know how to express the concentrations of reactants and products as molarities.
	Know how to use, for the various quantities (mass, volume, mole, energy), the respective units of measurement.





	Knowing how to move around in the laboratory while respecting basic safety rules.
	Being able to draw up a technical report of the activities carried out in the laboratory.
PERIOD OF APPLICATION	February - March
CONTENTS and SEQUENCE IN	UDA.1 (6 hours)
PHASES	Chemical reactions and equations, reaction types, quantitative aspects of chemical
	reactions, ionic dissociation. Notes on oxidation-reduction reactions.
	UDA.2 (6 hours)
	Notes on thermodynamics, reaction speed and factors influencing it, catalysts.
	UDA.3 (6 hours)
	Chemical equilibrium, dynamic equilibrium, the equilibrium constant, Le Châtelier
	principle.
TIMES	18 hours
METHODS	Expository lectures; expository lectures with participatory method
	Participatory exercises on applications of theoretical concepts
	Reversed class
	Laboratory exercises
	Group activities
	Problem solving
INSTRUMENTS	Textbook
	Fact Sheets
	Summary diagrams and maps
	Computer supports
	<i>Online</i> materials (presentations, animations, videos, questionnaires and quizzes etc.).
	Glassware, instruments and laboratory materials
HUMAN RESOURCES AND	Chemistry teacher
RELATED TASKS	Practical technical lecturer
EVDEDIENCES	
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA AND	Formal and formative tests , with Rubrics and observation and evaluation grids:
MODALITIES	• Oral expositions, purposerul participation in lessons with relevant interventions, including in denth studies, participative lessons through dialogue in order to constantly.
	and pariodically assortain the learning of the class
	 Structured individual or small group everyises for the application of the concepts learnt
	 Structured multitud of small group exercises for the application of the concepts reality. Structured/semi_structured_written tests_Written reports
	• Subcurce/semi-subcurce written tests. written reports.
	Recovery : after the test with correction, clarification, review, exercises. If necessary and
	possible remedial work with remedial courses or disciplinary help.





MODULE 5:	
Acids and bases	
TASK / PRODUCT	Outline or conceptual map relating to acidic and basic compounds and the pH scale
	Written work on acids and bases, pH, pH indicators.
	Acid/base titration in the laboratory.
	Report and/or data sheet of laboratory experiences.
TRAINING OBJECTIVES	Acquisition of discipline-specific scientific terminology.
	Observe, describe and analyse phenomena belonging to natural and artificial reality.
	Understand and explain the cause-effect relationship of the phenomena considered and the various experiences carried out in the laboratory.
	Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately.
	Consolidate the ability to draw up reference diagrams independently, to draw up a report of proposed laboratory experiences and to compile a data sheet.
	Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles.
	Enhancement of individual skills.
	Distinguishing acids and bases, determining the pH of solutions, determining the acidity of solutions by titration.
TARGETED SKILLS	Recognising acidic and basic substances using indicators.
	Distinguishing strong acids and bases from weak acids and bases.
	Know how to calculate the pH of acid and base solutions.
	Determine the acidity of a solution by titration.
SPECIFIC LEARNING OBJECTIVES	Explain the properties of acids and bases, using Arrhenius, Brønsted-Lowry and Lewis theories, and solve quantitative problems involving these substances.
	Knowing how to calculate the pH of solutions of acids and bases known their concentrations and acid and base ionisation constants.
	Explain the properties of indicators.
	Know how to set up and explain neutralisation reactions.
USERS	Secondary school students
PREREQUISITES	Knowing how to distinguish between inorganic compounds, hydracides, oxoacids and hydroxides.
	Knowing how to derive the law of equilibrium from a balanced chemical equation.
	Know how to use molarity to express the concentration of solutions.
	Know how to prepare solutions of known molarity.
	Knowing how to move around in the laboratory while respecting basic safety rules.







	Knowing how to write a technical report of the activities carried out in the laboratory.
PERIOD OF APPLICATION	April - May
CONTENTS and SEQUENCE	UDA.1 (6 hours)
IN PHASES	Acids, bases and salts according to Arrhenius, Bronsted-Lowry and Lewis
	UDA.2 (10 hours)
	The ionisation of water and pH. Strength of acids and bases, the ionisation constant.
	UDA.3 (10 hours)
	pH indicators. Neutralisation reactions. Acid-base titrations.
TIMES	25 hours
METHODS	Expository lectures; expository lectures with participatory method
	Participatory exercises on applications of theoretical concepts
	Reversed class
	Laboratory exercises
	Group activities
	Problem solving
INSTRUMENTS	Textbook
	Fact Sheets
	Summary diagrams and maps
	Computer supports
	On-line materials (presentations, animations, videos, questionnaires and quizzes etc.).
	Glassware, instruments and laboratory materials
HUMAN RESOURCES AND	Chemistry teacher
RELATED TASKS	Practical technical lecturer
	Laboratory technician
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA	Formal and formative tests , with Rubrics and observation and evaluation grids:
AND MODALITIES	• Oral expositions; purposeful participation in lessons with relevant interventions,
	including in-depth studies; participative lessons through dialogue, in order to
	constantly and periodically ascertain the learning of the class.
	• Structured individual or small group exercises for the application of the concepts learnt.
	• Structured/semi-structured written tests. Written reports.
	Recovery : after the test with correction, clarification, review, exercises. If necessary and
	possible remedial work with remedial courses or disciplinary help.





CHEMICAL LABORATORY TESTS

Module 1

- Exercise with atomic models on covalent and ionic bonding
- Formation of basic oxides and acid oxides
- Formation of salts
- Structure of molecules, polar and apolar molecules
- H-bonds and properties of water

Module 2

- Solubilisation of various substances in water
- Solutions, solubility, saturated solutions
- Concentration of solutions: w/w, v/v, p/v percentage
- Relationship between mole and mass; mole calculation
- Concentration of solutions: Molarity, Normality
- Preparation of a known stock solution

Module 3

- Exothermic and endothermic reactions
- Stoichiometric calculations in chemical reactions
- Chemical reactions and equations
- Neutralisation reactions

Module 4

- Recognising acidic and basic substances using indicators, also of plant origin, and pH measurements
- pH scale
- Quantitative chemical analysis: Acid-base titrations





MINIMUM OBJECTIVES

They will be achieved when the pupil acquires knowledge in essential lines of each teaching unit, in particular:

- Main inorganic compounds: nomenclature and formulas of hydrides, acids, oxides, hydroxides and salts.
- Knowledge of chemical solutions, components of solutions (solute and solvent)
- Concentration concept of solutions. Molar concentration, m/m percentage, V/V percentage and m/V percentage
- Kinetics of chemical reactions. Speed of a chemical reaction and factors influencing it; Shock theory. Reversible and irreversible reactions; Equilibrium constant and its meaning. Mobile equilibrium.
- Ionic product of water; pH and indicators.
- Knowledge of basic, discipline-specific scientific terminology.
- Ability to present disciplinary concepts correctly and in simple but appropriate language.
- Knowledge of safety rules and behaviour in the laboratory and acquisition of manual dexterity and skills.

Basic, discipline-specific scientific terminology.

Correct exposition of disciplinary concepts in simple but appropriate language.





ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

English Foreign Language and Civilisation - English Foreign Language and Society

Prof. Mariangela Anderboni

PROGRAMMING Foreign Language and Civilisation English



LINGUISTIC AXIS

THE LEARNING UNITS

The teaching of a foreign language has the task of contributing, in harmony with the other disciplines, to the formation of a basic culture and to the full development of the pupils' personality as citizens of the world. In this spirit, the study of languages aims to foster the human, social and cultural formation of students through contact with realities different from their own, enabling them to reflect on their own language and civilisation through comparative analysis with other languages and cultures, while respecting this diversity. It is therefore decisive to acquire a communicative competence that allows one to use the language not only in a grammatically correct manner but also in a manner appropriate to the situation and context of interaction.

The linguistic axis aims to make the learner acquire mastery of language as reception and written and oral

communication.

It is also intended to make the learner acquire knowledge of the foreign language, as it facilitates, in multicultural situations, mediation and understanding of other cultures, mobility and opportunities for study and work.

The language axis also aims to enable pupils to acquire knowledge and use of multiple non-verbal forms of expression and an appropriate use of information and communication technologies.

Another goal to be achieved is digital competence, which enriches the possibility of access to knowledge, enables the realisation of individual learning paths and the nurturing of personal creative expression.

The integration of different languages is a fundamental tool in the acquisition of new knowledge and the interpretation of reality in an autonomous and conscious manner.

WHATFAILDOCTO R	WHATSTUDENT	SKILLS/ABILITIES PROMOTED
 Presenting the UdA It defines goals and objectives, Guiding pupils in the reading and global comprehension of the text Uses the tools provided, explains the key points of each segment of the learning pathway, verifies, evaluates and plans remedial steps 	 Acquires awareness of the path to be followed Outline the process steps Concerning the UdA Learn how to use tools and organise your work also in terms of time. 	 Learning to use the typical language of the discipline in written and oral production Learning to work within A working group. Taking notes during a lecture Interacting with peers and the teacher Reporting one's own knowledge-experience to the group peers







- ✓ Reading and understanding texts on everyday life topics performed, recognising the most indicative sentence.
- ✓ Identifying the overall meaning of short mass-media messages (radio, cinema, TV) on topics of general interest, shows, news, etc.
- Reading and understanding texts on everyday life topics performed, recognising the most indicative sentence.
- ✓ Identifying the overall meaning of short mass-media messages (radio, cinema, TV) on topics of general interest, shows, news, etc.
- ✓ Understand the main and specific information of oral messages on topics of everyday, personal, social interest.
- ✓ Interact in short, simple conversations with appropriate pronunciation, rhythm and intonation.
- ✓ Express oneself, orally and in writing, in a simple manner on general topics in an effective and appropriate manner, appropriate to the context and situation, although not always formally correct.
- ✓ Produce simple functional texts of a personal, everyday and imaginative nature, even with a minimum margin of error and interference with the Italian language and its dialects, with other cultures, provided comprehension is not impaired.
- ✓ Identify and make appropriate use of linguistic structures and mechanisms operating at different levels:
- ✓ textual, semantic-lexical, phonological and morpho-syntactic.
- ✓ Identify the specific cultural contribution of the foreign language and compare it with that of the Italian language or of
- \checkmark other languages.
- Basic vocabulary on topics of general interest, language functions and fundamental grammatical structures to be used in simple conversations
 Listening to monologues dialogues presented viva voce or recorded, concerning
- Listening to monologues dialogues presented viva voce or recorded, concerning communicative situations of everyday life: conversations, interviews, radio and television news, commercials, sports reports.
- Production of simple messages, letters of various types, reports, summaries, concerning topics previously discussed in class, answers to questionnaires, completions and dialogue compositions.
- ✓ Authentic documents concerning everyday life, relating to various aspects of life and culture in foreign countries, focusing on comparisons Italian culture.
- Reflection on language with a view to intercultural and interlinguistic comparison; expressing one's thoughts in
- \checkmark simple way on general topics.
- ✓ Using the bilingual dictionary

It should also be noted that following the European Recommendation of 2006, the decree regulating the fulfilment of compulsory education in Italy (Ministerial Decree 139/2007) was issued, containing the description of knowledge with reference to four cultural axes (language axis; mathematical axis; scientific-technological axis; historical-social axis), in a single learning process that includes the mutual integration and interdependence between the knowledge, skills and competences thus outlined:

- 1. learning to learn;
- 2. design;
- 3. communicating;
- 4. collaborate and participate;
- 5. act autonomously and responsibly;
- 6. solving problems;
- 7. identify connections and relationships;
- 8. acquire and interpret information;





Based on this Recommendation, the following programming is also outlined on the knowledge listed above




MODULE1 1ST LEARNING UNIT		ASSELINGUISTIC a.s.(2021/2022) units 7-8	
SUBJECT: FNCLISH I	ANCUACE	a.s. (2021/2022) units 7-0	
USERS/RECIPIENT S	Second class of the first two years		
PREREQUISI TES	 Basic grammatical knowledge (A2); Basic PC use and Internet navigation Knowing your way around reference tools: dictionary, atlas, maps 		
PERIOD OF APPLICATI ON	First four-month period		
SEQUENZAINFA SI	 Preparation and research of material by lecturers and learners uda presentation to the class, using selected excerpts Creation of working groups Laboratory lessons and research, production and processing (PROBLEMSETTING, PROBLEMSOLVING, PERFORMANCE) Realisation of the Task/Product Verification of skills and objectives through presentation and display of the final product 		
METHO DS	 Lectures and dialogues through the functional-communicative approach Creation of working groups (formation of groups, assignment of tasks) Group work in the computer-linguistic laboratory and in the classroom Individual work on the consolidation of language structures and functions Oral exposition DAD/DDI remodelling with digital text 		
INSTRUME NTS	 A2 to B1 <i>Identity</i> Student's Book & Workbook, Student's eBook, Visual English Trainer, Classroom Presentation Tool, Student's Book & Workbook MP3 Audio Disc, Tests, Worksheets, Tests MP3 Audio Disc, Student's website: digital content available online, updated periodically. Computer-linguistic laboratory Dictionaries, atlases and magazines, photocopies of various materials 		





	Specific learning objectives (OSA)
KNOWLEDGE	SKILLS
Communicative functions Talking about home and furnishing Talking about past events Showing interest Talking about places related to nature Describing the weather Making comparisons	 Listening (listening comprehension) A2 Can grasp the essentials of short, simple, clear messages and announcements: description of rooms. A2 Can understand sentences, expressions and words if they deal with topics with very immediate meanings: comparison of British and American houses, a scientist describing the weather in the USA A2/ B1 Can understand the main elements in clear standard language discourse on familiar topics frequently encountered at work, school, leisure, etc.: a history teacher talking about Washington and Lincoln.
Grammatical structures	Reading (reading comprehension)
Progressive past Simple past tense integular verbs Simple past tense vs. progressive past tense The articles Comparative adjectives (<i>not</i>) as as, less (than)	 A2/B1 Can read and understand short, simple texts about: a residence haunted by a ghost (SB p.92 ex.2), a description of the White House (SB p.94 ex.2), a dialogue about the sabbatical year (SB p.100 ex.2), comparing the popularity of dogs and cats on social media (SB p.103 ex.9), describing natural wonders of the USA (SB p.104 ex.3), hunting (SB p.106 ex.3). A2/B1 Can understand everyday or work-related written texts: building a small house (SB p.90 ex.2), a bad experience in a New York hotel (SB p.91 ex.9), rules within the family (SB
Superiative adjectives	p.97 ex.3).
Rooms, Household Objects and	Speaking (production and oral interaction)
Furniture Nature and animals Time connectives for telling a story Weather and climate	A2/B1Communicates with reasonable correctness on simple tasks on familiar topics and activities relating to: comparing natural landscapes (SB p.98 ex.2), comparing geographical knowledge (SB p.99 ex.6), comparing two photographs (SB p.101 ex.7), comparing two items using the comparative (SB p.101 ex.9), expressing opinions using the superlative (SB p.103 ex.10), expressing opinions on the topic of hunting (SB p.107 ex.6).
(EU Competences: Cultural Awareness and Expression; Social and Civic Competences) SB: p.269 ex.3 (Oymyakon, Russia), p.291 Real-World Task (comparing historical periods), p.94 ex.2 (the	A2/B1 Can use a range of expressions and phrases to describe in simple terms and with reasonable accuracy: rooms (SB p.88 ex.2), one's own home and dream house (SB p.89 ex.6, Challenge), compare American and British houses with one's own (SB p.89 Liam's Vlog ex.4), recounting a personal experience (SB p.91 ex.11), what people were doing in a picture using the progressive past (SB p.93 ex.6), one's own opinions and reactions (SB p.97 ex.5), weather (SB p.105 ex.5).
White House), p.94 ex.4 (American presidents: Washington and	Writing (written production and online written interaction)
Lincoln),p.104 ex.3,5 (natural wonders in the USA).	A2/B1 Write simple, coherent texts on topics that are known or of interest: a story from a given opening sentence (SB p.269 ex.7), a horror story (SB p.93 ex.9), a brochure about a historically important building (SB p.94Digital Citizenship), a postcard describing travel and landscape (SB p.99Challenge), describing photographs (WB p.224 ex.2, p. 229 ex.5), a story about a personal experience (SB p.97 ex.7), an argumentative essay on animal rights (SB p.107 ex.7).
	Linguistic mediation (textual, conceptual, communicative)
	A2/B1 Can take part in simple tasks of a practical nature, asking others what they think, making suggestions and understanding the answers, provided he/she can ask for repetition or rephrasing from time to time: Presenting knowledge of the American president, heads of state in Italy (SB p.94 ex.4,5,6), historically important buildings (SB p.94 ex.6), talking about what happened over the weekend showing interest in the interlocutor (SB p.95), reflecting with a partner on family rules and privacy (SB p.97 ex.6).





GoalsGeneral

From the European framework (FRAMEWORK OF REFERENCE OF THE COUNCIL OF EUROPE):

Use simple self-assessment and self-correction strategies. Implement autonomy, self-control and self-confidence behaviours.

Working independently, in pairs, in groups, cooperating and respecting rules. Helping and respecting others.

Achieve through the use of a language other than one's own an awareness of the importance of communicating. Speak and communicate with peers by exchanging questions and information.

Using the voice to imitate and reproduce sounds and phrases alone or in groups. Interpret images and photos. Propose hypotheses.

Take interest and pleasure in learning a foreign language. Demonstrate openness and interest in the culture of other countries. Make comparisons and reflect on some differences between cultures.

The Language Axis and EU Competences: Digital Competence

Use and produce multimedia texts both autonomously and collaboratively using digital media related to units 7-8: Interactive eBook, Student's website.

From School to Work: Fingerprints and Netiquette. How to behave online (SB p. 280 ex. 3, 4, 5, 8).

Interdisciplinary activities for the Learning Unit (CLIL)

History: American presidents: Washington and Lincoln (SB ex.4,5), the Roman houses (p. 290).

Natural sciences: characteristics of various animals (SB p.102 ex3,4), pandas (WB p.229 ex.6). **Geography:** places in the world (SB p. 98 ex.2), knowledge about one's own country (SB p. 99 ex.6), Marmora Falls (SB p.109 ex.1).





Interdisciplinary activities transversal skills

Key competences of citizenship:

Learning to learn

SB: Vocabulary Strategy (p.89), Speaking Strategy: giving reasons for one's opinion (p.97), Listening Strategy: focusing on key words (p.104), Reading Strategy: making predictions about the content of the text (p.107 ex.2), Real-World Task: comparing historical periods in a group work (p.291).

Design

SB: Real-World Task: comparing historical periods (p.291 ex.4,5).

Communicating

SB: Showing interest in what happened to the interlocutor over the weekend, narrating what happened to oneself (p.95), talking about natural wonders and extreme climates (p.104 ex.6), talking about the weather (p.105 ex.5).

Collaborate and participate

SB: reflect on one's own opinions and reactions concerning one's privacy (p. 7 ex. 5), compare historical periods in a group work (p. 291 Real-World Task).

Acting autonomously and responsibly

SB: reflect on the use of social media (p.281 Reflect), a story about a life experience (p.97 ex.6), reflect on hunting (p.107 ex.6).

Problem Solving

SB:p.280 From School to Workes.3,4,5,6, 7, 8: Fingerprints and Netiquette. How to behave online.

Identifying links and relationships

SB: reflect on heads of state, the president of the United States and the head of state of one's own country, and important buildings (p.4 ex.6), reflect on the use of social media and its repercussions in one's future professional life (p.281 Reflect), compare life today with life 200 years ago (p.291 Real-World Task).

Acquiring and interpreting information

SB: presenting an important historical building in one's own country (p.94 Digital Citizenship), information and data on natural wonders of one's own country (p.104 Digital Citizenship), constructing a computer chart (p.104 Digital Citizenship).





Citizenship and the Constitution	Citizenshi	and	the C	Constitu	ition
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Citizenship: the President of the United States, heads of state in your country (SB p.94 ex.6), fingerprints and Netiquette. How to behave online (SB p.280 From School to Workes.3,4,5,6, 7, 8), reflections on hunting (SB p.107 ex.5, 6)

Affectivity: reflecting on how one approached a project (SB p.91Challenge), recounting a memory from one's life (SB p.91 ex.10,11), importance of privacy (SB p.97 ex.5, 6).

EVALUATION CRITERIA AND METHODS	Formative tests : Recovery Units 7-8 (Teacher's Resource Book), Unit Tests 7-8 (Teacher's Resource Book), Skills Tests Unit 7-8 (Teacher's Resource Book), Unit Tests 7-8 for students with dyslexia (Teacher's Resource Book).
	 Summative Tests: SB Units 7-8 Summative Revision p.108, WB Units 7-8 Summative revision p.229 Teacher's Resource Book Summative Tests Unit 7-8. Observation, by the teacher, of each individual student or a small group at a time, and assessment of different degrees of achievement.



Co-funded by the European Union

MODULE2 1ST LEARNING UNIT		LINGUISTIC AXIS a.s.(2021/2022) unit 9-10	
SUBJECT: ENGLIS	H LANGUAGE		
USERS/RECIPIE NTS	Second class of the	e first two years	
PREREQUISITES	 Basic grammatical knowledge (A2); Basic PC and Internet use Knowing your way around reference tools: dictionary, atlas, maps 		
PERIOD OF APPLICATION	Second period of the first four months First four-month period		
PHASED SEQUENCE	 Preparation and research of material by lecturers and learners uda presentation to the class, using selected excerpts Creation of working groups Laboratory lessons and research, production and processing (PROBLEMSETTING, PROBLEMSOLVING, PERFORMANCE) Realisation of the Task/Product Verification of skills and better performance through presentation and layout of the final product Recovery 		
MET HODS	 Lectures and dia approach Creation of worl Group work in t Individual work functions Oral exposition DAD/DDI remo 	logues through the functional-communicative king groups (formation of groups, assignment of tasks) he computer-linguistic laboratory and in the classroom on the consolidation of language structures and delling with digital text	
INSTRU MENTS	 A2 to B1 <i>Identity</i> Student's Book & Workbook, Student's eBook, Visual English Trainer, Classroom Presentation Tool, Student's Book & Workbook MP3 Audio Disc, Tests, Worksheets, Tests MP3 Audio Disc, Student's website: digital content available online, updated periodically. Computer-linguistic laboratory Dictionaries, atlases and magazines, photocopies of various materials 		
EVALUATION CRITERIA AND MODALITIES	 Formative tests: Recovery Units 9-10 (Teacher's Resource Book), Unit Tests 9-10 (Teacher's Resource Book), Skills Tests Unit 9-10 (Teacher's Resource Book), Unit Tests 9-10 for students with dyslexia (Teacher's Resource Book). Summative Tests: SB Units 9-10 Summative Revision p.130, WB Units 9- 		
	10 Summative revi Unit 9-10.	sion p.245 Teacher's Resource Book Summative Tests	





Observation, by the teacher, of each individual student or a small group at a time, and assessment of different degrees of achievement.



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Specific learning objectives (OSA)				
KNOWLEDGE	SKILLS			
Communicative functions Talking about professions Talking about intentions and predictions Talking about future projects Asking about a job on the phone	Listening (listening comprehension) A2/ B1 Can understand the main points in clear standard language discourse on familiar topics which he/she frequently discusses at work, school, leisure, etc.: teenager talking about his/her jobs (SB Liam's Vlog p.111 ex. 2,3), teenager talking about plans for the future (SB p. 113 ex. 6), teenager talking about his/her future (SB p. 131 ex. 2).			
Giving and receiving directions Grammatical structures be going to express intentions be going topermanent Simple past tense: irregular verbs Present progressive to express future plans be going tovs Present progressive will to express future events and forecasts will to express offers, promises, spontaneous	 Reading (reading comprehension) A2/B1 Can read and understand short, simple texts about: New Year's resolutions (SB p. 112 ex. 2), predictions of life on Mars (SB p. 122 ex. 2), Chinese superstitions (SB p. 125 ex. 7), cities where people live best (SB p. 128). A2/B1 Can understand everyday written texts related to everyday life or work: formal e-mails asking for and giving information about a work experience (SB p. 114 sec. 2), The Duke of Edinburgh's Award (p. 116 sec. 2), a telephone dialogue asking for information about a job (SB p. 116 sec. 1,3), following one's passions in career choices (SB p.118), bike-sharing in China (SB p.124 ex. 3), a dialogue in which you give and receive directions (SB p. 127 ex. 5), your dream job (SB p. 131 ex. 1), volunteering experience in Vancouver (SB p. 270 ex. 3), Erasmus experience in Dublin (SB p. 271 ex. 5). 			
decisions Hypothetical period of the first type <i>When, as soon as</i>	Speaking (production and oral interaction)			
Lexical areas Professions Characteristics of professions Expressions to indicate the future City-related nouns Compound names related to the city Adjectives to describe the city Culture and Civilisation	A2/B1Communicates with reasonable accuracy in simple tasks on familiar topics and activities related to: talking about professions (SB p. 110, e.g. 6, Liam's Vlog p. 111, e.4), talking about future intentions (SB p. 113, e.7), making predictions by looking at pictures (SB p. 113, e.10), talking about plans for the next day (SB p. 114, e.6, p. 115, e.10), talking on the phone about a job (SB p. 117, e.5), talking about one's own city (SB p. 117, e.5), talking about the future (SB p. 117, e.6).), discussing plans for the next few days (SB p. 114 ex. 6, p. 115 ex. 10), telephoning to enquire about a job (SB p. 117 ex. 5), talking about one's city (SB p. 121 ex. 6), solutions one would adopt in particular situations using the hypothetical period of the first kind (SB p. 125 ex. 8, 11), giving and receiving directions (SB p. 127 ex. 5).			
(EU Competences: Cultural Awareness and Expression; Social and Civic Competences) SB: p.114 ex.1 (STEM), p.116 ex.2, 6 (The Duke of Edinburgh's Award), p.124 ex.3 (bike-sharing in China), p.126 ex.2 (Ellis Island).	 reasonable correctness: one's own city (SB Caitlin's Vlog p. 121 ex. 4) one's own future and that of companies (SB p. 123 ex. 7). Writing (written production and online written interaction) A2/B1 Write simple and coherent texts on topics that are known or of interest: a description of one's dream job (SB Challenge p. 111), writing a description of a voluntary work programme for young people and the organisation promoting it (SB Digital Citizenshipp. 116), a dialogue with a job counsellor (SB p. 119 ex. 7), a guide to one's city (SB p. 121 Challenge.), a report on how to make one's city more liveable (SB p. 129 ex. 7). Linguistic mediation (textual, conceptual, communicative) A2/B1 Can take part in simple tasks of a practical nature, asking others what they think, making suggestions and understanding the answers, provided he/she is able to ask to repeat or rephrase from time to time: planning a trip to New York (SB p. 120 ex. 3), evaluating whether one lives well in one's own city and how to improve the present situation (SB p. 129 ex. 5,6). 			





General Objectives

Use simple self-assessment and self-correction strategies. Implement autonomy, self-control and self-confidence behaviours.

Working independently, in pairs, in groups, cooperating and respecting rules. Helping and respecting others.

Achieve through the use of a language other than one's own an awareness of the importance of communicating. Speak and communicate with peers by exchanging questions and information.

Using the voice to imitate and reproduce sounds and phrases alone or in groups. Interpret images and photos. Propose hypotheses.

Take interest and pleasure in learning a foreign language. Demonstrate openness and interest in the culture of other countries. Make comparisons and reflect on some differences between cultures.

The Language Axis and EU Competences: Digital Competence

Use and produce multimedia texts both autonomously and collaboratively using digital media related to units 9-10: Interactive eBook, Student's website.

Searching online for information on volunteer programmes for young people (SB p.116 Digital Citizenship).

TRANSVERSAL COMPETENCES

Key competences of citizenship:

Learning to learn

SB: Study Strategy: setting goals (p.112), Writing Strategy: writing formal emails (p.114), Reading Strategy: dealing with multiple-choice texts (p.119), Vocabulary Strategy: compound nouns (p.121), Writing Strategy: using connectives (p.129), Exam Strategy in preparation for PET: Listening Part 1, Reading Part 6 (p.271), From School to Work: planning your study (pp.282-283).

Design

SB: From School to Work: planning your own study (p.283 ex.9).

Communicating

SB: reflecting on various aspects of the world of work (p. 119 ex. 6), From School to Work: thinking about one's study method (p. 283 ex. 8).

Collaborate and participate

SB: p.282 From School to Work ex.5: planning your study, p.283 ex.10, p.293Real-World Task: creating a tourist brochure.

Acting autonomously and responsibly

SB: setting goals (p.112 ex.2, p.113 Challenge), reflecting on important aspects to consider when choosing a job (p.119 ex.5), pp.282-283 From School to Work: planning one's own study.

Problem Solving

SB: p. 293 Real-World Task: creating a tourist brochure.





Identifying links and relationships

SB: Immigration to the United States in the Past and Today (p. 126 Compare Cultures).

Acquiring and interpreting information

SB: search for information online and present an educational programme for young people (p.116 Digital Citizenship), search for information online and present a city you imagine moving to using statistics and photos (p.126 Digital Citizenship).





Citizenship and Constitution

Citizenship: preparation for work in different countries (SB p.116 Compare Cultures ex.6), immigration to the US (SB p.126 ex.4,5), cities where life is best (SB p.128), volunteer projects in Vancouver (SB p.270 ex.3), Erasmus experience in Dublin (SB p.271 ex.5)

Affectivity: following one's passions in work choices (SB p.118), From School to Work: reflecting on one's study planning (p. 283 Reflect).

Formative assessment and evaluation

Formative tests: Recovery Units 9-10 (Teacher's Resource Book), Unit Tests 9-10 (Teacher's Resource Book), Skills Tests Unit 9-10 (Teacher's Resource Book), Unit Tests 9-10 for students with dyslexia (Teacher's Resource Book).

Summative assessment

Summative Tests: SB Units 9-10 Summative Revision p.130, WB Units 9-10 Summative revision p.245 Teacher's Resource Book Summative Tests Unit 9-10.

Observation, by the teacher, of each individual student or a small group at a time, and assessment of different degrees of achievement.





MODULE3 1ST LEARNING UNIT		ASSELINGUISTS (a.s.2021/2022) Units 11-		
		12		
SUBJECT: ENGLIS	H LANGUAGE			
USERS/RECI PIENTS	Second class of the	e first two years		
PREREQUISITES	- Basic grammation	cal knowledge (A2);		
	- Basic PC and In	ternet use		
	- Knowing how to	o use reference tools: dictionary, atlas, maps.		
PERIOD OF	Second four-mont	h period		
APPLICATION				
METHOD	- Lectures and dia	alogues through the functional-communicative		
S	approach.	king aroung (formation of aroung aggionment of tasks)		
	- Creation of work	he computer linguistic laboratory and in the classroom		
	- Individual work	on the consolidation of language structures and		
	functions			
	- Oral exposition.			
INSTRUMEN	- A2 to B1 <i>Identity</i> Student's Book & Workbook, Student's eBook,			
TS	Visual English	Trainer, Teacher's Pack: Teacher's Guide, Classroom		
	Teacher's Resource Pack: Tests Worksheets Tests MP3 Audio Disc			
	Programming & Testmaker Disc.			
	- Online expansions: digital content available online, updated			
	periodically			
	- Computer-linguistic laboratory			
	- Dictionaries, atlases and journals			
	- Photocopies of various materials			
SEQUENC	- Preparation and research of material by lecturers and learners			
Ε	- uda presentation to the class, using selected excerpts.			
IN PHASES	- Creation of wor	king groups		
	- Laboratory lessons and research, production and processing (PROBLEM SETTING, PROBLEM SOLVING, PERFORMANCE)			
	- Realisation of th	ne Task/Product		
	- Verification of s display of the	skills and objectives through presentation and final product		
	- Recovery			





KNOWLEDGE

Promoting and Upgrading Green Skills in Agriculture **ProGREEN**

SKILLS

Communicative functions	Listening (listening comprehension)
Talking about sport	A2/B1 Can understand the main elements in clear standard language discourse on
Talking about personal experiences	familiar topics which he/she frequently discusses at work, school, leisure, etc.: information about Wimbledon (SB p.133 ex.2.3), teenagers talking about their
Agreeing to go out together	personal experiences (SB p.137 ex.8), a podcast about the Commonwealth Games
Expressing feelings	(SB p.158 ex.4,5), an account of now it feit during an audition (SB p.145 Calum s Vlog ex.2,3), homework done and yet to be done (SB p.145 ex.8), teenagers talking
Talking about recent actions	about national holidays (SB p.148 ex.3), account of a holiday (SB p.153 ex.2).
Talking about situations on social	Reading (reading comprehension)
occasions	A2/B1 Can understand everyday written texts related to everyday life or work: advice about sport (SB p 134 ex 2) an American champion (SB p 136 ex 2) an
Making and responding to offers	English champion (SB p.137 ex.6), sports in Commonwealth countries (SB p.138 ex.2), a dialogue between two teenagers who decide to go to a football match (SB
Grammatical structures	(SB p.140 ex.2), time management and the dangers of procrastination (SB p.144
Prosent Porfect	ex.2), attending a party where there is no time to spare (SB p.144 ex.2), attending a party where there is no time to spare (SB p.144 ex.2) and the dangers of
Present Perfect conquer and never	procrastination (SB p.144 ex.2).), differences in salaries between men and women
Present Perfect vs Past Simple	in the world of sport (SB p.140), managing one's time and the dangers of procrastination (SB p.144 ex.2), attending a party where you don't know anyone
Present Perfect conjust vat	(SB p.146 ex.2), national holidays (SB p.148 ex.2), a dialogue in which a party is
already	p.153 ex.1).
some/any/no/everyone compounds	Specting (mechanics and and interaction)
some/any/no/everyone compounds	Speaking (production and oral interaction)
Lexical areas	A2/B1Communicates with reasonable accuracy in simple tasks related to: sports (SB p 132 e 2 p 133 e 6 p 133 Liam's Vlog ex 4 p 135 e 10) discussing part
Sport	personal experiences (SB p.137 e.10), inviting a friend to a leisure time event (SB
Sport: venues and equipment	ex.6, p.143 Caitlin's Vlog ex.4), recounting past personal experiences and related
Sport: people	emotions (SB p.147 ex.10), organising a party (SB p.149 ex.5), successes and failures of famous people (SB p.284 ex.4).
Feelings and emotions	Writing (written production and online written interaction)
Interactions and verbs to express emotions	A2/B1 Write simple and coherent texts on topics that are known or of interest: a wikipedia entry about a personal goal one has achieved (SB p.137Challenge), the
adjectives ending in -ed and	biography of a celebrity (SB p.141 e.g.7), a story about an experience in which one felt strong emotions (SB p.151 e.g.7, WB p.261 e.g.7), a story starting with a given
Culture and Civilisation	sentence (SB p.273 e.g.7).
(EU Competences: Cultural	Linguistic mediation (textual, conceptual, communicative)
Awareness and Expression; Social and Civic Competences) SB: Commo nwealth	A2/B1 Can define a task in an essential manner and ask others to contribute their expertise. Can invite others to speak, clarify the reasons for their opinions or elaborate on specific points they have made. Can ask relevant questions to check understanding of concepts and can repeat part of what has been said to confirm common understanding: salary differences between men and women in sport (SB
countrie	p.140 ex.5,6), talking about cyberbullying (SB p.151 ex.6), From School to Work (pp. 284-285; Problem solving)
s' sports	(pp. 204-205. 1100 cm solving).
(p.138	
ex.2),	
national	
holidays	
(p.148	
ex.2,3,4)	





General Objectives

Use simple self-assessment and self-correction strategies. Implement autonomy, self-control and self-confidence behaviours.

Working independently, in pairs, in groups, cooperating and respecting rules. Helping and respecting others.

Achieve through the use of a language other than one's own an awareness of the importance of communicating. Speak and communicate with peers by exchanging questions and information.

Using the voice to imitate and reproduce sounds and phrases alone or in groups. Interpret images and photos. Propose hypotheses. Take interest and pleasure in learning a foreign language. Demonstrate openness and interest in the culture of other countries. Make comparisons and reflect on some differences between different cultures.

The Language Axis and EU Competences: Digital Competence

Use and produce multimedia texts both autonomously and collaboratively using digital media related to units 11-12: Interactive eBook, Student's website.

Create an online survey on sport (SB p.138 Digital Citizenship), create an online invitation to an event in your area (SB Digital Citizenshipp.148).

Interdisciplinary activities and transversal skills



Physical education: a US sportswoman: Serena Williams (SB p.136 ex.2), a British athlete: Mo Farah (SB p.137 ex.6), Commonwealth sport (SB p.138 ex.6), a disabled athlete: Bethany Hamilton (SB p.272 ex.2).

Key competences of citizenship:

Learning to learn

SB: Study Strategy: taking note of your mistakes (p.112), Vocabulary Strategy: guessing the meaning of new words from context (p.141), Listening Strategy: completing a *digapfill* activity (p.148), Speaking Strategy: taking and giving the floor (p.151), Exam Strategy in preparation for PET: Speaking Part 2 (p.273), From School to Work: Problem-solving (pp.284-285).

Design

SB: organising a party (p. 149 ex.5).

Communicating

SB: deciding on an event to attend in one's spare time (p.139), organising a party (p.149), reflecting on one's time management (p.144 ex.3).

Collaborate and participate

SB: salary differences between men and women in sport (p.140 ex.5,6), cyberbullying (p.151 ex.5,6), From School to Work: problem solving (p.285, ex.9,10).

Acting autonomously and responsibly

SB: time management and the dangers of procrastination (p.144 ex.2), From School to Work(pp. 284-285 ex. 10)

Solving

SB: From School to Work (pp.284-285)

Identifying links and relationships

SB: reflect on how much athletes are paid and gender differences in this field (p.141 Active Citizenship ex. 6)

Acquiring and interpreting information

SB: create an online survey on sport, conduct interviews with peers, present results (p.138 Digital Citizenship).

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Citizenship and Constitution

Citizenship: cyberbullying (SB p.150), salary differences between women and men in the world of sport (SB p.140), an American sportswoman: Serena Williams (SB p.136 ex.2), a British athlete: Mo Farah (SB p.137 ex.6), Commonwealth sports (SB p.138 ex.6), reflecting on national holidays (SB p.148 ex.5), a disabled athlete: Bethany Hamilton (SB p.272 ex.2)

Health: tips on sport (SB p.134 ex.2)

Affectivity: list of exciting things one wants to do in life (SB p.135 Challenge), a wikipedia entry about a personal goal one has achieved (SB p.137 Challenge), talking about emotions experienced in a dialogue with a companion (SB p.142 ex.6), producing texts about a situation that provoked strong emotions (SB p.143 Challenge, p.151 ex.7), reflecting on one's time management (SB p.145 Challenge), attending a party where one does not know anyone (SB p.146 ex.2).

Formative tests: Recovery Units 11-12 (Teacher's Resource Book), Unit Tests 11-12 (Teacher's Resource Book), Skills Tests Unit 11-12 (Teacher's Resource Book), Unit Tests 11-12 for students with dyslexia (Teacher's Resource Book).

Observation, by the teacher, of each individual student or a small group at a time, and recording varying degrees of English language proficiency.

Summative assessment

Summative tests: SB Units 11-12 Summative Revision p.152, WB Units 11-12 Summative revision p.261 Teacher's Resource Book Summative Tests Unit 11-12.

	Knowledge	Skills	Minimum objectives
Adequate use of	Communicative,	Listening to	Using the foreign language for
basic grammatical	socio-linguistic and	dialogues to extract	the main communicative and
structures	paralinguistic	information	operational purposes
Describe situations related to the personal sphere in a simple manner	interaction and oral production (describing, narrating) in relation to context and interlocutors	giving and asking for personal information reading a text or dialogue	Perform simple tasks in known situations Use basic grammatical structures adequately
Produce short, simple and coherent texts on familiar topics of personal interest	Basic grammatical structures of the language, phonological system, sentence rhythm and	read a text containing instructions Completing a table	Understand the main points of simple and clear messages and announcements on topics of personal and everyday interest
Interact in short, clear conversations on topics	intonation, spelling.	completing a dialogue	Describe experiences and events related to personal
of personal or everyday interest	Strategies for selective global comprehension	Writing a short text giving personal	and social spheres in a simple way
Use appropriate strategies to find	written, oral and	information	Interacting in short, simple
information and understand the essential points in clear, short written and oral messages on topics of personal or everyday	matchine characters and messages on known topics related to the personal, social or current affairs.	Expressing preferences and opinions Asking, giving and denying permission	Describe yourself, your family, where you live and your routines in a simple way
interest	to topics of		







	everyday, social or current life. Technical dictionary use also	Reading an article containing information	Narrating past events, activities and personal experiences in a simple way Making predictions about the future
Use a lexical repertoire and expressions of basis for describing		Completing a questionnair	
		e	

experiences of type personal or family	multimedia. Variety of registers. In the area of written production, referring to short, simple and coherent texts, characteristics of different types (informal letters, descriptions, narratives, etc.). Syntactic structures and context- appropriate vocabulary Socio-cultural aspects	Reading an e-mail message Reading a text in the past tense Writing a short text on a past period Describing a photograph Comparing people or things Express Forecasts On future	Being able to talk about actions planned in the future Knowing how to express one's future intentions Knowing how to make comparisons between people and things Knowledge of basic vocabulary on everyday life topics Correct pronunciation of a reduced repertoire of memorised words and phrases
	Socio-cultural aspects of the countries whose language is studied.	On future	reduced repertoire of memorised words and phrases in common use



ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

Technology and techniques of graphic representation

PROGRAMMING

Graphic representation technology and techniques S. Dellavecchia, G. Mura, G. M. Dellavecchia "Technologies and Techniques of Graphic Representation", SEI

Textbook:

Objectives: The aim of the course is to enable students to analyse data and interpret them by developing deductions and reasoning on them, also with the aid of graphic representations, consciously using calculation tools and the potential offered by specific computer applications, and to induce them to observe, describe and analyse phenomena belonging to natural and artificial reality and to recognise the concepts of system and

complexity in their various forms.

- Educational Objectives
- Acquisition of conscious behaviour;
- maturation of a sense of responsibility and self-critical capacity;
- development of skills in communicating with others and understanding messages;
- acquiring the ability to participate in school activities;
- developing logical skills;
- acquisition of the ability to make choices and decisions.

Learning objectives

- Knowing the main properties of materials;
- Be able to give general indications on the choice of materials in relation to their characteristics and operating conditions;
- Know how to recognise the main static stresses;
- Concept of sustainable development;
- Knowledge of the main industrial processing techniques;
- Being able to relate the use of certain processing techniques to the main construction materials, based on their technological properties;
- Knowing and being able to apply the unified standards relating to machining tolerances, fits, surface condition: surface roughness;
- Understand the relationships between different machining techniques and the degree of surface finishing that can be achieved;
- Apply representation methods, respecting existing regulations;
- Being able to critically apply what has been learnt;
- Knowing how to read a simple graphic work;
- Knowing how to render a relief graphically;
- Know how to make freehand sketches;
- Know the basic operational steps of the design process;
- Knowing how to draw with autocad.

Minimum objectives

- Knowing the main properties of materials;
- Know how to recognise the main static stresses;
- Know how to represent simple volumes by means of orthogonal and axonometric projections;

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- Apply representation methods, respecting existing regulations;
- Knowing how to read a simple graphic work;
- Knowing how to render a relief graphically.

Methodology:

The teacher defines a learning path that allows students to progressively acquire the representative ability in the use of visualisation tools and methods, to master the specific languages for the analysis, interpretation and representation of reality, taking into account the contribution of the other scientific-technological disciplines. Students are guided to an initial knowledge of materials, of the relative processing technologies and their use, to the organisational criteria of 'object' systems (building, industrial, plant engineering, territorial...) in order to acquire the necessary representation skills to be developed in the three-year course of study. The use of traditional and computerised means, of structuring and organising procedures, of digital languages, is to be considered fundamental for the acquisition of the various skills and competences.

Modalities of verification:

Evaluations will be carried out periodically in itinere either by revision of the graphic works (carried out using traditional or computerised methods) or by written ch oral tests, occasionally, if necessary, by means of tests or structured tests. At the end of each module, a summative knowledge assessment will be carried out.

Interventions by the students will be solicited, especially during dialogue lessons, favouring the didactic-educational dialogue as much as possible.

Recovery and support activities:

Recovery and support activities are envisaged in itinere, either by means of lessons for the whole class, or by differentiated teaching with group study and in-depth studies.

Integrated Digital Education / Distance Learning

If it is necessary to carry out DDI / DAD, the G-Suite platform made available by the School Institute will be used and both video lectures and research and in-depth study activities will be carried out involving the students using all available IT tools. Practical activities will be carried out as far as possible independently by the students with the tools available to them. For more complex activities or with the use of special materials, activities will be rescheduled during future periods of in-presence activities. The assessment of learning, knowledge and skills will be carried out both by means of traditional methodology (e.g. performance of graphical work, oral examinations) and through the use of forms etc..

All documentation must be submitted via the G-Suite platform through Class-room.





Activity scheduling:

(marked with (*) topics related to the minimum objectives)

TECHNOLOGY

- MODULE 1: Material characteristics and technological testing UDA 1.1: The properties of materials: Physical Properties (*) Chemical Properties (*) Structural Properties Mechanical Properties and Mechanical Stress (*) Technological Properties Mechanical and technological testing Materials and the environment
- MODULE 2:Processing procedures:UDA 2.1:Foundry work (*)
- Plastic deformation machining (*) Machining Welding processes Cutting Heat treatments (*) Bench machining Industrial automation

GRAPHIC REPRESENTATION TECHNIQUES

MODULE 1: Orthogonal Projections: UDA 1.1: Sections: Flat sections (*) Conic Sections

Development and interpenetration of solids

- MODULE 2:Perspective projections:UDA 2.1:Axonometries:Cavalry axonometry of superimposed solids
- UDA 2.2: Isometric axonometry of overlapping solids (*) Perspective: The Central Perspective (Overview) The Accidental Perspective (Overview)
- MODULE 3: The survey and graphic representation:
- UDA 3.1: Freehand drawing: From measurements to graphical representation (*) Axonometric drawing The schematic drawing from life
 UDA 3.2: The survey Survey instruments (*) Methodologies
 - The quoted graphical representation (*)
- MODULE 4: Applications of technical drawing:
- UDA 4.1: Drawing in design:





 Plans, elevations, sections
 Scales of representation
 Drawing Quotation
 UDA 4.2: Design in construction: The preliminary, definitive and executive projects
 Graphical representation in construction (*)



ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

Lingua e Letteratura Italiana - Italian Language and Literature

Prof. Cinzia Maggio

PROGRAMMING

Italian Language and Literature

WHAT THE TEACHER DOES	WHAT THE PUPIL DOES	SKILLS/ABILITIES PROMOTED
 Presenting the UDA It defines goals and objectives, It guides learners in the reading and global comprehension of the text, Uses the tools provided, explains the key points of each segment of the learning path, verifies, evaluates and plans the remedial phase 	 It acquires awareness of the path to be followed, Outline the steps in the UDA process They learn to use tools and organise their work also in terms of time. 	 Learning to use the typical language of the discipline in written and oral production. Learning to work within a team. Taking notes during a lecture Interacting with peers and the teacher Relating one's knowledge- experience to the group

ITALIAN LANGUAGE DISCIPLINARY OBJECTIVES - FIRST TWO YEARS

- Reading and understanding texts on everyday life topics.
- Identifying the overall meaning of short messages from the mass media (radio, cinema, TV).
- Understand the main and specific information of oral messages on topics of everyday, personal, social interest.
- Interact in short, simple conversations.
- Express oneself, orally and in writing, effectively and appropriately on general topics, appropriate to the context and situation.
- Producing texts of a personal and imaginative nature, and texts for use.
- Identify and make appropriate use of linguistic structures and mechanisms operating at different levels: textual, semantic-lexical, phonological and morpho-syntactic.
- Identify the specific cultural contribution of the Italian language and compare it with that of other languages.

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- Use specific vocabulary on topics of literary theory, language functions and fundamental grammatical structures.
- Producing written and oral messages.
- Reflecting on language from an intercultural and interlinguistic comparative perspective.
- Using dictionaries.





DEPARTMENTAL TEACHING DESIGN OF ITALIAN LANGUAGE AND LITERATURE Class II sec. E Teacher: Prof. Cinzia Maggio

UDA 1	Meeting the opera: ''I Promessi Sposi' by A. Manzoni
TRAINING OBJECTIVES	 Reflecting critically on the contents of a text Participating in a discussion in a purposeful manner Assume a critical and conscious attitude towards both the texts read and reality itself Using different linguistic media and forms of communication responsibly
SPECIFIC LEARNING OBJECTIVES	 Mastering the expressive (oral and written) and argumentative tools to manage verbal communicative interaction in various contexts Interact effectively and appropriately at an acceptable level of communication; Being able to understand basic information about the person and the environment;
	 Using narratological tools to fully interpret a literary text. Producing narrative and descriptive texts. Reading, understanding and interpreting simple literary texts. To be able to describe using collected data; Being able to understand the main points of a text.
PERIOD OF APPLICATION	October - November
TIMES	16 hours divided as follows: 10 hours for learning 4 hours for recovery 2 hours evaluation
PHASED SEQUENCE	 Presentation of the UDA to the class, using selected excerpts. Lectures also with parallel classes on grammar, language functions related to the module topic. Creation of working groups. Laboratory lessons and research, production and processing. Verification of skills and objectives Recovery
CONTENTS The se	ocio-historical context and relational dynamics. Food and the environment.





		GRAMMATICS LITERARY THEORY	SKILLS	VOCABULAR Y			
	Selected chapters and passages	 UDA 1 Elements of communication and introduction to literary theory UDA 2 The sentence and its elements: the verbal and nominal predicate, the attribute and the apposition UDA 3 The logical analysis of the elements of the simple sentence 	 Grasping the specific features of a literary text Recognising the characteristics of a narrative text Contextualising passages from literary works Produce correct and coherent texts appropriate to different communicative situations Analysing the formal, stylistic and thematic characteristics of the passages read 	Use of vocabulary as a vocabulary enrichment tool			
METHODS	LecturesCreationParallel	 Lectures and dialogues through the functional-communicative approach Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes 					
	IndividuOral exp	al work on the consolidat	ion of language structures and fu	nctions			
INSTRUMEN TS	 Adopted Dictiond Photoco 	 Adopted textbooks Dictionaries, newspapers and magazines Photocopies of various materials 					
EVALUATIO N CRITERIA AND MODALITIES	 Individu Comprestructure dialogue Evaluate 	 Photocopies of various materials Individual oral assessment of skills acquired (Pollock grid) Comprehensive group assessment through tests, exercises, homework correction, structured and semi-structured tests, summaries, oral expositions and guided dialogues. Evaluation of written tests (correction grid) 					





UDA 2	² THE P	THE POETIC TEXT. Feelings and landscape						
TRAINING OBJECTIVES	• 1	Recognise the specificity using textual analysis met	of the literary phenomer thods in an essential ma	ion in poetry, nner				
	• 1	Reading, understanding,	analysing poetic texts					
	• 1	Understanding the messa	ge contained in a text					
SPECIFIC LEARNING	• 1	Reading, understanding, dealing with a specific the	interpreting and analysi eme	ng poetic texts				
OBJECTIVES	• (Comparing texts to detect	similarities and different	nces				
	• 1	Producing narrative-desc	riptive texts					
	• 1	Producing argumentative	texts					
	• 1	Producing texts in the for	m of poetry					
	• 1	• <i>Recognising the language of poetry</i>						
	• 1 	• <i>Recognising the characteristics of a poetic text that addresses a specific theme</i>						
	• 1	• Understand the connotative and denotative meaning of poetry						
	• (• Orally paraphrasing a poetic text						
	• 1	• Explain the contents of a poetic text clearly, logically and coherently						
	• 1	• <i>Recognising rhythmic, metrical, phonetic, lexical, syntactic and rhetorical aspects in a poetic text</i>						
PERIOD OF APPLICATION	Sept	ember - January						
TIMES	5 32	hours divided as follows:						
	20 h	ours for learning						
	8 ho	urs for recovery						
	4 h	ours evaluation						
PHASED SEQUENCE	E · Pres	entation of the UDA to th	he class, using selected e	excerpts				
~	• From	ıtal lessons also with par	allel classes	•				
	• Crea	ation of working groups						
	• Lect	ures, research, text prodi	uction and editing					
	• Verij	fication of skills and obje	ctives achieved					
	• Reco	over						
CONTENTS		THE POET	TIC TEXT. Feelings	and				
	landscap	e						
		GRAMMAR AND						
		LITERARY	SKILLS	VULABULAK V				
		THEORY		1				





	TEXT S CHOS EN	 UDA 1 The sentence and its elements: transitive and intransitive verbs, the object complement and indirect complements. Introduction to Period Analysis. UDA 2 Elements of literary and poetic theory UDA 3 Thematic paths: landscape, the environment, the affections 	 Reading, understanding and analysing poetic texts dealing with a specific theme Distinguishing and analysing parts of speech Distinguishing the various types of co- ordinate and subordinate sentences 	 Identifying the meaning of key words in literary production Knowing the different meaning relationships between words: antonyms, archaic words, transfers of meaning, the meaning of words. 		
METHODS	 Lectures and dialogues through the functional-communicative approach Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in class Individual consolidation work Oral exposition and written production. 					
INSTRUMENTS	 Adopted textbooks Dictionaries, newspapers and magazines Photocopies of various materials 					
EVALUATION CRITERIA AND MODALITIES	 Individual assessment of acquired competences (Pollock grid) Assessment through structured tests, grammar and text analysis exercises, open-ended questionnaires, oral expositions and guided dialogues. 					





UDA 3	THE POETIC TEXT. Committed poetry
TRAINING OBJECTIVES	 Recognise the specificity of the literary phenomenon in poetry, using textual analysis methods in an essential manner Reading, understanding, analysing poetic texts Understanding the message contained in a text
SPECIFIC LEARNING OBJECTIVES	 Reading, understanding, interpreting and analysing poetic texts dealing with a specific theme Comparing texts to detect similarities and differences Producing narrative-descriptive texts Producing argumentative texts Producing texts in the form of poetry Recognising the language of poetry Recognising the characteristics of a poetic text that addresses a specific theme Understanding the connotative and denotative meaning of poetry Orally paraphrasing a poetic text Explain the contents of a poetic text clearly, logically and coherently Recognising rhythmic, metrical, phonetic, lexical, syntactic and rhetorical aspects in a poetic text
PREREQUISITES	 Knowledge of grammar, vocabulary and text analysis; Ability to understand and analyse a text in its linguistic and metalinguistic aspects; Basic use of PC and Internet browsing; Knowing your way around reference tools: dictionaries, newspapers.
PERIOD OF APPLICATION	February-March
TIMES	16 hours divided as follows:12 hours for learning2 hours for recovery2 hours evaluation
PHASED SEQUENCE	 Preparation and research of material by lecturers and learners Presentation of the UDA to the class, using selected excerpts Frontal lessons also with parallel classes Creation of working groups Lectures, research, text production and editing Verification of skills and objectives achieved Recover



CONTENTS	UDA 3 E	ngaged poetry			
		GRAMMATICS AND ELEMENTS OF LITERARY THEORY	SKILLS	VOCABULARY	
	CHOS EN TEXT S	UDA 1 The complex sentence: main, co- ordinates and subordinates. UDA 2 Elements of literary theory	 Reading, understanding and analysing poetic texts dealing with a specific theme Distinguishing and analysing parts of speech Distinguishing the various types of co-ordinate and subordinate sentences 	 Identifying the meaning of key words in literary production Knowing the different meaning relationships between words: antonyms, archaic words, transfers of meaning, the meaning of words. 	
METHODS	 Lectur Creati Parall 	es and dialogues through t on of working groups (form el class work with open cla	the functional-commun nation of groups, assignsses	nicative approach gnment of tasks)	
	 Group Individ 	work in class lual consolidation work			
	• Oral e	xposition and written prod	uction.		
<i>INSTRUMENTS</i>	 Adopted textbooks Dictionaries, newspapers and magazines Audiovisual material Educational visits Photocopies of various materials 				
EVALUATION CRITERIA AND MODALITIES	 Individ Assess open-e 	lual assessment of acquired ment through structured te ended questionnaires, oral	d competences (Polloc ests, grammar and text expositions and guided	ck grid) analysis exercises, d dialogues.	





UD.	A 4 7	THE THEATRE					
TRAINING OBJECTIV	VES	 Reading, understandi Recognising the char Understanding the mathematical statements 	ing, interpreting a th acteristics of the the essage contained in a	eatrical text atrical text a text			
SPECIFIC LEARNI OBJECTIV	ING VES	 Grasping the specific features of a literary text Recognising the characteristics of a text belonging to the theatre genre Contextualising passages from literary works Recognising the language of the theatre text Produce coherent corrective texts appropriate to different communicative situations Mastering the structures of language in texts State the contents of a theatrical text in a logical, clear and coherent manner 					
PERIOD APPLICATI	OF ION						
TI	'MES	 16 hours divided as follo 12 hours for learning 2 hours for recovery 2 hours evaluation 	ws:				
PHASED SEQUE	ENCE .	 Preparation and research of material by lecturers and learners UD presentation to the class, using selected excerpts Frontal lessons also with parallel classes Creation of working groups Lectures, research, text production and editing Verification of skills and objectives achieved Recover 					
CONTENTS		THE	THEATRE				
		GRAMMAR AND LITERARY THEORY	SKILLS	VOCABULARY			





	 UDA 1 Elements of literary theory: Ancient and modern theatre Tragedy and comedy Selected authors and texts UDA 2 The relationship UDA 3 The argumentative text 	 Identifying the characteristics of the theatrical text in texts Recognise the techniques of theatre language: characters, lines, dialogue, monologue, captions. 	 Identifying the meaning of key words in literary production Knowing the different meaning relationships between words: antonyms, archaic words, transfers of meaning, the meaning of words. 		
<i>METHODS</i>	 Lectures and dialogues through the functional-communicative approach Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in class Individual consolidation work Oral expectition and written production 				
INSTRUMENTS	 Adopted textbooks Dictionaries, newspapers and magazines Audiovisual material Educational visits Photocopies of various materials. 				
EVALUATION CRITERIA AND MODALITIES	 Individual assessment of acquired competences (Pollock grid) Assessment through structured tests, grammar and text analysis exercises, open-ended questionnaires, oral expositions and guided dialogues 				



Language Axis

The language axis aims to make the learner acquire mastery of language as written and oral reception and communication.

The aim is for the learner to acquire knowledge of the foreign language as it facilitates, in multicultural contexts, mediation and understanding of other cultures, mobility and opportunities for study and work.

The language axis also aims to enable pupils to acquire knowledge and enjoyment of multiple non-verbal forms of expression and an appropriate use of information and communication technologies.

Another objective to be achieved is digital competence, which enriches the possibility of access to knowledge, enables the realisation of individual learning paths and the nurturing of personal creative expression.

The integration of different languages is a fundamental tool in the acquisition of new knowledge and the interpretation of reality in an autonomous and conscious manner.

OBJECTIVES OF THE LANGUAGE AXIS AT THE END OF THE FIRST TWO YEARS

- Mastery of the Italian language;
- *Mastering the expressive and argumentative tools essential for managing verbal communicative interaction in various contexts;*
- Reading, understanding and interpreting written texts of various types;
- Produce texts of various types in relation to different communicative purposes;
- Use a foreign language for the main communicative and operational purposes;
- Use the basic tools for an informed enjoyment of the artistic and literary heritage;
- Using and producing multimedia texts.

Rome,

The lecturer

Co-funded by the European Union







ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

Law and Economics

PROGRAMMING

Law and Economics

RIGHT

MODULE	U.D.A.	KNOWLEDGE	SKILLS	SKILLS	MINIMUM OBJECTIVES	TRANSVERSAL OBJECTIVES / DISCIPLINES INVOLVED	PERIOD	U.O.A. AUDITS/ASSES SMENTS
THE STATE AND ITS ARCTIC- LECTION	State Forms/Forms of	 The different forms of state The different forms of government 	 Mastering legal language Being able to recognise the different forms of state through their historical evolution Recognising the distinctive features of different forms of government 	Relate the different contents learnt to political- economic-social reality Identifying the most suitable tools for solving problem situations	 Acquisition of different forms of statehood over time Acquisition of the different forms of government (Monarchy and Republic) 	Acquisition of the concept of citizenship and European citizenship: socio- legal-historical profiles History Civic Ed. IRC	Second half of September-first half of October	Multiple-choice tests/ open Oral/written papers Individual oral/written assessment Global evaluation of working groups
	State bodies (direct/indire ct administratio n)	• The composition and functions of the various institutional bodies (Parliament	 Recognising the role of the different institutional bodies of the State Recognising the role of the judiciary in 	Examine socio- political reality using acquired knowledge	 Acquisition of the role of the three main powers of the state Acquisition of the role of the Head of State 		Second half of October-February	







Representativ e bodies of the E.U.	 Government - Judiciary - President of the Republic - Constitutional Court) The role of local authorities in the perspective of administrative decentralisation and fiscal and state federalism The birth of the EU: historical evolution and legislation The Representative Bodies of the EU EMU: historical and regulatory evolution EMU representative bodies The Functions of the ECB 	 protecting legality and fighting all mafias Knowing how to reconstruct the genesis of the mafias from the Unification of Italy, to the 1990 massacres and up to the present day Recognising the role of local authorities Being able to identify the difference between fiscal federalism and state federalism Recognising the regulatory sources from which the EU originates Being able to identify and differentiate regulatory acts produced by the EU Recognising the structure and functions of EU bodies Recognising the regulatory sources from which EMU originated Recognising the regulatory sources from which the regulatory sources from structure and functions of EU bodies 	Interpret the constitutional function of the various institutional bodies in the light of socio-political- economic changes	 Acquisition of the function of local authorities, particularly the municipality Acquisition of the concept of European citizenship Acquisition of the EU concept, through its history Acquisition of the EMU concept, through its history 		March-first half of May	
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Promoting and Upgrading Green Skills in Agriculture ProGREEN

ECONOMICS

MODULE	U.D.A.	KNOWLEDGE	SKILLS	SKILLS	MINIMUM OBJECTIVES	TRANSVERSAL OBJECTIVES / DISCIPLINES INVOLVED	PERIOD	AUDITS/ASSES SMENTS
ENTERPRISE S AND THE STATE AS ECONOMIC ACTORS	Enterprises The Role of the State in the Economy	 Economic sectors and factors of production The different types of enterprise Economic Indicators The economic manoeuvre (DEF/BUDGET) Derived/originating state revenues and the different types of public expenditure The welfare state: social safety nets (WELFARE STATE) 	 Mastering the language of economics Knowing how to recognise different economic sectors Recognising different types of enterprises and economic factors Understanding the role of economic indicators and being able to distinguish them by type and function Being able to identify the role of the state in the economy within a mixed economy Being able to identify the function of social safety nets 	Relate the different contents learnt to the economic reality of the country Mastering the language of economics Solving problem situations using appropriate tools Examining reality Linking national to European reality, from an economic and social perspective	 Acquisition of the economic sector concept Acquisition of the enterprise concept Acquisition of the role of the state in the economy through its main interventions 	Acquisition of the logical- mathematical function of graphs to detect and interpret data of socio-economic reality Mathematics	Second half of January-first half of March Second half of March-May	Multiple-choice tests/ open Oral/written papers Individual oral/written assessment Global evaluation of working groups



ITA 'Emilio Sereni

PROGRAMMING CLASS TWO - CURRICULUM

Mathematics

PROGRAMMING Mathematics

MATHEMATICAL AXIS

SECOND CLASSES

The mathematical axis aims to enable students to acquire knowledge and skills that will enable them to make sound judgements and to know how to orient themselves consciously in the various contexts of the contemporary world.

Mathematical competence, which is not exhausted in disciplinary knowledge, nor does it only concern the operational fields of reference, consists in the ability to identify and apply procedures that allow problem situations to be expressed and addressed through formalised languages.

Mathematical competence involves the ability and willingness to use mathematical models of thinking (dialectical and algorithmic) and of graphical and symbolic representation (formulae, models, constructs, graphs, charts), the ability to understand and adequately express qualitative and quantitative information, to explore problem situations, to pose and solve problems, to design and construct models of real situations. The aim of the mathematical axis is the acquisition at the end of compulsory education of the skills necessary to apply basic mathematical principles and processes in the everyday context of the domestic sphere and at work, as well as to follow and examine the logical coherence of one's own and others' arguments in a variety of contexts of cognitive investigation and decision-making.

Basic skills at the end of compulsory education

• Use arithmetic and algebraic calculation techniques and procedures, also representing them graphically

- Compare and analyse geometric figures, identifying invariants and relationships.
- Identify appropriate strategies for problem solving.

• Analysing data and interpreting them by developing deductions and reasoning about them also with the aid of graphical representations, consciously using calculation tools and the potential offered by specific computer applications




WHAT THE TEACHER DOES	WHAT THE	PUPIL DOES	SKILLS/ABILITIES PROMOTED
 Introduces the uda, defines goals and objectives It guides learners in the reading and global comprehension of the text, Uses the tools provided, Explains the key nodes of each segment, Check, evaluate and plan the recovery phase Explains in natural language the rules of operations between sets by making certain key words explicit. 	 It acquires path to be followed Outline the related to the uda Learn to uo organise their work time It distingue concept' from a 'de Learn to te language into nature vice versa Identifies invariants 	s awareness of the d, e process steps use tools and c also in terms of dishes an 'innate offinition'. ranslate symbolic ral language and features and	 Learning to use the typical language of the discipline in written and oral production. Learning to work within a team. Interacting with peers and the teacher Relating one's knowledge experience to the peer group Acquisition of the concept of 'defining Takes notes, recognising and analysing the fundamental components of the operations illustrated
NAME MODULE 0		''Identities, equ first degree''. Linear equatio	uations and inequalities of the
2ND LEARNING UNIT		Linear Disequ	ations
TRAINING OBJECTIVES		 Assiduo teaching activit Carryin punctually; Relating manner with al teachers, enviro 	us and participative follow-up of ties; g out one's school duties g in a correct and appropriate l school components: peers, onment and structure.
TARGE	TED SKILLS	 Use the algebraic calcurrent graphically. Identify strategies. Analysian also with the here. 	techniques and procedures of lation, also representing them appropriate problem-solving ng data and interpreting them elp of graphical representations.



SPECIFIC LEARNING OBJECTIVES	 Apply the principles of equivalence apply the rule of cancellation and change of sign. Represent on an oriented line the set of solutions of an inequality and write it in the form of an interval. Solving problems using equations and inequalities.
PREREQUISITES	• Knowing how to work with monomials, polynomials and algebraic fractions
PERIOD OF APPLICATION	September-Octobe
TIMES	20 hours
CONTENTS	 Equality between algebraic expressions. Identity. Integer and fraternal equations. Principles of equivalence. Integer Linear Disequations
METHODS	 Lectures; Creation of working groups (formation of groups, assignment of tasks); Individual work; Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Individual written and oral questions; Various exercises on algebra and geometry content; Multiple-choice tests; Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





NAME MODULE 1	"Systems of first degree equations
1ST LEARNING UNIT INTERDISCIPLINARY	Linear systems
DISCIPLINES CONCERNED	Physics Chemistry Law and Economics
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the techniques and procedures of algebraic calculation, also representing them graphically. Identify appropriate problem-solving strategies. Analysing data and interpreting them also with the help of graphical representations.
SPECIFIC LEARNING OBJECTIVES	• Solving linear systems in two or three unknowns. Solving problems with linear systems as a model
PREREQUISITES	 Set of real numbers and its fundamental operations Theory and procedures of literal algebra Theory and techniques for solving first degree equations
PERIOD OF APPLICATION	• Mid-October -
TIMES	• 15 hours
CONTENTS	 First degree equations with two unknowns. Systems, equivalent systems. Solving a first degree system of two equations in two unknowns using the following methods: substitution, comparison, addition and subtraction.





METHODS	 Lectures Creation of working groups (formation of groups, assignment of tasks); Individual work Oral exposition.
INSTRUMENTS	 Adopted textbooks Questionnaires Verification sheets Laboratory -informatics Photocopies on supplementary topics
EVALUATION CRITERIA AND MODALITIES	 Individual written and oral questions; Various exercises on algebra and geometry content; Multiple-choice tests; Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





NAME MODULE 3	"The radicals "
1ST LEARNING UNIT 2ND LEARNING UNIT	Real numbers and radicals Powers and roots of a radical
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	• Use the techniques and procedures of the algebraic calculation
SPECIFIC LEARNING OBJECTIVES	 Knowing how to represent a real number on a straight line simplify a radical perform operations with radicals rationalising the denominator of a fraction operate with powers with a rational exponent.
PREREQUISITES	 Number sets Literal calculation Inequalities of the first degree for existence conditions
PERIOD OF APPLICATION	December -
TIMES	15 hours
CONTENTS	 Algebraic root and arithmetic root. Invariant property of radicals and their simplification. Reduction of several radicals to the same index. Operations with radicals. Power and root of arithmetic radicals. Similar radicals. Rationalisation of the denominator of a fraction. Fractional exponent powers.





METHODS	 Lectures Creation of working groups (formation of groups, assignment of tasks); Individual work Oral exposition.
INSTRUMENTS	 Adopted textbooks; Questionnaires; Verification sheets; Laboratory -informatics; Photocopies on supplementary topics.
EVALUATION CRITERIA AND MODALITIES	 Individual written and oral questions; Various exercises on algebra and geometry content; Multiple-choice tests; Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





NAME MODULE 4	Measuring lengths and the straight line in the Cartesian plane
I^ LEARNING UNIT INTERDISCIPLINARY	Cartesian coordinates and the measurement of geometric quantities The geometric locus straight line and its Cartesian equation Interpretation of graphs
DISCIPLINES CONCERNED	Physics Chemistry Law and Economics TTRG
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the techniques and procedures of algebraic calculation, also representing them graphically. Identify appropriate problem-solving strategies. Analysing data and interpreting them also with the help of graphical representations.
SPECIFIC LEARNING OBJECTIVES	 Knowing how to locate points on an oriented line or in the Cartesian plane using Cartesian coordinates Being able to determine the distance between two points using Cartesian coordinates in the plane Being able to determine the co-ordinates of the midpoint of the segment using Cartesian coordinates in the plane Knowing how to determine the equation of the line as the locus of points in the Cartesian plane Knowing how to find algebraic solutions to some simple first-degree geometry problems using the equation of a line.



PREREQUISITES	• Knowing how to work with monomials and polynomials.
	• Definition of parallel and perpendicular lines.
PERIOD OF APPLICATION	February -
TIMES	10 hours
CONTENTS	 Coordinates of points on a line Distance between two points in the Cartesian plane
	• Coordinates of the midpoint of a segment
	 Equation of a line Equation of a straight line in explicit form
	• Parallelism and perpendicularity between lines
	Intersection of lines
METHODS	 Lectures; Creation of working groups (formation of groups, assignment of tasks); Individual work;
	• Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Individual written and oral questions; Various exercises on analytical geometry content Multiple-choice tests; Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





NAME MODULE 5	"Equations of the second degree "
1ST LEARNING UNIT	Equations of the second degree
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties
	 Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	• Use the techniques and procedures of algebraic calculus;
	• <i>Identify appropriate problem-solving strategies;</i>
	• Analysing data and interpreting them also with the help of graphical representations.
SPECIFIC LEARNING OBJECTIVES	• Solving second-degree equations and inequalities.
	• Determine whether a trinomial of the second degree is reducible and, if so, decompose it;
	• Solve some particular equations of degree greater than two.
PREREQUISITES	• Equations of the first degree;
DEDIOD OF ADDI ICATION	Basic concepts of calculating radicals
TIMES	• 15 hours
CONTENTS	 Normal form of the second degree equation; Solving complete or incomplete equations and inequalities of the second degree; Fratte 2nd degree equations. Factor decomposition of a trinomial of the second degree.





METHODS	 Lectures; Creation of working groups (formation of groups, assignment of tasks); Individual work; Oral exposition.
INSTRUMENTS	 Adopted textbooks; Questionnaires; Verification sheets; Laboratory -informatics; Photocopies on supplementary topics;
EVALUATION CRITERIA AND MODALITIES	 Individual written and oral questions; Various exercises on algebra and geometry content; Multiple-choice tests; Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





NAME MODULE 6	'Non-linear systems'
1ST LEARNING UNIT	Second-degree systems
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the techniques and procedures of algebraic calculation, also representing them graphically. Identify appropriate problem-solving strategies. Analysing data and interpreting them also with the help of graphical representations.
SPECIFIC LEARNING OBJECTIVES	 Solving systems of non-linear equations; Graphically interpreting a non-linear system in some special cases.
PREREQUISITES	 First and second degree equations; The basic concepts of calculating radicals; Linear systems and the line; Equations of degree greater than two.
PERIOD OF APPLICATION	
TIMES	• 18 hours
CONTENTS	 Second-degree systems; Problems solvable with equations and systems of the second degree;
METHODS	 Lectures Creation of working groups (formation of groups, assignment of tasks); Individual work Oral exposition.





INSTRUMENTS	 Adopted textbooks; Questionnaires Verification sheets Laboratory -informatics; Photocopies on supplementary topics;
EVALUATION CRITERIA AND MODALITIES	 Individual written and oral questions; Various exercises on algebra and geometry content; Multiple-choice tests; Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.



NAME MODULE 7	''Euclidean Geometry transversal module
1ST LEARNING UNIT	Plane figures and their properties
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities; Carrying out one's school duties punctually; Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Identify the most appropriate strategies for problem solving; Compare and analyse figures; geometric, identifying invariants and relationships.
SPECIFIC LEARNING OBJECTIVES	 Draw correctly the figures described in the problems, prove a theorem; Design a solution path structured in steps; Identify the essential properties of figures.
PREREQUISITES	 Knowledge of fundamental entities; Knowledge of the axioms of plane geometry; Knowledge of parallelism in the plane; Angles formed by parallel lines cut by a transversal.
PERIOD OF APPLICATION	From
TIMES	• 20 hours





CONTENTS	 The trapezium. The parallelogram. The rectangle, the rhombus, the square. The centre of gravity of a triangle; Plane surfaces and their extensions. Equivalent polygons. Euclid's and Pythagoras' theorems; Fundamentals of the circumference, Reciprocal position of line - circumference, Angles to centre and circumference.
METHODS	 Lectures; Creation of working groups (formation of groups, assignment of tasks); Individual work; Oral exposition.
INSTRUMENTS	 Adopted textbooks; Questionnaires; Verification sheets; Laboratory -informatics; Photocopies on supplementary topics.
EVALUATION CRITERIA AND MODALITIES	 Individual written and oral questions; Various exercises on algebra and geometry content; Multiple-choice tests; Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	 Knowing how to solve simple first- and second-degree equations and first-degree systems, applying the principles of equivalence. Knowing how to simplify, take out and under a root sign a factor and rationalise a denominator. Simple applications of Pythagoras' and Euclid's theorem. Reciprocal position of line and circumference, and angles to centre and circumference









<mark>Year 3</mark> ITA 'Emilio Sereni

PROGRAMMING CLASS THREE - CURRICULUM

Agricultural Economics

Prof. Michele Vollaro - Prof. Simone Ripanti

Articulation:

- Plant production and product processing

PROGRAMMING

Economics, Estimate, Marketing and Legislation

The learning outcomes relating to the educational, cultural and professional profile in the **third year** can be identified in

- Identify and describe significant features of economic contexts
- Adapting accounting and economic methodologies to concrete structural and business realities
- Drafting technical reports and documenting individual and group activities related to professional situations

MODULE I: The economy 1ST LEARNING UNIT	Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation	
DENOMINATION	Needs, goods and utility
TRAINING OBJECTIVES	Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	Knowledge of the principles and tasks of economics
	 Being able to identify the main economic actors and their choices
	Knowing the classification of assets
	Knowing how to represent utility curves
	Understanding the motivations that determine consumer behaviour





USERS/RECIPIENTS		IPIENTS	First class of the second two-year period	
PREREQUISITES AND INTERDISCIPLINARY LINKS		Y LINKS	Having knowledge of mathematics and basic knowledge of law	
PERIOD OF APPLICATION		ICATION	Mid-September - Mid-October	
		TIMES	10 hours divided as follows:	
			6 hours for learning	
			2 hours recovery	
			• 2 hours evaluation (oral/written)	
PHASED SEQUENCE		QUENCE	 Presentation of the teaching unit to the class, using textbook, magazines Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product Recovery 	
CONTENTS	MODULE 1: THE ECO	ONOMY	UDA 1: GOODS, NEEDS AND UTILITY	
	LINGUISTIC SKILLS		CONTENTS	
	Talking Describe Write VERIFICATION TEST		Definition of Economy Characteristics and classification of needs Characteristics and classification of goods Utility and consumer behaviour	
			Multiple-choice and/or open-ended tests Oral examinations	
METHODS		ETHODS	 Lectures and dialogues through the functional-communicative approach Creation of working groups (formation of groups, assignment of tasks) Group work in the laboratory Oral exposition. 	
	INSTRU	JMENTS	Adopted textbooks	
			Computer Laboratory	
		Dictionaries, and trade journals		
			Photocopies of various materials	
EVALUATION CRITERIA AND MODALITIES		ALITIES	Individual assessment of acquired competences (Pollock grid)	
			Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.	
MINIMUM OBJECTIVES		ECTIVES	• To be able to illustrate in simplified language, or with the aid of aids (maps, graphs, drawings), or with personal productions what the economy is about, what needs and goods are, the characteristics of utility	





MODULE I: The economy 2ND LEARNING UNIT			Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation			
	DENOMI	NATION	The factors and costs of production
	TRAINING OBJE	CTIVES	 Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
	TARGETED) SKILLS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES		CTIVES	 Acquire the basics of how the production system works; Recognise and understand the factors of production and the laws of production; Recognise and understand the relationships between production factors, economic actors and their compensation; Knowing how to identify cost items; Knowing the different forms of production costs; Knowing how to recognise the optimal size of production.
	USERS/REC	IPIENTS	First class of the second two-year period
PREREQUISITES	AND INTERDISCIPLINAR	Y LINKS	Having knowledge of mathematics and basic knowledge of law
	PERIOD OF APPLI	CATION	Mid-October - November -
TIMES		TIMES	 19 hours divided as follows: 15 hours for learning 2 hours recovery 2 hours evaluation (oral/written)
PHASED SEQUENCE		QUENCE	 Presentation of the teaching unit to the class, using textbook, magazines Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product Recovery
CONTENTS	MODULE 1: THE ECO	DNOMY	UDA 2: FACTORS AND COSTS OF PRODUCTION
	LINGUISTIC SKILLS		CONTENTS
	Talking Describe Write		The theory of production; The factors of production and their incomes; Economic people; The laws of production; General cost equation; Average, marginal, fixed and variable costs; The entrepreneur's choices; Product portfolio management; Cost-benefit analysis methodologies; Multiple-choice and/or open-ended tests
	ME	THODS	Oral and written tests Lectures and dialogues through the functional-communicative
			approach





	 Creation of working groups (formation of groups, assignment of tasks) Group work in the laboratory Oral exposition.
INSTRUMENTS	 Adopted textbooks Computer Laboratory Dictionaries, and trade journals Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES	 Individual assessment of acquired competences (Pollock grid) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	• To be able to illustrate in simplified language, or with the aid of aids (maps, graphs, drawings), or with personal productions the factors of production, economic actors and their compensation and the different items of production costs

MODULE I: The economy 3RD LEARNING UNIT	Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation	
DENOMINATION	The market
TRAINING OBJECTIVES	Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	Acquire the market concept and understand the importance of exchange;
	• Know how the market works, its variables (demand, supply, price), and the causes of their variations in the various regimes and the mechanisms that regulate price formation.
USERS/RECIPIENTS	First class of the second two-year period
PREREQUISITES AND INTERDISCIPLINARY LINKS	Acquisition of economic terms and logic
PERIOD OF APPLICATION	December - January
TIMES	20 hours divided as follows:
	16 hours for learning
	2 hours recovery
	2 hours evaluation (oral/written)
PHASED SEQUENCE	Presentation of the teaching unit to the class, using textbook, magazines
	Lectures





			Workshop and research lessons
			Realisation of the Task/Product
			 Verification of skills and objectives through presentation and display of the final product
			Recovery
CONTENTS	MODULE I: THE ECO	NOMY	UDA 3: THE MARKET
	LINGUISTIC SKILLS		CONTENTS
	TalkingDescribeWrite	• • • •	The market and its functions; The question; The offer; The equilibrium price; The different forms of the market. policies
		•	Defining prices
	VERIFICATION TEST	•	Multiple-choice and/or open-ended tests Oral test
	ME	THODS	 Lectures and dialogues through the functional-communicative approach Group work in the laboratory Oral exposition.
	INSTRU	IMENTS	Adopted textbook
			Computer lab
			Dictionaries, and trade journals
			Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES		ALITIES	Individual assessment of acquired competences (Pollock grid)
			 Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
	MINIMUM OBJE	CTIVES	 To be able to illustrate in simplified language, or with the aid of aids (maps, graphs, drawings), or with personal productions the concept and graphic representation of supply and demand





The tax system	
Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile	
 Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context. 	
Acquire the concept of the tax system and understand concepts related to taxes and fees;	
 Knowing how the tax system works, the various forms of taxes and levies, knowing how to calculate taxes according to proportional and progressive systems. 	
First class of the second two-year period	
Having knowledge of mathematics and economic logic	
February - mid-March	
15 hours divided as follows:	
• 10 hours for learning	
3 hour recovery	
2 hours evaluation (oral/written)	
 Presentation of the teaching unit to the class, using textbook, magazines 	
Lectures	
Workshop and research lessons	
Realisation of the Task/Product	
 Verification of skills and objectives through presentation and display of final product 	
Recovery	
UDA1: THE TAX SYSTEM	
CONTENTS	
Generalities: the purposes of taxation, Taxes, Fees	
Personal Income Tax (IRPEF)	
Value Added Tax (VAT) and its calculation.	
Other taxes (IRES, IMU, etc.)	
Multiple-choice and/or open-ended tests Oral test	
Lectures and dialogues through the functional-communicative approach	
Group work in the laboratory	





	Oral exposition.
INSTRUMENTS	 Adopted textbook Computer lab Dictionaries, and trade journals Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES	 Individual assessment of acquired competences (Pollock grid) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	• To be able to illustrate in simplified language, or with the aid of aids (maps, graphs, drawings), or with personal productions, the concepts relating to the various types of taxes and duties, illustrating their areas of application.





MODULE III: Buying and selling 1ST LEARNING UNIT			Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation		and	
	DE	NOMINATION	Buying and selling and forms of payment
	TRAINING	OBJECTIVES	Approach to discipline
			 Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
	TARG	ETED SKILLS	 Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
	SPECIFIC LEARNING	OBJECTIVES	Knowledge of business aspects and documents
			Knowing how to write a cheque, a bill of exchange
			Knowing how to fill out purchase and sale documents
	USERS	RECIPIENTS	First class of the second two-year period
	PRE	REQUISITES	Fundamentals of general economics
	PERIOD OF A	APPLICATION	Mid-March - April
		TIMES	15 hours divided as follows:
			• 10 hours for learning
			2 hours recovery
			• 3 hours evaluation (oral/written)
PHASED SEQUENCE		O SEQUENCE	 Presentation of the teaching unit to the class, using textbook, magazines
			Lectures
			Creation of working groups.
			Workshop and research lessons
			Realisation of the Task/Product
			Recovery
CONTENTS	MODULE III: BUYING AN	ND SELLING	UDA 1: BUYING AND SELLING AND FORMS OF PAYMENT
	LINGUISTIC SKILLS		CONTENTS
	• Talking		Buying and selling The invoice
	Describe		The transport document
	• Write		 Bills of exchange Bank and bank drafts
			Credit Cards
	VERIFICATION TEST		I he transter Multiple-choice and/or open-ended tests
			Written and oral examination
		METHODS	Lectures and dialogues through the functional-communicative approach





	 Creation of working groups (formation of groups, assignment of tasks)
	Group work in the laboratory
	Oral exposition.
INSTRUMENTS	Adopted textbook
	Computer Laboratory
	Dictionaries, and trade journals
	Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES	• Individual assessment of acquired competences (Pollock grid)
	Comprehensive group assessment through tests, exercises,
	questionnaires, translations, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	• Being able to illustrate in simplified language, or with the help of
	aids (drawings), or with personal productions the different forms of payment.





MODULE IV: The agricultural holding 1ST LEARNING UNIT		Technological-scientific	
SUBJECT: Economics, Real Estate, Marketing and Legislation			
	DENOMINATION	The agricultural enterprise	
	TRAINING OBJECTIVES	Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile	
TARGETED SKILLS		• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.	
SPECIFIC LEARNING OBJECTIVES		 Recognise and understand the meaning of company and enterprise; Knowing how to identify the elements of corporate assets; Knowing how to prepare a balance sheet in the two components of the balance sheet and profit and loss account; Knowing the various aspects of elementary accounting and being able to record accounts: 	
		 Knowledge of the principles of cost-benefit analysis 	
USERS/RECIPIENTS		First class of the second two-year period	
PREREQUISITES AND INTERDISCIPLINARY LINKS		Acquisition of economic terms and logic	
PERIOD OF APPLICATION		Мау	
TIMES		 14 hours divided as follows: 10 hours for learning 2 hours recovery 2 hours evaluation (oral/written) 	
PHASED SEQUENCE		 Presentation of the teaching unit to the class, using textbook, magazines Lectures Workshop and research lessons Realisation of the Verification of skills and objectives through presentation and display of the final product Recovery 	
CONTENTS	MODULE IV: THE AGRICULTURAL HOLDING	UDA 1: THE AGRICULTURAL ENTERPRISE	
	LINGUISTIC SKILLS Talking Describe Urite	CONTENTS ny and enterprise; ricultural entrepreneur; ny accountingbalance sheet, profit and loss t, balance sheet; ntary accounting procedures: entries and s; ation of value estimates enefit analysis and environmental impact ment reports.	





VERIFICATION TEST	Multiple-choice and/or open-ended tests Oral test
METHODS	Lectures and dialogues through the functional-communicative approach
	Group work in the
	Oral exposition.
INSTRUMENTS	Adopted textbook
	Computer lab
	Dictionaries and trade journals
	Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES	• Individual assessment of acquired competences (Pollock grid)
	 Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	• To be able to illustrate in simplified language, or with the aid of aids (maps, graphs, drawings), or with personal productions, the characteristics of the agricultural entrepreneur, the different accounting entries and the approach to cost-benefit analysis.

MODULE IV: The agricultural holding 2ND LEARNING UNIT	Technological-scientific	
SUBJECT: Economics, Real Estate, Marketing and Legislation		
DENOMINATION	The Common Agricultural Policy	
TRAINING OBJECTIVES	Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile	
TARGETED SKILLS	 Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context. 	
SPECIFIC LEARNING OBJECTIVES	 Knowing the basic aspects of the CAP Being able to describe the objectives of the CAP 	
USERS/RECIPIENTS	First class of the second two-year period	
PREREQUISITES AND INTERDISCIPLINARY LINKS	Acquisition of economic terms and logic	
PERIOD OF APPLICATION	June	
TIMES	6 hours divided as follows	
	• 5 hours for learning	
	1 hour discussion	
PHASED SEQUENCE	 Presentation of the teaching unit to the class, using textbook, magazines 	
	Lectures	
	Workshop and research lessons	
	Realisation of the	
	 Verification of skills and objectives through presentation and display of the final product 	
	Recovery	





CONTENTS	MODULE IV: THE AGRICULTURAL HOLDING		UDA 2: THE COMMON AGRICULTURAL POLICY	
	LINGUISTIC SKILLS	CONTENTS		
	TalkingDescribeWrite	Description of the characteristics and objectives of the CAP		
	VERIFICATION TEST		Multiple-choice and/or open-ended tests Oral test	
INSTRUMENTS		 Lectures and dialogues through the functional-communicative approach Group work in the Oral exposition. Adopted textbook 		
		 Computer rab Dictionaries, and trade journals Photocopies of various materials 		
EVALUATION CRITERIA AND MODALITIES		 Individual assessment of acquired co Comprehensive group assessment the questionnaires, translations, summaringuided dialogues. 	ompetences (Pollock grid) hrough tests, exercises, ries, oral expositions and	
MINIMUM OBJECTIVES		• Being able to illustrate in simplified la aids (maps, graphs, drawings), or win the structure and objectives of the Ca	anguage, or with the aid of th personal productions AP.	



Promoting and Upgrading Green Skills in Agriculture ProGREEN ITA 'Emilio Sereni

PROGRAMMING CLASS THREE - CURRICULUM

ANIMAL PRODUCTION - ANIMAL PRODUCTION

Prof. Anna Chiara Migliardi

GENERAL OBJECTIVES

The development and approach to the relevant modules will be developed considering the propaedeuticity to the study of anatomy, physiology and morpho-functional assessment of animals as the set of skills to be developed throughout the course will be based on them.

In the drafting of the modules, the digestive, reproductive and mammary apparatuses, the mechanisms of which are fundamental for interpreting important biological and zootechnical processes in the understanding of breeding techniques are given greater emphasis.

Special consideration is given to the morphological evaluation of the dairy cow and beef cow, with the aim of maximising the farmer's income and improving the quality of production.

SKILLS AND ABILITIES

- Learning to use the technical scientific language of the discipline in written and oral production;
- Learning to work within a team and independently;
- Taking notes during a lecture;
- Interacting with peers and the teacher;
- Relating one's knowledge-experience to the peer group.

SPECIFIC OBJECTIVES:

- Using different means responsibly;
- Being aware of value of everyone's contribution within a ;
- Use of specific language, understanding the concept of diversity and biodiversity.

PREREQUISITES:

Fundamental knowledge of chemistry and biology;

SEQUENCES IN PHASES:

- Preparation and research of material by lecturers and learners;
- Presentation to the class;
- •, with computer support, possible creation of working groups;
- Research, production and processing work: realisation of the task/product;
- Verification of skills and objectives through presentation and display of the final product;





- Recovery;
- Certification of skills acquired.





MINIMUM OBJECTIVES

Passage to the next class will take place under the following conditions:

- Knowledge of appropriate terminology;
- Having acquired an organic view of the subject matter by being able connect the different topics of the discipline.
- Being able to identify the general characteristics of domestic animal regions;
- Knowing the structures and functions of tissues, organs and apparatuses;
- Knowledge of the constituent parts of bovine body;
- Know the difference between the anatomy and physiology individual animal parts;
- Knowing lactation;
- Getting to know digestion;
- Capacity for autonomy, ability to work in a team and be autonomous in written and oral interviews.

METHODOLOGY

- The lesson will be set up in a way that encourages dialectical confrontation and formal language;
- The habit of reasoning will be stimulated;
- Efforts will also be to stimulate study through links with other disciplines in order to foster interdisciplinarity.

MATERIAL

, notes, multimedia equipment, term papers.

SPACES

Classroom, multimedia laboratory, educational farm.

EVALUATION

Different types of tests provided for at the teacher's choice:

- \cdot Mixed typology test;
- · Written work;
- \cdot Possible practical test to be carried out in the laboratory or classroom;

 \cdot Possible interview the aid of a PC in order to verify the ability to use IT tools in study, research and in-depth study of the subject.





MODULAR PROGRAMMING

CIVIC EDUCATION: Animal Welfare, 'Universal Declaration of Animal Rights', Agenda 2030. **INNOVATIVE** FARMING **TECHNIQUES** (30 hours): theoretical part and *educational visit* to dairy farm (dairy cows).

I QUARTERLY

MODULE 1: The morpho-functional assessment of domestic animals Specific objectives

- The following module aims to provide learners with basic knowledge of the different zoognostic regions in dairy and beef animals and their development over time. The module will be developed from a logical-methodological point of view, as a survey and comparison procedure, survey: of appearance and bearing; comparison: made by comparing the body of the animal with the ideal type. The way of the evaluation procedure provides the student with a concrete basis for subsequent knowledge in the field.
- Knowing how to recognise the dairy type and the meat type;
- Know the difference between virtue and defect;
- Knowing the ideal type;
- Zoognostics;
- Knowing the yield at slaughter.

U.D. 1.1

Beauty, virtues, , illnesses; Morphological and functional types: milk types, meat types, slaughter yield.

U.D. 1.2

Coats (generalities): of cattle, horses, pigs, sheep and goats;

U.D. 1.3

The zoognostic regions: merits and faults of the main zoognostic regions: Of the limbs; Of the udder in dairy cows (conformation, suspension, consistency, defects; milking ability speed of milk delivery)

MODULE 2: Dairy type and meat type Specific objectives

- This module aims to provide learners with the main characteristics of dairy and beef cattle, breeds, and functional evaluation.
- Knowing how to evaluate a dairy cow;
- Knowing how to evaluate a beef cattle;
- Knowing the bovine categories.





U.D. 2.1

Production situation; The dairy cow; The beef cattle; The cattle categories.





II FOUR-MONTH PERIOD

MODULE 3:

Specific objectives:

- The following module aims to provide learners with basic knowledge about the diversity of domestic animals to be explored on multiple levels; anatomical, chemical, physiological, macroscopic (in the difference in productions) and microscopic (difference in the form and function cells and tissues);
- Knowledge physiological function and economic function;
- Knowing the substances that make up the animal's body;
- Knowledge of tissues and apparatuses.

U.D. 3.1 Histology

Cells: form and function; Tissues: form and function; Epithelial tissues (form and function): lining epithelia; The glands: exocrine, endocrine, mixed glands; differences in the mode of secretion; Connective tissues: Proper, adipose, cartilaginous, bone, circulating humours; Muscle tissue and nerve tissue.

MODULE 4: The apparatus Specific objectives

- The following module is intended to provide learners with basic knowledge of the apparatuses of fundamental importance for optimising breeding results; the diversity of apparatuses in different species; digestive and reproductive diversity; to provide learners with the concept of time reproduction and breeding and respect for animals
- Knowledge of the anatomy and physiology of the digestive system;
- Knowledge of the anatomy and physiology of the reproductive system;
- To know the anatomy and physiology of the mammary apparatus;

U.D. 4.1: The digestive system

Food and nutrients; Digestion in livestock species; The digestive system of polygastrics; Rumine physiology: protein digestion, FG digestion.

U.D. 4.2: Male and female genital apparatus

Basic concepts of anatomy and physiology of reproduction of continuous and seasonal polyestral species; Knowledge of organisational methodologies related to livestock reproduction; The oestral cycle and synchronisation of heats.

U.D4.3: Mammary apparatus and milk production:

The breast: Anatomy and physiology of the breast; Arterial and venous network of the breast; Hormones that influence lactation.





U.D. 4.4: Milk and lactation

Chemical characteristics of milk; Definition of milk according to current regulations; Duration of lactation in cows: lactation curve; Composition and function of *colostrum*; Milk production and processing.





ITA 'Emilio Sereni

PROGRAMMING CLASS THREE - CURRICULUM

English - English

Prof. Mariangela Anderboni

Textbook: GLOBAL FARMING, Enrica Sartori, Maurizio Po, Julia Delisle, Rizzoli Languages.

Programming by Minimum Learning Objectives will focus on the topics highlighted in bold.

MODULE 1 - TOWARDS A GREENER FUTURE

Competences in Specific	Skills	Grammar
 Understanding the causes and the effects of various environmental challenges Developing critical thinking on environmental awareness and Discussing various forms of Understanding the changes in agriculture over the years Discussing the pros and cons of different types of Using specific terminology Summarising the content of short videos 	LISTENING Completing dialogues with missing words Watching videos READING Answering open questions Choosing the odd word Developing critical thinking by matching headings to paragraphs Matching words or expressions with their definitions or translations Multiple choice True or false WRITING Building new vocabulary by: finding relevant words in a given text listing key words about a given topic Completing sentences and texts with missing words Completing summaries Correcting false sentences Reordering sentences Summarising key ideas Word formation Writing short texts on 	 Present simple/present continuous Frequency adverbs Word formation (the prefix eco-) Word formation (the prefixes 'over-' and 'under-') Can/could Past simple/past continuous Word formation (the suffix '- ness') Phrasal verbs: to give





relevant topics SPEAKING • Expressing opinions • Reporting someone else's opinions • Expressing disagreement	
 Expressing disagreement 	
Talking about abilities and skills	
 Discussing relevant topics 	

Unit 1 - Environmental challenges

Content	Flipped Classroom
Text 1 - Talking point	Video 'How we can keep plastic out of our
Text 2 - Agriculture and ecosystems	Oceans'
Text 3 - Ecological problems in Italy	
Text 4 - Problems due to overpopulation	
Text 5 - Global corner:	
World pollution: a world of plastic	
Vocabular	Grammar
Specific words found in Unit 1	 Present simple/present continuous
	 Frequency adverbs
Technical English	 Word formation (the prefixes 'over-' and
_	'under-')



Content	Flipped Classroom
Text 1 - Talking point Text 2 - Conventional Text 3 - What is organic farming? Text 4 - Organic farming in Italy Text 5 - Sustainable Text 6 - Biodynamic Hydroponics: Introduction History Advantages Disadvantages Growing System Nutrients and Hydroponics Future	Video "Why Africa is building a Great Green Wall?"
Text 7 - Global Corner: Sustainable	
Vocabulary	Grammar
Specific words found in Unit 2	Can/could
Technical English	 Past simple/past continuous Phrasal verbs: to give Word formation (the suffix '-ness')

Module 1 Revision: map pp. 38-39, mini quiz p. 40




MODULE 2 - GEOGRAPHY AND METEOROLOGY

Competences in Specific	Skills	Grammar
 Discussing the difference between weather and climate and their relation to farming Listing the activities carried out by farmers in the various seasons Talking about weather and weather forecasts Classifying and comparing climatic regions in the world and describing typical Developing critical thinking on climate change and its influence on the environment Understanding the relation between climate and migration Using specific terminology Answering questions in relation to short 	 LISTENING Completing dialogues with missing words Listening to a recording and answering open questions Watching videos READING Matching the beginning and the end of sentences Matching words or expressions with their definitions or Multiple choice True or false WRITING Answering open questions Building new vocabulary by: finding relevant words in a given text listing key words about a given topic Completing charts, tables and concept maps Completing sentences and texts with missing words Correcting false sentences Giving definitions Reordering sentences Word formation Writing short texts on given topics SPEAKING Expressing opinions, agreement and disagreement Using exclamations	 Will Talking about the weather Word formation (the suffix '-y') Expressing opinions and exclamations Giving a definition Word formation (the suffix '-ly')

Unit 3 - Climate and weather

Contents	Flipped Classroom
Text 1 - Talking point	How weather forecasts are made' video
Text 2 - Difference between climate and	
weather	
Text 3 - Seasons and farming	
Text 4 - Farming and weather forecasting	
Text 5 - Climate, natural vegetation and	
crops	
Text 6 - The climate in Italy	
Text 7 - Global Corner:	





Weather forecast	
Vocabulary	Grammar
Specific words found in Unit 3	• Will
• Technical English	 Talking about the weather Word formation (the suffix '-y')

Unit 4 - A changing climate

Content	Flipped Classroom
Text 1 - Talking point Text 2 - Influence of climatic changes on the environment Text 3 - The greenhouse Text 4 - The depletion of the ozone layer Text 5 - Agriculture: the culprit and the victim at the same time Text 6 - Global Corner:	The causes and effects of climate change' video
Vocabulary	Grammar
Specific words found in Unit 4Technical English	 Expressing opinions and exclamation Giving a definition Word formation (the suffix '-ly')

Module 2 revision: map pp. 78-79, mini quiz p. 80





MODULE 3 - PROTECTING THE SOIL TO SOW THE FUTURE

Competences in Specific	Skills	Grammar
 Discussing soil composition and management Explaining the causes of soil erosion Writing letters to suggest ways to rescue a degraded area Describing farm machinery Comparing advantages and disadvantages of relevant topics (crop rotations and machinery) Using specific terminology Answering questions in relation to short videos 	 LISTENING Completing dialogues with missing words Watching videos READING Choosing the odd word Developing critical thinking by reordering key information Matching captions to images Matching the beginning and the end of sentences Matching words or expressions with their definitions or translations Multiple choice True or false WRITING Answering open questions Building new vocabulary by: finding relevant words in a given text listing key words about a given topic Completing charts and concept maps Completing sentences and texts with missing words Correcting false sentences Writing formal letters Writing short texts on given topics Word formation 	 Present perfect Phrasal verbs: to make Phrasal verbs: to take Word formation (the "-ition", "-ation", "-tion", "- ssion") Word formation (the suffix '- ment') Making suggestions and agreeing/disagreeing Phrasal verbs: to turn Word formation (the prefix 'self-') Phrasal verbs: to go Word formation (the suffixes '- er' and '-or')
	 Completing charts and concept maps Completing sentences and texts with missing words Correcting false sentences Writing formal letters Writing short texts on given topics Word formation SPEAKING Discussing relevant topics 	

Unit 5 - What's in the soil?

Contents	Flipped Classroom
Text 1 - Talking point	Sustainable soil management' video
Text 2 - Soil composition	
Text 3 - Soil profile	
Text 4 - Soil texture and structure	
Text 5 - Global Corner:	
Vocabulary	Grammar
Specific words found in Unit 5	 Present perfect
	 Phrasal verbs: to make
Technical English	 Phrasal verbs: to take
• Business English:	 Word formation (the suffixes '-ition', '-ation', '-
Structure and vocabulary of emails and	tion', '-ssion')





business letters: enquiries and replies to enquiries, offers, ordersWord formation (the suffix '-ment')

EXTRA ACTIVITIES AND UNITS SELECTED BY THE TEACHER OR THE TEACHERS' BOARD.





ITA 'Emilio Sereni

PROGRAMMING CLASS THREE - CURRICULUM

Italian-Civic Education

Prof. Cinzia Maggio

Adoption text: The Beauty of Literature Authors: Marta Sambugar, Gabriella Sala' Publishing house: La Nuova Italia

THE LITERATURE OF THE ORIGINS

Political and cultural context relating to the transition from Latin to the vernacular Transformation of Latin into the vernacular first examples: **Probo's Grammar, Placito capuano, Veronese Riddle, ART and LITERATURE inscription of the Basilica of San Clemente.** The mentality and culture of the Middle Ages. Symbolism.

THE BIRTH OF EUROPEAN LITERATURE IN FRANCE

Chanson de geste and the courtly novel From the **Chanson de Roland**, Roland's Death at Roncesvalles From **Lancelot and the Knight of the Cart**, The Bridge of Swords

THE BIRTH OF ITALIAN LITERATURE

Religious poetry, St Francis of Assisi, *The Canticle of Brother Sun* The Sicilian Poetical School, *Jacopo da Lentini Amor è uno desio che ven da core* Comic-realistic poetry, *Cecco Angiolieri S'i' fosse foco*

THE DOLCE STIL NOVO.

General characteristics of the poetic movement. Guido Cavalcanti, Voi che per li occhi mi passaste il core

DANTE ALIGHIERI. Life and major works. **La Vita nova**. The plot, the beginning and the conclusion. **So kind and so honest it seems**

The Divine Comedy, an idea of man and the world. Subject, purpose, protagonist, structure and interpretation. CANTO I of Hell vv 1-54 CANT III The Ignorants Canto V Paolo and Francesca CANT XXVI

FRANCESCO PETRARCA. Life. The Canzoniere, structure, characteristics. Sonnets: Voi ch'ascoltate in rime sparse il suono, Erano i capei d'oro a l'aura sparsi, Solo e pensoso, O cameretta che già fosti porto

GIOVANNI BOCCACCIO. Life. The Decameron, structure and characteristics.





IV Novella of Day VI: Chichibio and the Crane.

CIVIC ED. CIVIC "Citizenship and Constitution

a. FILM There's still tomorrow.

AGENDA 2030_objective 5. Speech Gino Cecchettin. SONG With closed mouth (and personal song)

b. THE ART OF COMMUNICATION Home work debate yes/no. Cross-media communication.

ERASMUS PROJECT PROGREEN Cross-media writing for corporate outreach and communication

1. GENERAL ASPECTS OF COMMUNICATION

The elements of communication. Non-hostile communication: Manifesto. The art of argumentation. Research, reasoning, persuasion and language in debate. Choices for effective communication.

2. <u>CROSS-MEDIA.</u>

Crossmedia: introduction, definition, strategy and examples.

- a. *Crossmedia* hallmark of today's most effective marketing campaigns: the *benefits*.
- b. Methodology: *concept, objectives, media and target*.
- c. Channel *compatibility* and specificity:

The message simple, clear, engaging.

Visual elements: fonts, colours etc. designed according to media

Design: examples of video ads, images etc. (TikTok, Instagram Reels, YouTube Shorts etc.).

3. <u>CROSS-MEDIA WRITING.</u>

"Promoting a Sereni Company product, between tradition and innovation'.

Examples of corporate communication for the dissemination and promotion of the company and its products.

ITA Emilio Sereni's hydroponic greenhouse activity. The cultivation and processing of basil in greenhouses.

Creative group workshop:

- Devising a *story telling* for a short video. Between technology and emotions.
- Design and realisation of a Reel with Canva Infographics.





ITA 'Emilio Sereni

PROGRAMMING CLASS THREE - CURRICULUM

Mathematics complements

Prof. Elia Antonella Patriarca

Text to be adopted: BERGAMINI- BAROZZI- TRIFONE, 3G MATHEMATICA.verde Casa Editrice ZANICHELLI.

SUMMARY OF EDUCATIONAL AND DIDACTIC PLANNING

Since A.S. 2023/24 the class has been participating in the 'ERASMUS PROGREEN' project, the educational-didactic programme will be modified to integrate the project topics with those envisaged for the attainment of the final competences.

MINIMUM LEARNING OBJECTIVES

- 4 Knowing how to use frequency tables, identifying absolute and relative frequencies;
- 4 Know how to calculate the main statistical indicators: mean, fashion, median and variance.
- 4 Knowing how to interpret graphs relating to statistical distributions.
- 4 Knowing how to distinguish between the main groupings.
- + + + + + Knowing how to distinguish between dependent and independent, compatible and incompatible events.
- Knowing how to apply the concept of classical probability in simple problems.
- Know the definition of discrete random variable and probability distributions.
- Know the generalities about probability distributions.
- Knowing how to use a sample for detection.
- 4 Knowing the parameters of the population and the sample.
- 4 Know the distribution of the sample mean.
- 4 Know how to perform point estimates of the mean.
- Dealing with simple sampling and estimation problems and hypothesis testing.

CONTENTS

In the third year, in accordance with the European 'PROGREEN' project curriculum, the following topics are planned: statistics, sample distributions and estimators and field tests of simple statistical applications

SUMMARY OF TEACHING MODULES

TEACHING MODULE 1: TEACHING MODULE 2: TEACHING MODULE 3: CIVIC EDUCATION MODULE:

Elements of descriptive statistics (PROGREEN) Probability (PROGREEN) Sample distributions and estimators (PROGREEN) Big data and sustainability. Fake news

TEACHING STRATEGIES

Topics will possibly be introduced in problem form, starting with examples as concrete as possible and then generalised. It will be ensured that application exercises relating to the subject matter are carried out in class in order to verify, with a certain immediacy, the understanding of the subject matter. There will also be guided conversations on known topics with the aim of making students reflect on what they have learnt, make comparisons, use previous knowledge in the construction of new knowledge, generalise acquired concepts and





procedures. In this regard, topics of civic education will be dealt with as decided at the departmental meeting. In particular, topics concerning 'Big data and sustainability' and 'Fake news' will be analysed.

MEANS AND TOOLS

- Interactive lessons
- Lectures
- Production work in small groups
- Textbooks
- Material provided by the teacher in the form of notes shared via Classroom and/or E-register

ARRANGEMENTS FOR VERIFICATION AND EVALUATION

The assessment tools suitable for verifying the levels achieved in the learning objectives already set will be: (a) written and/or oral examinations;

- (b) multiple-choice and/or open-ended questions;
- (d) verification of the work carried out by the working groups.

The immediate verification of learning will also be carried out on a daily basis through the teacher/student interview (clarification of doubts, answering questions, requests for more in-depth studies ...).

In addition, the correction of homework assignments and students' answers to individual questions posed by the teacher will be considered an integral part of the testing activity.

Written tests will generally be administered at the end of the individual teaching units (carried out in their entirety or even only partially if they are rather rich in different content).

When drafting the written tests, the teacher will take into account the complexity of the test, the time allotted and the point reached in the development of the syllabus.

The assessment will be communicated to the pupils immediately for oral examinations, while written examinations will be returned corrected if possible within the week following the date on which they are taken.

For the number of tests per four-month period, written and oral, reference is made to what was established in the Disciplinary Department. The following evaluation grid will be followed for the summative evaluation:

MATHEMATICS EVALUATION GRID - ORAL TEST			
Conceptual knowledge basic	Application: correctness in calculations, application of techniques and procedures. Correctness and accuracy in the execution of geometric representations and graphs. Propriety of language.	Logical skills: organising and using knowledge and skills to analyse, decompose, elaborate.	Vote
Null and/or	None and/or minimal only under	Null and/or incorrect and	
fragmentary	the teacher's guidance, but with serious errors. Not able to use specific vocabulary.	Improper	1-3
Superficial and	Minimal only under the guidance	Minimal inadequate exposure	
deficient	of the teacher, but with errors in	and no analysis operations	4
	the execution of simple tasks .		
	Uses inexact and imprecise		
	vocabulary.		
Superficial and	Minimal but inaccurate execution	Minimal in exposition always	
uncertain	of simple tasks. Incurs some	coherent, but with difficulties	5





	errors in the use of specific	in logical connections; lacunar	
	vocabulary.	analysis	
Essential but not in-	Sufficient in the execution of	Sufficient in simple and	
depth	simple tasks without substantial	adequate exposition, some	6
	errors but with some	difficulty in synthesis and	
	uncertainties. Uses specific	analysis	
	vocabulary, albeit with some		
	inaccuracies		
Essentials with possible	Discreet in the correct execution	Fair in effective and correct	
insights	of simple tasks and with some	exposition. Fair in analysis with	7
	inaccuracies in complex	some difficulty in synthesis	
	problems. Uses specific		
	terminology correctly.		
	Good in the correct and	Good in effective exposition	8 - 9
Substantially complete	autonomous execution of	with mastery of specific	
with some independent	complex problems. Uses specific	language. Correct analysis and	
in-depth study	vocabulary correctly.	synthesis operations and	
		personal reworking	
Complete, organic,	Excellent in the correct and	Excellent in correct, articulate	9 - 10
articulate and with	autonomous execution of even	and thorough exposition.	
independent insights	complex problems. Uses a wide	Personal and critical re-	
	range of specific vocabulary	elaboration	
	correctly.		

For DSA pupils and pupils with BES, the same assessment criteria compensated by the regulations currently in force apply.

RECOVERY ACTIVITIES

As remedial activity is aimed at removing the causes of school failure, it must take the following guidelines into account:

- Researching techniques and strategies to improve reading, comprehension, revision
- Educating to pay attention, to question, to listen.
- Organise and plan activities like a job.

The remedial activity will be timely and targeted at the end of each individual subject and may consist of returning to it with the whole class or with a small group of students by changing the approach and/or development of the subject. The choice will depend on the failure to achieve the objectives.

This does not exclude the administration of supplementary and varied exercises to individual learners as required and the subsequent monitoring of these by the teacher.

ORGANISATION OF THE ACTIVITY

MODULE 1	
ELEMENTS OF DESCRIPTIVE STATISTICS	

NAME MODULE 1	ELEMENTS OF DESCRIPTIVE STATISTICS
1ST LEARNING UNIT	Simple statistical distributions









TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure. Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to
SPECIFIC LEARNING	 investigate social and natural phenomena and to interpret data. Carry out a perusal of data
OBJECTIVES	 Construct data tables from the corresponding perusal tables. Constructing frequency tables. Graphically representing statistical distributions and interpreting their fundamental characteristics. Calculate statistical indices and indicators.
PREREQUISITES	 Numerical sets. Representation of Cartesian diagrams. Percentages
PERIOD OF APPLICATION	October - December
TIMES	10 hours
CONTENTS	 What is Statistics Statistical data Statistical frequencies and simple statistical distributions Graphical representations of frequency distributions Position indices: arithmetic mean, median, fashion Indices of variability: variance and mean square deviation Statistical double distributions and double-entry tables Statistical Reports Regression and Correlation
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





MODULE 2 PROBABILITY

NAME MODULE 2	CALCULUS OF PROBABILITIES
1ST LEARNING UNIT	Elements of combinatorial calculus
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING OBJECTIVES	• Know how to calculate the number of groups that can be formed with a certain number of objects depending on the law of group formation
PREREQUISITES	Basic elements of literal calculus.
PERIOD OF APPLICATION	December-January
TIMES	4 hours
CONTENTS	 What is combinatorial calculus Groupings and product rule Simple arrangements of n objects Arrangements with repetition Permutations of n objects and the factorial of n Permutations with repetition Simple combinations of n objects Combinations with repetition
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





2ND LEARNING UNIT	Elements of probability			
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure. 			
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data. 			
SPECIFIC LEARNING OBJECTIVES	 Acquire a theoretical knowledge base for the study of probability theory. Define conditional probability. Establish the link between probability and frequency. 			
PREREQUISITES	 Sets: representations and operations. Tables, tree diagrams and their interpretation. Concept of frequency. Combinatorial calculus 			
PERIOD OF APPLICATION	January- February			
TIMES	6 hours			
CONTENTS	 Events and probability. Union event and intersection event. Compatible and incompatible events. Dependent events and independent events. Total probability. Compound and conditional probability. Bayes' Theorem 			
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition. 			
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues. 			





MODULE 3 SAMPLE DISTRIBUTIONS AND ESTIMATORS

NAME MODULE 2	SAMPLE DISTRIBUTIONS AND ESTIMATORS			
1ST LEARNING UNIT	Probability Distributions			
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure. 			
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data. 			
SPECIFIC LEARNING OBJECTIVES	 Know the concept of discrete random variables and probability distributions. Know the mean value, variance and the mean square deviation of discrete random variables. Know the generalities about probability distributions. Knowing frequently used probability distributions 			
PREREQUISITES	Module 1 and Module 2			
PERIOD OF APPLICATION	March-April			
TIMES	6 hours			
CONTENTS	 Discrete random variables and probability distributions Mean value, variance and standard deviation of discrete random variable Frequently used probability distributions (discrete uniform distribution, binomial distribution, Poisson distribution) 			
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition. 			





EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues. 			
2ND LEARNING UNIT	Estimators			
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure. 			
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data. Use computer networks and tools in study, research and in-depth study of the discipline. 			
SPECIFIC LEARNING OBJECTIVES	 Knowing how to use a sample for detection. Knowing the parameters of the population and the sample. Know the distribution of the sample mean. Know how to perform point and interval estimation of the mean. Dealing with simple sampling and estimation problems and hypothesis testina. 			
PREREQUISITES	Module 3 - 1st learning unit			
PERIOD OF APPLICATION	May-June			
TIMES	4 hours			
CONTENTS	 Population and sample Sample average Estimators and their properties Field tests of simple statistical applications 			
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition. 			





EVALUATION CRITERIA AND		Written tests and individual questions.
MODALITIES	•	Exercises in class and/or at home.
	•	Multiple-choice and structured tests.
		Comprehensive group assessment through tests, exercises, stionnaires, summaries, oral expositions and guided dialogues.

CIVIC EDUCATION MODULE

MODULE NAME (Transversal competences to be developed in itinere)	Big data and sustainability' and 'Fake news'.
TRAINING OBJECTIVES	 Assiduous and participative follow-up teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use language and methods to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING OBJECTIVES	 Problem solving. Identifying links and relationships. Acquiring and interpreting information.
PERIOD OF APPLICATION	During year
TIMES	3 hours
CONTENTS	 Big data and sustainability Fake news
METHODS	 Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	• Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





ITA 'Emilio Sereni

PROGRAMMING CLASS THREE - CURRICULUM

Plant production

Prof. Giuseppe Altobelli - Prof. Luca Corbezzoli

Articulations: Production and Processing, Environment and Land Management, Viticulture and Oenology.

The learning outcomes relating to the , cultural and professional profile in the third year can be identified in

- Identify and describe significant characteristics of environmental contexts
- Organising environmentally friendly production activities
- Identify and apply the methodologies and techniques farm management
- Drafting technical reports and documenting individual and group activities relating to situations professional

MODULE 0: INNOVATIVE FARMING SYSTEMS 4 learning units	Technological-scientific
SUBJECT: Plant Production	
TRAINING OBJECTIVES	• Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS	• Mastery of the expressive tools (oral and written) of the discipline manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	 Knowledge of general issues related to water regulation Knowing the different methods to reduce freshwater speculation Starting from different situations, know how to choose the most effective soil cultivation Knowledge of the main materials used for above-ground cultivation Knowing the interactions between plant and substrate
PREREQUISITES	• Fundamentals of agronomy and botany
PERIOD OF APPLICATION	September to May - the following module is to be integrated into what is normal ministerial programming.





PHASED SEQUENCE	 Presentation of teaching unit to the class Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product Verification of skills and objectives through presentation and display of final product Recovery
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CONTENTS	MODULE 0: SUBSTRATE SOIL MANAGEMENT GROWING CROPS IN HYDROPONICS				
	LANGUAGE SKILLS	CONTENTS			
	 Talking Describe Write 	 UDA 1: Hydroponic cultivation, differences between traditional and hydroponic cultivation - advantages and UDA 2: Classification of hydroponic cultivation systems: introduction, historical background, what is an above-ground crop and what is a hydroponic one, advantages and disadvantages of above-ground, diffusion in Italy, above-ground techniques, how substrate cultures work the different types of substrate, the floating system. UDA 3: Hitech Green House manual operation UDA 4Growing substrates and their characteristics for soilless cultivation, functions and requirements of substrates, the main types of substrates (organic, inorganic, obtained by heating; physicalmechanical characteristics of substrates, substrates of peat, coconut 			
	METHODS	 fibrepumice, zeolite, expanded clay, rockwool, perlite. Lectures and dialogues through the approach functional-communicative Practical greenhouse exercises Creation of working groups (formation of groups, assignment of tasks) Group work in the laboratory Oral exposition. 			
	• INSTRUMENTS	 Agronomy Laboratory Trade magazines Photocopies of various materials 			
	• EVALUATION CRITERIA AND MODALITIES	 Individual assessment of skills acquired (departmental grid attached) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues. 			





MODULE I: Soil management 3 LEARNING UNITS	Technological-scientific
SUBJECT: Plant Production	
TRAINING OBJECTIVES	• Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS	• Mastery of the expressive tools (oral and written) of the discipline manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	 Knowledge of general issues related to water regulation Knowing the different methods for regulating stormwater Starting from different soil and climate situations, knowing how to choose the most effective hydraulic system Knowing how to choose the right time to till the soil Knowledge of tillage tools Knowledge of processing techniques in different soil and climate environments Knowing the interactions between plant and soil Knowing how to choose the most suitable plants and rotation for different environments
PREREQUISITES	• Fundamentals of soil science and botany
PERIOD OF APPLICATION	September - October -
PHASED SEQUENCE	 Presentation of the teaching unit to the class, using textbook, magazines Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product Verification of skills and objectives through presentation and display of the final product Recovery





	MODULE I: SOIL MANAGEMENT		
	LANGUAGE SKILLS		CONTENTS
	TalkingDescribeWrite	UDA 1: S pedogenet, stratifica UDA 2: C appearant UDA 3: N nitrogen p	oil functions and transformations - soil functions, sis, phyco-mechanical characteristics, excess water ttion. Themical and biological properties - chemical ce, organic matter, colloids, biological appearance futrients - classification, carbon hydrogen oxygen, ohosphorus potassium, trace elements.
	VERIFICATION TESTS		Multiple-choice and/or open-ended tests Oral tests
	MINIMUM OBJECTIVES		Familiarise yourself with the concepts of erosion and water stagnation and describe lowland and hillside agrarian hydraulic systems. Knowledge of the main tillage operations and the tools used. Know the purposes crop rotation and know how to work out some examples of crop rotation.
	М	ETHODS	 Lectures and dialogues through the approach functional-communicative Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in the laboratory Oral exposition.
INSTRUMENTS		 Adopted textbooks Handbook Agronomy Laboratory Trade magazines Photocopies of various materials 	
EVALUATION CRITERIA AND MODALITIES		 Individual assessment of skills acquired (departmental grid attached) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues. 	





CONTENTS	MODULE II: SOIL MANAGEMENT		
	LANGUAGE SKILLS	CONTENTS	
	 Talking Describe Write 	UDA 1: 1 movemen surface d drainage. UDA 2: 1 tillage mo technique UDA 3: 0 of crop ro	Aydraulic-agricultural arrangements: water t in the soil, water erosion and water stagnation, the rainage network, flat and sloping land arrangements, Fillage: physical properties of soil, classification of tillage, achines, effects tillage, ploughing and other tillage rs. Crop rotation: reasons and principles crop rotation, types otation.
	VERIFICATION TESTS		Multiple-choice and/or open-ended tests Oral tests
	MINIMUM OBJI	ectives	Know the concepts of eroston and water stagnation and describe the agrarian hydraulic systems of lowlands and hills. Knowledge of the main tillage operations and the tools used. Know the purposes crop rotation and be able to work out a few examples of crop rotation.
METHODS		 Lectures and dialogues through the approach functional-communicative Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in the laboratory Oral exposition. 	
INSTRUMENTS		 Adopted textbooks Handbook Agronomy Laboratory Trade magazines Photocopies of various materials 	
EVALUATION CRITERIA AND MODALITIES		 Individual assessment of skills acquired (departmental grid attached) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues. 	





MODULE II: The agricultural tractor	Technological-scientific
SUBJECT: Plant Production	
TRAINING OBJECTIVES	 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of the own professional profile
TARGETED SKILLS	• Mastery of the expressive tools (oral and written) of the discipline manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	 Acquire the basics of how drive machines work Recognises and understands the function of various tractor components in order to be able to evaluate them when making a choice Recognise and understand the operation of coupling devices between operating and driving machines and their mode of use
PREREQUISITES	Fundamentals of physics
PERIOD OF APPLICATION	December -January - February
PHASED SEQUENCE	 Presentation of the teaching unit to the class, using textbook, magazines Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product Verification of skills and objectives through presentation and display of the final product Recovery





CONTENTS	Л	MODULE III: THE AGRICULTURAL TRACTOR		
	LANGUAGE SKILLS		CONTENTS	
	TalkingDescribeWrite	UDA 1: C parts of th parts, fou. (clutch, g tracks), tr point hitc	Classification of agricultural tractors, the constituent the tractor, the internal combustion engine (constituent r-stroke and two-stroke cycle), transmission parts earbox, differential), propulsion parts (grip, wheels and actor connection parts (drawbar and trailer hitch, three- h, power take-offs), tractor stability.	
	VERIFICATION TEST		 Multiple-choice and/or open-ended tests Oral test 	
	MINIMUM OBJECTIVES		• Knowing the constituent elements of the engine and tractor	
METHODS		METHODS	 Lectures and dialogues through the functional- communicative approach Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in the laboratory Oral exposition. 	
INSTRUMENTS		RUMENTS	 Adopted textbooks Handbook Topography Laboratory Trade magazines Photocopies of various materials 	
EVALUATION CRITERIA AND MODALITIES		DALITIES	 Individual assessment of skills acquired (departmental grid attached) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues. 	





MODULE IV: Fertilisation 1 LEARNING UNIT	Technological-scientific
SUBJECT: Plant Production	
TRAINING OBJECTIVES	 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS	• Mastery of the expressive tools (oral and written) of the discipline manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	 Being able to identify the value of services rendered by the collective good to society Knowing how to identify the right estimation methodology for environmental assets Knowing characteristics of cost-benefit analysis
PREREQUISITES	• Fundamentals of pedology and chemistry
PERIOD OF APPLICATION	Mid-March - April
PHASED SEQUENCE	 Presentation of the teaching unit to the class, using textbook, magazines Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product Verification of skills and objectives through presentation and display of final product Recovery





CONTENTS	MODULE		IV: FERTILISATION
	LANGUAGE SKILLS	CONTENTS	
	 Talking UDA 1: Describe nutrient Write fertiliser 		<i>he adsorptive power and exchange capacity of soil, mineral fertilisation, organic fertilisation and organic , fertilisation techniques</i>
	VERIFICATION TEST		 Multiple-choice and/or open-ended tests Oral or written examination
	MINIMUM OBJECTIVES		• Knowledge of the main nutrients, mineral fertilisers, organic fertilisers and fertilisation techniques
METHODS		ETHODS	 Lectures and dialogues through the functional- communicative approach Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in the laboratory Oral exposition.
INSTRUMENTS		UMENTS	 Adopted textbooks Handbook Agronomy Laboratory Trade magazines Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES		DALITIES	 Individual assessment of skills acquired (departmental grid attached) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.





MODULE VIrrigation 1 LEARNING UNIT	Technological-scientific
SUBJECT: Plant Production	
TRAINING OBJECTIVES	 Approach to discipline Acquiring awareness of the value formative of the discipline in the construction of one's professional profile
TARGETED SKILLS	 Mastery of the expressive tools (oral and written) of discipline to manage interaction communication in the context of the group.
SPECIFIC LEARNING OBJECTIVES	 Knowing the water requirements of crops Knowing the water balance Knowing the technical parameters of irrigation Knowledge of irrigation systems Knowing how to choose the most appropriate irrigation system in different crop situations Knowing how to optimise available water resources
PREREQUISITES	Fundamentals of physics and pedology
PERIOD OF APPLICATION	May-June
PHASED SEQUENCE	 Presentation of the teaching unit to the class, using textbook, magazines Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product Verification of skills and objectives through presentation and display of final product Recovery





CONTENTS MO		MO	DULE VIRRIGATION
	LANGUAGE SKILLS	CONTENTS	
	TalkingDescribeWrite	UDA 1: Hydrological constants, the purposes irrigation, crop water requirements, usable water reserves, technical parameters of irrigation, irrigation water quality, irrigation systems, aridoculture	
	VERIFICATION TEST		 Multiple-choice and/or open-ended tests Oral test
	MINIMUM OBJECTIVES		• Knowledge of the purposes of irrigation, irrigation systems and the concept of dry farming
METHODS		<i>METHODS</i>	 Lectures and dialogues through the functional- communicative approach Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in the laboratory Oral exposition.
INSTRUMENTS		RUMENTS	 Adopted textbooks Handbook Agronomy workshop Trade magazines Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES		DALITIES	 Individual assessment of skills acquired (departmental grid attached) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.





ITA 'Emilio Sereni

PROGRAMMING CLASS THREE - CURRICULUM

PRODUCT PROCESSING - PRODUCTS PROCESSING

Prof. Paola Longo - Prof. Enza Morrone

1. GENERAL AND INORGANIC CHEMISTRY

A. INORGANIC COMPOUNDS.

• Salts: the formation of a salt.

B. CHEMICAL KINETICS

- chemical equilibrium;
- reversible and irreversible reactions
- reaction speed and factors influencing it;
- the law of the action of masses and its application;

C. ACIDS BASES AND SALTS

- electrolytic dissociation;
- the dissociation of water;
- acidic and basic character of a compound;
- the dissociation constant of a compound;
- Definition of acid and base according to: Arrhenius, Bronsted, Lowry;
- the dissociation constant for acids and bases and its significance;
- acidic, basic and neutral solutions;
- the pH of the water;
- the mole and its calculation.

D. SOLUTIONS:

- solution concept;
- solubility and saturated solutions;
- types of solutions;
- binding energy and solubility of the compound in solvent;

2. ORGANIC CHEMISTRY

- INTRODUCTION TO ORGANIC CHEMISTRY:
 - Carbon hybridisation: sp₃, sp₂, sp.
 - Concept of hybridisation
 - Definition of hydrocarbons and their classification;
- ALKANS
 - Chemical-physical properties, hybridisation, IUPAC nomenclature, halogenation and oxidation-combustion actions;
- THE ALKANS





- Chemical-physical properties, hybridisation, IUPAC nomenclature, halogenation reactions, hydrogenation, hydration, addition with halogenhydric acids.
- The carbocatione
- Concept of isomerism: isomers.
- THE ALKINS
 - Chemical-physical properties, hybridisation, IUPAC nomenclature, halogenation reactions, hydrogenation, hydration, addition with halogenhydric acids.
- ALCOHOLS
 - Chemical and physical properties, functional group, IUPAC nomenclature, classification of alcohols.
- AROMATIC COMPOUNDS
 - Chemical and physical characteristics
 - Aromaticity
 - Benzene, phenol, toluene
 - Ortho, meta, para positions.
- ADDITIONAL ARGUMENTS
 - Nutraceutics: what it is and its importance
 - Nutraceuticals
 - Research on polyphenols and lycopene

LABORATORY PROGRAMME

• Nomenclature, formation of basic-oxides

acids-hydroxides-oxyacids-binary salts.

- Prepare use and dilute a solution with a given
- concentration.
- Concentration in:
- 1. Mass percentage
- 2. Volume percentage
- 3. Mass percentage of solute per volume of solution
- 4. Molarity
- Titration (practical procedures)
- 1. Acid-base titration

PRO-GREEN PROJECT

- Determination of lycopene in tomatoes
- 1. Extraction, filtration and paper chromatography
- 2. Bayer's permanganate assay for the

recognition of the double bond.









Year 4

ITA 'Emilio Sereni

PROGRAMMING CLASS FOUR - CURRICULUM

Agricultural Economics

Prof. Michele Vollaro - Prof. Luca Corbezzoli

Articulation:

- Plant production and product processing

PROGRAMMING

Economics, Estimate, Marketing and Legislation

The learning outcomes related to the educational, cultural and professional profile in the **fourth year** can be identified in

- Identify and describe significant features of economic contexts
- Organising environmentally friendly production activities
- Identify and apply the methodologies and techniques of farm management
- Drafting technical reports and documenting individual and group activities related to professional situations

MODULE I: The tax system 1ST LEARNING UNIT	Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation	
DENOMINATION	The tax system
TRAINING OBJECTIVES	 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS	 Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	 Knowing the function and modalities of taxation Knowing how to distinguish the different types of taxes Knowing how to determine the various taxes
USERS/RECIPIENTS	Second two-year class
PREREQUISITES	Acquisition of economic terms and logic
PERIOD OF APPLICATION	September -





TIMES PHASED SEQUENCE		 20 hours divided as follows: 10 hours for learning 3 hours recovery 7 hours evaluation (oral/written) Presentation of the teaching unit to the class, usi magazines Lectures Creation of working groups. Workshop and research lessons Realisation of the Task/Product 	ng textbook,	
			• Recovery	
CONTENTS	MODULE 1: THE TAX	SYSTEM	UDA 1: THE FISCAL SYSTEM	
	LINGUISTIC SKILLS		CONTENTS	
	TalkingDescribeWrite	 The Incol Prop VAT 	classification of taxes; me Taxes; perty taxes;	
	VERIFICATION TEST		Multiple-choice and/or open-ended tests Oral or written test	
METHODS		 Lectures and dialogues through the functional-co approach Creation of working groups (formation of groups, tasks) Group work in the laboratory Oral exposition. 	mmunicative assignment of	
INSTRUMENTS		 Adopted textbooks Computer lab Dictionaries, and trade journals Photocopies of various materials 		
EVALUATION CRITERIA AND MODALITIES		 Individual assessment of acquired competences Comprehensive group assessment through tests, questionnaires, translations, summaries, oral expguided dialogues. 	(Pollock grid) , exercises, positions and	
MINIMUM OBJECTIVES		 Being able to illustrate in simplified language, or aids (maps, graphs, drawings), or with personal p main taxes on income, property and VAT 	with the aid of productions the	





MODULE II: The agricultural holding 1ST LEARNING UNIT			Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation		and	
	DENOM	INATION	The factors of production and management
	TRAINING OBJE	ECTIVES	Approach to discipline
			 Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
	TARGETEL) SKILLS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SF	PECIFIC LEARNING OBJE	ECTIVES	Knowing how to classify land, agricultural and labour capital
			Being able to analyse concepts and contents of agricultural production activity
			Understand the mechanisms of the economic system, of the distribution of income between economic production figures
	USERS/REC	IPIENTS	Second two-year class
	PREREQ	UISITES	Fundamentals of economics
	PERIOD OF APPL	ICATION	November
		TIMES	12 hours divided as follows:
			8 hours for learning
			2 hours recovery
			• 2 hours evaluation (oral/written)
	PHASED SEC	QUENCE	 Presentation of the teaching unit to the class, using textbook, magazines
			Lectures
			Creation of working groups.
			Workshop and research lessons
			Realisation of the Task/Product
			• Recovery
CONTENTS		МС	DDULE 2: The agricultural enterprise
		UDA 1:	THE FACTORS OF PRODUCTION AND CONDUCTION
	LINGUISTIC SKILLS		CONTENTS
	• Talking	• The c	haracteristics of the agricultural sector
	Describe	• The c	apital of the farm
	Write	• The w	vork
		• The fo	orms of conduct
TEST: Multiple-choice and/or ope		and/or op	en-ended test
METHODS		ETHODS	 Lectures and dialogues through the functional-communicative approach
			 Creation of working groups (formation of groups, assignment of tasks)
			Group work in the laboratory





Oral exposition.
Adopted textbooks
Computer Laboratory
Dictionaries, and trade journals
Photocopies of various materials
• Individual assessment of acquired competences (Pollock grid)
 Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
• To be able to illustrate in simplified language, or with the aid of aids (maps, graphs, drawings), or with personal productions, the factors of production of the agricultural holding and the forms of management





MODULE III: The farm balance sheet 1ST LEARNING UNIT		Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation		
DENC	OMINATION	The economic balance sheet of the agricultural holding
TRAINING OF	BJECTIVES	Approach to discipline
		 Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGET	ED SKILLS	Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SPECIFIC LEARNING OF	BJECTIVES	 Know how to use analytical tools to prepare company financial statements;
		• Being able to describe the company in all its parts;
		• Knowing the items in a company's balance sheet.
USERS/R	ECIPIENTS	Second two-year class
PRER	EQUISITES	Acquisition of economic terms and logic;
PERIOD OF AP	PLICATION	December - January - February - March
	TIMES	38 hours divided as follows:
		26 hours for learning
		4 hours recovery
		8 hours evaluation (oral/written)
PHASED SEQUENCE		 Presentation of the teaching unit to the class, using textbook, magazines
		Lectures
		Research Lessons
		Recovery
CONTENTS		MODULE 3: The FARM BALANCE SHEET
	UDA 1: THE B	ECONOMIC OUTLOOK OF THE AGRICULTURAL HOLDING
LINGUISTIC		CONTENTS
Talking	• The c	ompany description;
Describe	Asset	s (PLV, ULS, CAP premiums, other income);
• Write	Passi	ve (Q, SV, TR, SA, ST, I);
	• The p	rinciple of ordinariness;
	Corpc The n	orate income;
	• men	
TEST: MULTIPLE-CHO	ICE AND/OR OPE	EN-ENDED TEST
METHODS		Lectures and dialogues through the functional-communicative approach
		Oral exposition.





INSTRUMENTS	Adopted textbooks
	Computer lab
	• Handbook
	Dictionaries, and trade journals
EVALUATION CRITERIA AND MODALITIES	Individual assessment of acquired competences (Pollock grid)
	 Assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	Knowing how to draw up a simplified company balance sheet in which much data is provided by the lecturer




MODULE IV : The evaluation of business efficiency 1ST LEARNING UNIT			Technological-scientific	
SUBJECT: Economics, Real Estate, Marketing and Legislation				
	DENOMINATI	ON	Business efficiency indices	
	TRAINING OBJECTIV	ES	Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile	
	TARGETED SKIL	LS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.	
SF	PECIFIC LEARNING OBJECTIV	ES	• Be able to identify the function of budgets;	
			Know the main business efficiency indices;	
	USERS/RECIPIEN	TS	Second two-year class	
	PREREQUISIT	ES	Acquisition of economic terms and logic	
	PERIOD OF APPLICATI	NC	Mid-April	
	TIM	ES	6 hours divided as follows	
			4 hours for learning	
			1 hour recovery	
			• 1 hour evaluation (oral/written)	
PHASED SEQUENCE		CE	 Presentation of the teaching unit to the class, using textbook, magazines 	
			Lectures	
			Creation of working groups.	
			Workshop and research lessons	
			Realisation of the Task/Product	
			Recovery	
CONTENTS	М	ODUL	E 4: THE EVALUATION OF BUSINESS EFFICIENCY	
			UDA 1: BUSINESS EFFICIENCY INDICES	
	LINGUISTIC SKILLS		CONTENTS	
Talking Structu		Struct	ural indices:	
Describe Techni		Techn	ical indices;	
Write Econol		Econo	omic indices;	
The bus		he b	usiness plan	
TEST: MULTIPLE-CHOICE AND/OR OPEN			N-ENDED TEST	
	МЕТНО	DS	 Lectures and dialogues through the functional-communicative approach 	
			 Creation of working groups (formation of groups, assignment of tasks) 	
			Group work in the laboratory	
			Oral exposition.	





INSTRUMENTS	Adopted textbooks
	Computer lab
	Dictionaries, and trade journals
	Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES	Individual assessment of acquired competences (Pollock grid)
	 Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	• To be able to illustrate in simplified language, or with the aid of aids (maps, graphs, drawings), or with personal productions, the indexes of business efficiency





MODULE V: Cultivation accounts			Technological-scientific
SUBJECT: Economics, Real Estate, Marketing and Legislation		and	
	DENOMI	NATION	Cultivation accounts
	TRAINING OBJE	ECTIVES	 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
	TARGETED) SKILLS	 Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES		ECTIVES	 Knowing how to identify cultivation and general costs; Knowing how to calculate and analyse crop production costs Knowing how to identify crop-specific EU aid (CAP)
	USERS/REC	IPIENTS	Second two-year class
	PREREQ	UISITES	Acquisition of economic terms and logic
	PERIOD OF APPLI	CATION	Mid-April - May - June
		TIMES	14 hours divided as follows:
			8 hours for learning
			2 hours recovery
			4 hours evaluation (oral/written)
PHASED SEQUENCE		UENCE	 Presentation of the teaching unit to the class, using textbook, magazines
			Lectures
			Creation of working groups.
			Workshop and research lessons
			Realisation of the Task/Product
CONTENTS			
CONTENTS			UDA 1: CULTIVATION ACCOUNTS
	LINGUISTIC SKILLS		CONTENTS
	• Talking • The		cultivation account of herbaceous crops;
	Describe The cu Write		cultivation account of a tree crop
TEST: Multiple-choice and/or ope		and/or ope	en-ended test
METHODS		THODS	Lectures and dialogues through the functional-communicative approach
			tasks)
			Group work in the laboratory
			• Ural exposition.





INSTRUMENTS	 Adopted textbooks Computer lab Dictionaries, and trade journals Handbook
EVALUATION CRITERIA AND MODALITIES	 Photocopies of various materials Individual assessment of acquired competences (Pollock grid) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
MINIMUM OBJECTIVES	• Being able to draw up a simplified crop account for a herbaceous and a tree crop in which much of the data is provided by the lecturer





ITA 'Emilio Sereni

PROGRAMMING CLASS FOUR - CURRICULUM

Animal Production

Prof. Anna Chiara Migliardi

Articulation:

- Plant production and product processing

PROGRAMMING

Animal Productions

GENERAL OBJECTIVES

This work plan has been drawn up taking into account the guidelines of the Animal Production discipline.

The programme intends to provide the student with a clear view of the issues, methodologies and perspectives pertaining to the management and organisation of animal husbandry with a low environmental impact. The management of a livestock farm that is respectful of the animal, the environment and the consumer passes through the sustainability of the breeding and the welfare of the animals whether using historical or improved breeds, but always well adapted to the environment; the development of marginal hill and mountain areas is implemented with the breeding of sheep and goats and cattle belonging to species typical of our territory; through organic farming the territory is preserved, strengthening the link between livestock production, the land and the surrounding environment.

PREREQUISITES:

Fundamental knowledge of chemistry and biology.

SEQUENCES IN PHASES:

- Preparation and research of material by lecturers and learners;
- Presentation to the class;
- Lectures with computer support;
- Research, production and processing work: realisation of the task/product;
- Verification of skills and objectives through presentation and display of the final product;
- Recovery;
- Certification of skills acquired.

SKILLS

 \checkmark Know the regulations issued to ensure animal welfare;

✓ Knowing how to ensure transparency in breeding;

 \checkmark Knowing how to organise the administrative aspects of certifying products guaranteeing the consumer.

SKILLS





- \checkmark Knowing what a supply chain is;
- \checkmark Knowing what traceability of a product is;

KNOWLEDGE

- ✓ Getting to know organic livestock farming;
- ✓ Knowledge of food safety;
- \checkmark Knowledge of regulations concerning animal welfare and food safety.

MINIMUM OBJECTIVES

Passage to the next class will take place under the following conditions:

✓ Knowledge of appropriate terminology (technical scientific language);

 \checkmark Having acquired an organic view of the subject matter by being able to connect the different topics of the discipline;

- ✓ Being able to identify the general characteristics of domestic cattle and sheep and goat breeds;
- \checkmark Understand the basic principles of population genetics;
- \checkmark Understanding quantitative and qualitative characters;
- \checkmark Knowledge of functional milk and meat controls;
- ✓ Knowledge of crossing methods;
- \checkmark Learning about biodiversity and its importance;
- \checkmark Know the main methodologies of genetic improvement;
- ✓ Ability to expound independently;
- \checkmark Being able to read the textbook fluently;
- \checkmark Being able to make evaluations of what was heard;

 \checkmark Being able to report in the essential lines messages and contents of texts using specific language;

- \checkmark Ability to be autonomous in written and oral interviews;
- \checkmark Learning to work within a team and independently;
- ✓ Taking notes during a lecture;
- \checkmark Interacting with peers and the teacher;
- \checkmark Relating one's knowledge-experience to the peer group.

METHODOLOGY

 \checkmark The lesson will be set up in a way that encourages dialectical confrontation and formal language;

 \checkmark The habit of reasoning will be stimulated;

 \checkmark Efforts will be made to stimulate study through links with other disciplines in order to foster interdisciplinarity;

 \checkmark Students will be asked to use multimedia aids for greater understanding especially of the digestive system and morphological evaluations of animals; 7

 \checkmark Checks by means of diagrams to accustom pupils to making connections of the proposed topics.

MATERIAL

Textbook, notes, multimedia equipment, term papers.

SPACES

Classroom, laboratory, educational farm.





EVALUATION

Different types of tests are envisaged:

- ➤ Mixed-type tests: open-ended, multiple-choice, true/false;
- ➤ Oral verification;
- ➤ Written work;

➤ Possible interview with the aid of a PC in order to verify computer skills in the activity of study, research and in-depth study of the discipline.





MODULAR PROGRAMMING TOTAL HOURS 99

CIVIC EDUCATION: In-depth study of animal welfare (Art. 9 of the constitution, updated 08/02/2022), circular economy and treatment of livestock waste.

I QUARTERLY

MODULE 1: PRINCIPLES OF GENETICS AND LIVESTOCK IMPROVEMENT SKILLS

 \checkmark Deepening knowledge of quantitative and qualitative genetics methods for estimating the genetic value of breeding animals of the main species of livestock interest

SKILLS

- \checkmark Know the difference between meiosis and mitosis;
- \checkmark Know the mechanisms concerning hereditary transmission;
- ✓ Knowledge of Mendelian laws;
- ✓ Knowing the characters of zootechnical interest with discontinuous variability;
- ✓ To know the importance of genetic improvement of animals in livestock production;
- \checkmark Knowing the zootechnical phenotype;
- ✓ Knowing the quantitative characters;
- ✓ Knowing how to describe the heritability coefficient;

 \checkmark To be able to describe all traits of zootechnical interest and to know the differences between quantitative and qualitative traits.

U.D. 1.1 Recalls of genetics

- Importance of genetics;
- Objectives of genetic improvement;
- Meiosis Mitosis compared.

U.D. 1.2 Transmissibility of zootechnical quality traits. Mendelian genetics

- Inheritance of qualitative traits: Mendel's laws;
- Genetic and somatic variability;
- Qualitative traits of zootechnical interest.

U.D.1.3 Inheritability of quantitative or metric characters

- Quantitative characters;

- The heritability coefficient. Characters with low, medium and high heritability in species animal husbandry;

- Gauss curve: character frequency.

MODULE 2: BREEDING TECHNIQUES (REPRODUCTION, GENETIC SELECTION)

SKILLS

- \checkmark Getting to know the new fertilisation techniques
- ✓ Deepening knowledge of fertilisation
- ✓ Knowing how to classify pets
- \checkmark Knowing the concept of species, race, strain, type
- ✓ Knowledge of reproductive parameters

SKILLS





- \checkmark Knowing how to analyse new methods of reproduction
- \checkmark Knowing how to distinguish a species from a breed
- \checkmark Knowing how to analyse reproductive parameters in different species
- \checkmark Getting to know seasonal and continuous polyestral species.

U.D. 2.1 Reproductive system

- Recalls of anatomy and physiology of the mammalian reproductive system;
- Reproductive traits: inter parturition, parturition-first heat interval, parturition-conception interval,
- number of fertilising interventions per pregnancy, oestrus cycle.
- Hypo-fecundity.

U.D. 2.2 Reproduction (15 hours)

- Insemination -F.A. techniques Embryonic transplantation;
- Hints New breeding techniques: Cloning, Splitting;
- Heat synchronisation and programming.
- Concept of species, races, strain, type.

- POSSIBLE EDUCATIONAL VISIT TO THE GENETIC IMPROVEMENT CENTRE OF MONTEROTONDO and/or SCHOOL CONFERENCE





II FOUR-MONTH PERIOD

MODULE 3: THE GENETIC IMPROVEMENT OF ANIMALS SKILLS

 \checkmark The aim of the module is to analyse all the improvement techniques that can be implemented on farms.

 \checkmark Providing expertise on modern methodologies that can be implemented at breed associations

SKILLS

- ✓ Knowing how to evaluate breeding stock;
- \checkmark Knowing the meaning of quality of animal products;
- ✓ Know the objectives of genetic improvement;
- \checkmark Knowing the main mechanisms of transmission of hereditary traits.
- ✓ Knowing how to observe characters
- \checkmark Acquire awareness that a scientific theory is formulated after it has tested and can be refuted

U.D. 3.1 Breeders

- The Genealogical Book;

- Evaluation and selection of breeding stock: Perfomance -Progeny test-Sib test BLUP -Animal Model;

- Genetic indexes of breeders generalities.

MODULE 4: METHODS OF REPRODUCTION

SKILLS

- ✓ Knowledge of the main breeding methods for breed enhancement and entry in the herd book;
- ✓ Providing expertise on crossing, cross-breeding, hybridisation techniques;
- ✓ Providing expertise on national livestock.

SKILLS

- \checkmark Knowing how to identify the various methods of reproduction;
- ✓ Knowing how to identify methods of reproduction;
- \checkmark Knowing how to recognise pure breeds.

KNOWLEDGE

 \checkmark Know the difference between cross-breeding and hybridisation;

 \checkmark Knowledge of hybridisation, crossing and crossbreeding methods.

U.D. 4.1

- Cross-breeding: first-generation industrial, second-generation, continued uptake replacement crosses with individual livestock species.

U.D. 4.2

- Hybridisation.
- Replacement and industrial crossbreeding.
- Cross-fertilisation.
- Importance of hybrid vigour: heterosis.
- Inbreeding, Selection, Mass Selection, Genotypic Selection.

MODULE 5: FOOD SAFETY AND ANIMAL WELFARE





U.D. 5.1 Food safety, animal welfare, supply chain and traceability, organic farming

- Concept of food safety, the organic method in animal husbandry, animal welfare;
- Consumption of food of animal origin in the world;
- Intensive livestock farming and related issues;

- Generalities on diseases transmitted from animals to humans caused by intensive livestock farming.

- The CAP (Common Agricultural Policy);
- Respect for animal welfare 'guidelines' some Community regulations
- European: generalities on farm welfare, transport and slaughter Law: 189/2004;
- The supply chain and traceability;

MODULE 6: LACTATION

SKILLS

 \checkmark Providing knowledge on lactation and the main factors influencing peak lactation and persistence

- \checkmark Understanding the productive differences between primiparae and pluriparas
- \checkmark Understanding the extrinsic and intrinsic factors affecting milk production
- \checkmark Understanding the factors that adversely affect peak production
- \checkmark Understanding production and functional controls for genetic improvement

ABILITIES

- \checkmark Knowing how to draw and analyse a lactation curve
- \checkmark Know how to analyse the factors influencing the lactation curve through the use of tables
- \checkmark Knowing the differences between individuals in the stable
- \checkmark Being able to identify the functions and the type of functional control to be performed

U.D. 6.1 Analysis of lactation curves

- Quantity and quality

U.D. 6.2 Milk and lactation

- Lactation curve
- Peak and persistence
- Calculation of persistence
- Factors affecting lactation in first and subsequent lactations
- Nutrition
- Functional controls of milk and meat.

U.D. 6.3 Product quality

- Product quality controls.





MODULE 7: SHEEP AND GOAT BREEDS

SKILLS

- ✓ Understanding Biodiversity and Genetic Variability in the maintenance of native breeds;
- \checkmark Identify the different cattle and sheep breeds;
- ✓ Knowing the breed-specific characteristics of registers and genealogical records;
- \checkmark Understanding the environment and breeding of cattle and sheep.

SKILLS

- \checkmark Knowing how to identify the breeding environment of each individual breed;
- \checkmark Knowing how to analyse breeding systems;
- \checkmark Knowing how to recognise breeds by analysing morphology and coats.

KNOWLEDGE

- \checkmark Knowing the origins, morphology and objectives of genetic improvement of breeds;
- \checkmark Learn about the importance of breeding native sheep and cattle populations.

U.D 7.3

- Sheep breeds mainly suited for milk production: Sarda, Comisana, merinised breeds.

- Sheep breeding systems.
- Goat breeds:





ITA 'Emilio Sereni PROGRAMMING CLASS FOUR - CURRICULUM English Language

Prof. Mariangela Anderboni

Articulation:

Plant production and product processing

Objectives of the training course

Programming by Minimum Learning Objectives will focus on the topics highlighted in bold.

MODULE 3 - PROTECTING THE SOIL TO SOW THE FUTURE

Competences in Specific Communication	Skills	Grammar
 Discussing soil composition and management Explaining the causes of soil erosion Writing letters to suggest ways to rescue a degraded area Describing farm machinery Comparing advantages and disadvantages of relevant topics (crop rotations and machinery) Using specific terminology Answering questions in relation to short videos 	 LISTENING Completing dialogues with missing words Watching videos READING Choosing the odd word Developing critical thinking by reordering key information Matching captions to images Matching the beginning and the end of sentences Matching words or expressions with their definitions or translations Multiple choice True or false WRITING Answering open questions Building new vocabulary by: finding relevant words in a given text listing key words about a given topic Completing charts and concept Completing sentences and texts with missing Correcting false sentences Writing formal letters Word formation SPEAKING Discussing relevant topics	 Present perfect Phrasal verbs: to make Phrasal verbs: to take Word formation (the suffixes "-ition", "-ation", "-tion", "-ssion") Word formation (the suffix "-ment") Making suggestions and agreeing/disagreeing Phrasal verbs: to turn Word formation (the prefix 'self-') Phrasal verbs: to go Word formation (the suffixes '-er' and '-or')





Unit 6 - Tillage methods

Contents	Flipped Classroom	
Text 1 - Talking point Text 2 - Preparing land for crops Text 3 - Soil erosion Text 4 - Farm machinery Text 5 - Rotations Text 6 - Global Corner: The rocky and sandy wonders	The Grand Canyon' video	
Vocabulary	Grammar	
Specific words found in Unit 6	 Making suggestions and agreeing/disagreeing Phrasal verbs: to turn Word formation (the prefix 'self-') Phrasal verbs: to go Word formation (the suffixes '-er' and '-or') 	
Communication skills	 English for social media English for report drafting English for documentation 	

Module 3 revision: map pp. 118-119, mini quiz p. 120

MODULE 4 - NOURISHING THE LAND

Competences in Specific Communication	Skills	Grammar
 Discussing the importance of fertilisation, irrigation and drainage Discussing organic and chemical fertilisers Contrasting advantages and disadvantages of organic and chemical fertilisers Debating the pros and cons of relevant issues (mixed farming) Developing awareness of the major problems affecting the Earth and possible solutions Describing the water cycle Contrasting irrigation systems Creating diagrams 	 LISTENING Completing dialogues with missing words Listening to a recording and answering open questions Watching videos READING Choosing the odd word Correcting false sentences Matching words or expressions with their definitions or translations Multiple choice True or false WRITING Answering open questions Building new vocabulary by: listing key words about a given topic matching words with their synonyms and antonyms 	 The conditional sentences (if-clauses) To need + infinitive Word formation (the suffixes '-ward'/'-wards')





 Using specific terminology Taking notes from short videos 		
	 Completing summaries Completing tables and concept maps Correcting false sentences Word formation Writing short texts on given topics SPEAKING Discussing relevant topics 	

Unit 7 - Organic and chemical fertilisers

Contents	Flipped Classroom	
Text 1 - Talking point Text 2 - Organic animal manures Text 3 - Organic vegetable manures Text 4 - Chemical synthetic fertilisers Text 5 - Water pollution caused by sewage Text 6 - Global Corner: Earth Day	Video "Earth Day 1970 - 2017: What's Changed?"	
Vocabulary	Grammar	
Specific words found in Unit 7	 The conditional sentences (if-clauses) 	
Unit 8 - Watering and irrigation	· · · · · · · · · · · · · · · · · · ·	
Contents	Flipped Classroom	





Text 1 - Talking point Text 2 - The role of water in agriculture Text 3 - Irrigation techniques Text 4 - Drainage Text 5 - Global Corner: Water	The life cycle of a t-shirt' video	
Vocabulary	Grammar	
Specific words found in Unit 8	 To need + infinitive Word formation (the suffixes '-ward'/'-wards') 	

Module 4 revision: map pp. 154-155, mini quiz p. 156





MODULE 5 - NOURISHING AND PROTECTING PLANT LIFE

Competences in Specific Communication	Skills	Grammar
 Describing the major characteristics of plants, their life cycle and their main components Explaining the process of photosynthesis Developing awareness on the problem of deforestation Discussing plant problems and explaining preventive and controlling techniques Understanding the importance of bees Describing chemical and organic pesticides; discussing their correct application Scanning texts to look for relevant information Using specific terminology Taking notes and answering questions in relation to short videos 	 LISTENING Completing dialogues with missing words Watching videos READING Choosing the odd word Matching the beginning and end of sentences Matching words or expressions with their definitions or translations Multiple choice Scanning texts True or false WRITING Answering open questions Building new vocabulary by: finding relevant words in a given text listing key words about a given topic matching words Completing sentences and texts with missing words Completing tables and concept maps Correcting false sentences Word formation Writing short texts on given topics Speaking Discussing relevant topics 	 How to translate 'duty' Phrasal verbs: to carry Word formation (the suffixes "-ful" and "-less") Wh- questions Word formation (the suffix "-ish") Questions tags Phrasal verbs: to set





Unit 9 - The realm of plants

Contents	Flipped Classroom	
Text 1 - Talking point Text 2 - The green world of plants Text 3 - The life cycle of plants Text 4 - The parts of a plant Text 5 - The process of photosynthesis Text 6 - Global Corner: Putting forests first	Climate 101: Deforestation" video	
Vocabulary	Grammar	
Specific words found in Unit 9	 How to translate 'duty' Phrasal verbs: to carry Word formation (the suffixes '-ful' and "-less") 	

Module 5 revision: map pp. 212, mini quiz p. 214

MODULE 6 - FARM CROPS

Competences in Specific	Skills	Grammar
Communication		





 Classifying farm crops Describing characteristics, properties and nutritional facts of legumes, cereals, fruits and vegetables Giving a short presentation on relevant topics (the cultivation of rice) Giving useful advice about the growth and protection of fruits and plants Developing critical thinking on the nutritional value of foods and drinks Discussing a balanced diet for optimum health Discussing organic food, explaining consumers' concerns Developing critical thinking on genetic engineering, debating the reasons for and against it Using specific terminology Summarising the content of short videos 	 LISTENING Completing dialogues with missing words Listening to a recording and answering open questions Watching videos READING Choosing the odd word Matching words or expressions with their definitions or translations Multiple choice Scanning texts to look for specific information True or false WRITING Answering open questions Building new vocabulary by: finding relevant words in a given text listing key words about a given topic matching words Completing definitions Completing tables and concept maps Correcting false sentences Reordering sentences Summarising the content of short videos Word formation Writing short texts on given topics Preparing short presentations on given topics 	 Will Compound adjectives The comparatives and the superlatives Phrasal verbs: to keep Some, any, no/not, no one/none Word formation (the prefix 'super-')

Unit 12 - Legumes, cereals and potatoes (mandatory for all joints)

Contents	Flipped Classroom
Text 1 - Talking point Text 2 - Legumes Text 3 - Cereal crops Text 4 - The potato Text 5 - Global Corner: Rice in the world	Video 'Soar Over the Lush Rice Terraces of the Philippines'
Vocabulary	Grammar
Specific words found in Unit 12	WillCompound adjectives







Contents	Flipped Classroom
Text 1 - Talking point Text 2 - Vegetables Text 3 - Tomato: fruit or vegetable? Text 4 - Fruit plants Text 5 - Pome fruits Text 6 - Stone fruits of drupes Text 7 - Grapes Text 8 - Soft fruits / berries Text 9 - Citrus Text 10 - Global Corner: Fruit from the world	Video "The Surprising History of Bananas in Under 2 Minutes".
Vocabulary	Grammar
Specific words found in Unit 13	The comparatives and the superlativesPhrasal verbs: to keep

Prof. Mariangela Anderboni





ITA 'Emilio Sereni PROGRAMMING CLASS FOUR - CURRICULUM Italian-Civic Education

Prof. Cinzia Maggio

Articulation:

Plant production and product processing

PROGRAMMING

Italian and Civic Education

ITALIAN LANGUAGE AND LITERATURE SECOND YEAR OF THE SECOND TWO-YEAR COURSE

- Mastering the lexical and expressive heritage of the Italian language according to communicative needs in various contexts in written and oral form.
- Recognise the essential lines of the history of ideas, culture, literature and the arts and orientate oneself among fundamental Italian and European texts and authors.
- Establishing links between local, national and international cultural traditions in an intercultural perspective.
- Recognising the value of artistic and environmental assets for their proper enjoyment and appreciation.
- Identifying visual and multimedia forms of communication and expressive strategies.

WHAT THE TEACHER DOES	WHAT THE PUPIL DOES	SKILLS/ABILITIES PROMOTED
 Presenting the UdA Defines goals and objectives Guiding pupils in the reading and global comprehension of the text Uses the tools provided, explains the key points of each segment of the learning path, verifies, evaluates and plans the remedial phase 	 Acquires awareness of the path to be followed Outline the process steps related to the UdA Learn to use tools and organise their work also in terms of time 	 Learning to use the typical language of the discipline in written and oral production Learning to work within a team Taking notes during a lecture Interacting with peers and the teacher Relating one's knowledge-experience to the peer group

CONNECTION MODULE	"Humanistic Renaissance Culture'.	
PREREQUISITES	 Mastering the expressive tools (oral and written) to manage communication, argumentation and exposition in different contexts. 	





	 Production and analysis of diverse texts
TRAINING OBJECTIVES	 Responsible and acceptable use of different linguistic media and forms of verbal and written communication Understand and analyse the essential structures of diverse texts
TARGETED SKILLS	 Acceptably master the expressive tools (oral and written) to manage communication, exposition and argumentation in different contexts. Orienting oneself in the history of ideas, humanistic and Renaissance culture Producing simple argumentative and expository texts
SPECIFIC LEARNING OBJECTIVES	 Knowing the historical events and political, social and economic structures of the 15th and 16th centuries Getting to know the cultural institutions and centres of Humanism and the Renaissance Know the main features of 15th- and 16th-century poetry and prose. Linking other artistic expressions Analysing texts in prose and poetry relating to the historical-literary period under study Producing diverse texts (paraphrases, summaries, argumentative texts, reports) Contextualise in space and time the texts and authors being studied.
MINIMUM OBJECTIVES	 Essential knowledge and exposition of the history of Italian literature under study Essential knowledge and exposition of the most representative authors of Italian literature of the period under study (life, works and historical context) Being able to write a written summary of a literary text under study Being able to make connections between historical and literary knowledge Correct and acceptable use of the language of the discipline Simplified analysis and guided interpretation of literary texts in both written (Type A) and oral form Simplified expository-argumentative production on topical issues (Type C) Analysis and simplified production of an argumentative text (Type B)





		 Being able to p multimedia for pathways relat Knowing how a between author 	present in graph m, essential sch ted to the topics to make simple o prs	ic and/or ematisations of covered in class comparisons
PERIOD OF A	PPLICATION	September - October	2024	
OVERAL	L DURATION	 18 hours divided as f 18 hours for le - recovery hou - oral assessm 2 hours of writ essay or text a classroom 	ollows: earning ors nent hours ten assessment analysis to be su	(argumentative bmitted on
SUBDIVISION	'INTO U.O.A.	 The bridging module contents of which as section: 1. Introduction t (anthropocent patronage), la 2. The Crisis of hour 3. ERASMUS - Languages / hours 	e will be divided re specified in th to humanistic-Re asting 4 hours Renaissance Cu Writing for social social media - P	into 2 U.d.A., the re appropriate maissance culture n, secularism, ulture lasting 1 I media. art I lasting 13
PHASED	SEQUENCE	 Preparation ar and learners U.o.a. present Frontal or guid Creation of wo Verification of Recovery Verification of 	nd research of m ation to the class led lesson orking groups competences ar the skills acquire	aterial by lecturers s nd objectives ed by each student
Connection Modul	е	HUMANISTIC-RENA	ISSANCE CULT	TURE
CONTENTS	LANGUAG E	LITERATURE	OTHER ARTISTIC EXPRESSIO NS	SKILLS
	 Characte ristics of the treatise and lyric poetry Languag e today: productio 	 Humanism in Florence: Lorenzo De' Medici The characters of Renaissance culture and the rediscovery of 	 Artistic patronage as an expression of court power 	 Acceptable text analysis Diversified text production Orienting oneself in the history of



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MODULE 1	"The 17th century: an age of contradictions".
PREREQUISITES	 Mastering the expressive tools (oral and written) to manage communication, argumentation and exposition in different contexts. Production and analysis of diverse texts
TRAINING OBJECTIVES	 Responsible and acceptable use of different linguistic media and forms of verbal and written communication Understand and analyse the essential structures of diverse texts
TARGETED SKILLS	 Acceptably master the expressive tools (oral and written) to manage communication, exposition and argumentation in different contexts. Orienting oneself in the history of Italian ideas, culture and literature of the 17th century Producing simple argumentative and expository texts
SPECIFIC LEARNING OBJECTIVES	 Knowing the historical events and political, social and economic structures of the 17th century Getting to know cultural institutions and centres Analysing texts and iconographic sources relating to the agricultural crisis of the 17th century Get to know the main features of 17th century poetry and prose. Linking other artistic expressions Analysing texts in prose and poetry related to the historical and literary period under study Producing diverse texts (paraphrases, summaries, expository and argumentative essay, text analysis, reports) Contextualise in space and time the texts and authors being studied.
MINIMUM OBJECTIVES	 Essential knowledge and exposition of the history of Italian literature under study Essential knowledge and exposition of the most representative authors of Italian literature of the period under study (life, works and historical context) Being able to write a written summary of a literary text under study Being able to make connections between historical and literary knowledge



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			 Correct and a discipline Simplified and literary texts i Simplified exp topical issues Analysis and argumentative 	cceptable use of the alysis and guided in n both written (Typ pository-argumenta (Type C) simplified production to text (Type B)	he language of the nterpretation of ne A) and oral form ative production on on of an
	PERIOD OF	APPLICATION	November 2024		
OVERALL DURATION		 20 hours divided 18 hours for let - recovery houting 2 hours of oral Baroque Rom - hours of remessay or text classroom 	as follows: earning urs al assessment - on ne and Caravaggio note written assess analysis) to be sub	e-day field trip to sment (expository omitted on a	
	SUBDIVISIC	ON INTO U.O.A.	 Module 1 will be di which are specified 1. Introduction Marino, Gon 2. Advances in Productivity 3. ERASMUS social media production. I 	vided into 2 U.d.A. I in the appropriate to Baroque Culture gora, Pascal), last Scientific Knowle Crisis in the 17th C Writing for social examples - Part I Duration 10 hours	, the contents of e section: e (Tesauro, ing 4 hours dge and the Century 4 hours media. Various I. Instagram
	PHASE	ED SEQUENCE	 Preparation a and learners U.o.a. presen Frontal or gui Creation of w Verification of Recovery Verification of 	nd research of ma tation to the class ded lesson orking groups ^f competences and ^f the skills acquired	terial by lecturers I objectives I by each student
	CONTENTS	Modu Contradictions	ILE 1 'THE SEVENTEEN '	ITH CENTURY AN AG	GE OF
		LANGUAGE	LITERATURE	OTHER ARTISTIC EXPRESSIONS	SKILLS
		 Formal aspects and content of Baroque poetry 	 Baroque Marino Galileo Galilei and the new science (History) 	• <i>St. Peter's</i> <i>Square and</i> <i>Baroque</i> <i>Rome</i> <i>(Borghese</i> <i>Gallery)</i>	 Text analysis (written and oral) Production of simple diverse texts (essay,





 Formal and content aspects of 17th centur prose. Written and oral forms of communication ERASMUS - Writing for social media Various social media examples - Part II. Production 	BerniniSummary, technical report)V• Caravaggio• Orienting oneself in the history of ideas, culture and literature of the 17th centurya.
WRITTEN TES ORAL TESTIN	T: EXPOSITORY ESSAY OR TEXT ANALYSIS G: INTERVIEWS AND/OR TESTS
METHODS	 Lectures and guided lectures Creation of working groups (formation of groups, assignment of tasks) Group work in the computer lab or classroom Individual work on consolidating language skills Oral exposition
INSTRUMENTS	 Adopted textbooks Computer lab Dictionaries, atlases and journals Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES	 Individual assessment of acquired competences (Pollock grid) Global assessment of work groups or individual learners through tests, exercises, oral presentations, guided debates and written production







MODULE 2	THE 18th century: century of Enlightenment and revolutions
PREREQUISITES	 Mastering the expressive tools (oral and written) to manage communication, argumentation and exposition in different contexts. Production and analysis of diverse texts Orientation in the history of ideas, culture and literature of the 17th century. Knowledge of the historical and cultural context of the 17th century.
TRAINING OBJECTIVES	 Using different linguistic media and forms of communication responsibly and acceptably Understand and analyse the essential structures of diverse texts Being aware of the value of everyone's contribution within a working group and/or debate
TARGETED SKILLS	 Mastering the expressive tools (oral and written) to manage communication, exposition and argumentation in different contexts Orienting oneself in the history of 18th century Italian ideas, culture and literature Production of simple diverse texts (paraphrases, summaries, expository and argumentative essay, text analysis, reports).
SPECIFIC LEARNING OBJECTIVES	 Knowing the historical events and political, social and economic structures of the 18th century Know the characteristics of Enlightenment thought, with particular regard to the theories of economic liberalism and their impact on the production of luxury goods Knowing the main literary genres Linking other artistic expressions Analysing texts in prose and poetry relating to the historical-literary period under study Producing diverse simple texts (paraphrases, summaries, text analysis) Contextualise in space and time the texts and authors being studied.
MINIMUM OBJECTIVES	 Essential knowledge and exposition of the history of Italian literature under study



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	 Essential knowledge and exposition of the most representative authors of Italian literature of the period under study (life, works and historical context) Being able to write a written summary of a literary text under study Being able to make connections between historical and literary knowledge Correct and acceptable use of the language of the discipline Simplified analysis and guided interpretation of literary texts in both written (Type A) and oral form Simplified expository-argumentative production on topical issues (Type C) Analysis and simplified production of an argumentative text (Type B) Being able to present, in graphic and/or multimedia form, essential schematisations of pathways related to the topics developed in class, with particular regard to those related to the world of production and processing
PERIOD OF APPLICATION	December 2024- January 2025
OVERALL DURATION	 30 hours divided as follows: 24 hours for learning 1 hour recovery 3 hours of oral assessment 3 hours of written evaluation
SUBDIVISION INTO U.O.A.	 Module 2 will be divided into 3 U.d.A., the contents of which are specified in the appropriate section: 6-hour introduction to the culture of the Enlightenment Theatre culture between the 17th and 18th centuries (from the commedia dell'arte to Goldoni) lasting 2.5 hours Introduction to the Day by G. Parini, lasting 2.5 hours ERASMUS - Production of work on the web or social platforms lasting 12 hours
PHASED SEQUENCE	 Preparation and research of material by lecturers and learners U.o.a. presentation to the class Frontal or guided lesson Creation of working groups Verification of competences and objectives Recovery .





	CONTENTS	TENTS MODULE 2: "THE 18TH CENTURY CENTURY OF ENLIGHTENMENT AND REVOLUTIONS			
		LANGUAGE	LITERATURE	OTHER ARTISTIC EXPRESSION S	SKILLS
		 The satirical text The theatrical text The analysis of the literary text ERASMUS - Production of work on the web or social platforms 	 Enlightenment: general characters Parini: literary production and characteristics of his thought C. Goldoni: literary production and characteristics of his thought Theories of luxury in the Enlightenment and the production of related goods: coffee and chocolate 	• The Royal Palace of Caserta	 Analysis of texts Production of simple diverse texts Orienting oneself in the history of 18th century ideas, culture and literature Links between Literature and Other Artistic Expressions of the 18th Century
		WRITTEN TESTING: EXPOSITORY TEXT ORAL TESTING: INTERVIEWS AND/OR TESTS			
	METHODS		 Lectures and guided lectures Creation of working groups (formation of groups, assignment of tasks) Group work in the computer lab or classroom Individual work on consolidating language skills Oral exposition 		
	INSTRUMENTS		 Adopted textbooks Computer-linguistic laboratory Dictionaries, atlases and journals Photocopies of various materials 		
EVALUATION CRITERIA AND MODALITIES		 Individual assessment of acquired competences (Pollock grid) Comprehensive group or individual learner assessment through tests, exercises, oral presentations, guided debates and written production. 			
S	SECOND QUAR	TER			





MODULE 3	Literature between Neoclassicism and Preromanticism	
PREREQUISITES	 Mastering the expressive tools (oral and written) to manage communication, argumentation and exposition in different contexts. Production and analysis of simple diverse texts Orienting oneself in the history of 18th century ideas, culture and literature. Knowledge of the historical and cultural context of the 18th century. 	
TRAINING OBJECTIVES	 Using different linguistic media and forms of communication responsibly Being aware of the value of everyone's contribution within a team. 	
TARGETED SKILLS	 Mastering the expressive tools (oral and written) to manage communication, exposition and argumentation in different contexts. Orienting oneself in the history of ideas, culture and literature at the end of the 18th century. Production of simple diverse texts (newspaper article, text analysis in prose and poetry, expository, report) 	
SPECIFIC LEARNING OBJECTIVES	 Knowing the historical events and political, social and economic structures of the late 18th century To know the characteristics of pre-Romantic thought, with particular regard to the theories of the sublime Knowing the main literary genres Linking other artistic expressions Analysing texts in prose and poetry relating to the historical-literary period under study Producing a variety of simple texts (paraphrase, summary, expository and argumentative essay, text analysis) Contextualise in space and time the texts and authors being studied. 	
MINIMUM OBJECTIVES	 Essential knowledge and exposition of the history of Italian literature under study Essential knowledge and exposition of the most representative authors of Italian literature of the period under study (life, works and historical context) Being able to write a written summary of a literary text under study Being able to make connections between historical and literary knowledge Correct and acceptable use of the language of the discipline 	



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	 Simplified analysis and guided interpretation of literary texts in both written (Type A) and oral form Simplified expository-argumentative production on topical issues (Type C) Analysis and simplified production of an argumentative text (Type B) Knowing how to make simple comparisons between authors
PERIOD OF APPLICATION	February - mid-March 2025
OVERALL DURATION	 14 hours divided as follows: 7 hours for learning 2 hour recovery 3 hours of oral assessment 2 hours written assessment (text analysis)
SUBDIVISION INTO U.O.A.	 Module 3 will be divided into 2 U.d.A., the contents of which are specified in the appropriate section: 1. Introduction to the culture of European Preromanticism and the formation of the idea of the 'sublime' (Goethe, Hölderlin), duration 6 hours 2. The Poetry of Ugo Foscolo (Sonnets and Sepolcri), lasting 8 hours
PHASED SEQUENCE	 Preparation and research of material by lecturers and learners U.o.a. presentation to the class Frontal or guided lesson Creation of working groups Verification of competences and objectives Recovery Checking the skills acquired by each pupil.

CONTENTS

MODULE 3: Literature between Neoclassicism and Preromanticism

LANGUAGE	LITERATURE	OTHER ARTISTIC EXPRESSION S	SKILLS
 Prose and poetry in the second half of the 18th century Language today: the newspaper article and the short essay 	 Neoclassicism Preromanticism: general characteristics. U. Foscolo: literary production and characteristics of his thought 	• Canova	 Analysis of texts Production of simple diverse texts Orienting oneself in the history of ideas, culture of the second half of the 18th century.





	 Text analysis in prose and poetry The historical theme 	 The Sublime and the Disruption of Nature: A Theoretical System of Non- Production 	 Orienting oneself in the production of U. Foscolo Links between Literature and other artistic expressions 	
	WRITTEN TEST ORAL TESTING	TING TESTS: TEXT ANALYS	iis 5	
			_	
	METHODS	 Lectures and guided if Creation of working g assignment of tasks) Group work in the cor Individual work on col Oral exposition 	lectures roups (formation of groups, mputer lab or classroom nsolidating language skills	
INSTRUMENTS		 Adopted textbooks Computer-linguistic laboratory Dictionaries, atlases and journals Photocopies of various materials 		
EVALUATION CRITERIA AND MODALITIES		 Individual assessment of skills acquired (Pollock grid) Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues. 		





Module 4	THE ROMANTIC AGE		
PREREQUISITES	 Mastering the expressive tools (oral and written) to manage communication, argumentation and exposition in different contexts. Production and analysis of simple diverse texts Orientation in the history of pre-Romantic ideas, culture and literature. Knowledge of the historical and cultural context of the 18th century. 		
TRAINING OBJECTIVES	 Using different linguistic media and forms of communication responsibly Being aware of the value of everyone's contribution within a team Orientation in the history of ideas, culture and literature of the 19th century. 		
TARGETED SKILLS	 Mastering the expressive tools (oral and written) to manage communication, exposition and argumentation in different contexts. Orientation in the history of ideas, culture and literature of the 19th century. 		
SPECIFIC LEARNING OBJECTIVES	 Knowing the historical events and political, social and economic structures of the early 19th century Getting to know the cultural institutions and centres of the period under study Knowledge of 19th century theories of pleasure and taste related to food and consumption Knowledge of the main literary genres of the Romantic Age Linking the other artistic expressions of the 19th century Analysing texts in prose and poetry related to the historical and literary period under study Producing simple texts of various kinds (paraphrase, summary, text analysis, report, expository essay) Contextualise in space and time the texts and authors being studied. 		
MINIMUM OBJECTIVES	 Essential knowledge and exposition of the history of Italian literature under study Essential knowledge and exposition of the most representative authors of Italian literature of the period under study (life, works and historical context) Being able to write a written summary of a literary text under study Being able to make connections between historical and literary knowledge 		



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	 Correct and acceptable use of the language of the discipline Simplified analysis and guided interpretation of literary texts in both written (Type A) and oral form Simplified expository-argumentative production on topical issues (Type C) Analysis and simplified production of an argumentative text (Type B) Being able to present in graphical and/or multimedia form essential outlines of paths relating to the topics covered in class, with particular emphasis on those related to the world of production and processing Knowing how to make simple comparisons between authors
PERIOD OF APPLICATION	Mid-March - April 2025
OVERALL DURATION	 42 hours divided as follows: 18 hours for learning 4 hours recovery 12 hours of oral assessment 8 hours written assessment (text analysis)
SUBDIVISION INTO U.O.A.	 Module 4 will be divided into 4 U.d.A., the contents of which are specified in the appropriate section: 1. An 8-hour introduction to the culture of European Romanticism 2. The biography, thought and literary activity of G. Leopardi, lasting 14 hours 3. The question of the 'true' in the thought and work of A. Manzoni, lasting 14 hours 4. Food-related doctrines of pleasure and taste, lasting 6 hours
PHASED SEQUENCE	 Preparation and research of material by lecturers and learners U.o.a. presentation to the class Frontal or guided lesson Creation of working groups Verification of competences and objectives Recovery Verification of skills acquired





		MODULE 4: THE ROMANTIC AGE		
CONTENTS	LANGUAGE	LITERATURE	OTHER ARTISTIC EXPRESSIONS	SKILLS
	 Literary Genres of the Romantic Age Language today: The short essay The historical theme 	 Romanticism general characteristi cs Manzoni: Literary production and characteristi cs of his thought Leopardi: Literary production and characteristi cs of his thought Leopardi: Literary production and characteristi cs of his thought Theories of pleasure and the taste of food and drink (Leopardi and Balzac) 	• Romantic painting: Friedrich, Hayez.	 Analysing: literary production and characteristics of the thought of the authors studied (Leopardi, Manzoni) Linking literature and other artistic expressions Orienting oneself in the history of ideas and culture of the 19th century
	WRITTEN TE	TEST: TEXT ANALYSIS		
	ORAL TESTI	TING: INTERVIEWS AND/OR TESTS		
WIETHODS		 Creation of working groups (formation of groups, assignment of tasks) Group work in the computer lab or classroom Individual work on consolidating language skills Oral exposition 		
INSTRUMENTS		 Adopted textbooks Computer-linguistic laboratory Dictionaries, atlases and journals Photocopies of various materials 		
CRITERIA AI	ND MODALITIES EVALUATION	 Individual assessment of acquired competences (Pollock grid) 		


TARGETED SKILLS

SPECIFIC LEARNING

MINIMUM OBJECTIVES

OBJECTIVES



	 Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.
MODULE 5	THE FICTION OF THE 19TH CENTURY
PREREQUISITES	 Mastering the expressive tools (oral and written) to manage communication, argumentation and exposition in different contexts.

- Orientating oneself in the history of ideas, culture and literature of previous eras.
- Knowledge of the historical and cultural context of previous eras
- Using different linguistic media and forms of communication responsibly
 - Being aware of the value of everyone's contribution within a team
 - Orientation in the history of ideas, culture and literature of the 19th century.
 - Mastering the expressive tools (oral and written) to manage communication, exposition and argumentation in different contexts.
 - Orienting oneself in the history of realist ideas, culture and literature
 - Knowing the historical events and political, social and economic structures of previous centuries.
 - Learn about the representation of changes in the urban fabric and production systems in realist literature
 - Link other artistic expressions of the 19th century.
 - Analysing prose texts related to the historical-literary period under study
 - Producing diverse texts (paraphrase, summary, article, text analysis, report, expository essay)
 - Contextualising the texts and authors studied in space and time
 - Essential knowledge and exposition of the history of Italian literature under study
 - Essential knowledge and exposition of the most representative authors of Italian literature of the period under study (life, works and historical context)
 - Being able to write a written summary of a literary text under study
 - Being able to make connections between historical and literary knowledge



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		 Correct and a discipline Simplified an literary texts Simplified ex topical issues Analysis and argumentativ Being able to form essentia covered in clarelated to the Knowing how authors 	 Correct and acceptable use of the language of the discipline Simplified analysis and guided interpretation of literary texts in both written (Type A) and oral form Simplified expository-argumentative production on topical issues (Type C) Analysis and simplified production of an argumentative text (Type B) Being able to present in graphical and/or multimedia form essential outlines of paths relating to the topics covered in class, with particular emphasis on those related to the world of production and processing Knowing how to make simple comparisons between authors 	
PERIOD C	OF APPLICATION	May 2025		
OVERALL DURATION		 16 hours divided 7 hours for let 1 hour recove 4 hours of ord 4 hours writted 	 16 hours divided as follows: 7 hours for learning 1 hour recovery 4 hours of oral assessment 4 hours written assessment (expository essay) 	
SUBDIVISION INTO U.O.A.		 Module 5 will be divided into 2 U.d.A., the contents of which are specified in the appropriate section: 1. Introduction to 19th century realist fiction (Flaubert and Dickens), lasting 10 hours 2. The representation of the urban fabric and its transformations, lasting 10 hours 		
PHASED SEQUENCE		 Preparation a and learners U.o.a. preser Frontal or gu Creation of w Verification o Recovery Verification o 	and research of n ntation to the clas ided lesson vorking groups f competences a f the skills acquir	naterial by lecturers ss nd objectives ed by each student
CONTENTS	MODULE 5: fiction			
	LANGUAGE	LITERATURE	OTHER ARTISTIC EXPRESSION S	SKILLS
	• The language of the novel: narrative techniques, free indirect speech	 Flaubert Dickens Transformation of the urban fabric and production 	 Realist Painting 	 Analysis of texts Production of simple diverse texts (text analysis, newspaper article, short



		systems in the 19th century novel	 essay, report, historical essay) Orientate oneself in the history of ideas, of the culture of the period under study. Links between Literature and other artistic expressions
	WRITTEN TES ORAL TESTIN	TING: Expository thei G: interviews and/or t	ME ESTS
	METHODS	 Lectures and g Creation of wor assignment of t Group work in t Individual work Oral exposition 	uided lectures king groups (formation of groups, tasks) the computer lab or classroom on consolidating language skills
	INSTRUMENTS	 Adopted textbo Computer-lingu Dictionaries, Lectures and gu Photocopies of 	oks listic laboratory uided lectures various materials
EVALUATIOI	N CRITERIA AND MODALITIES	 Individual asset (Pollock grid) Comprehensive exercises, quest oral expositions 	ssment of acquired competences e group assessment through tests, stionnaires, translations, summaries, s and guided dialogues.







ITA 'Emilio Sereni

PROGRAMMING CLASS FOUR - CURRICULUM

Mathematics complements

Prof. Elia Patriarca

Articulation:

- Plant production and product processing

PROGRAMMING

Maths Complements

Adopted text

BERGAMINI- BAROZZI- TRIFONE,

3G MATHEMATICS.green ZANICHELLI Publishing House

CLASS PROFILE AND STARTING LEVELS

The class appears very united and homogeneous, both in performance and behaviour.

From the very first days, the class group has been positive, showing liveliness and interest in the discipline. A large part of the class is active and participates in the lessons, both during explanations and during whiteboard and group exercises.

The levels of basic knowledge displayed by all the pupils in the class are on the whole sufficient with a few elements presenting particular difficulties and previous gaps.

One hour per week is planned for the teaching of mathematics supplements in the fourth class.

The programme is divided into teaching modules, each of which is in turn made up of teaching units, which will be carried out according to the time sequence and with the learning objectives indicated below.

SUMMARY OF EDUCATIONAL AND DIDACTIC PLANNING

The class has been participating in the "ERASMUS PROGREEN" project since A.S. 2023/24, which is due to end in January. The educational-didactic programme will be modified so as to integrate the topics envisaged in the project curriculum with those envisaged for the achievement of the final competences. Since the project's curriculum hours exceed the annual planning hours, it will be necessary to hold meetings with the students in synchronous and asynchronous mode and provide them with personal study material in order to achieve the project's objectives and competences.

MINIMUM LEARNING OBJECTIVES

- Knowing how to use a sample for detection.
- Know the distribution of the sample mean.
- Dealing with simple sampling and estimation problems and hypothesis testing.
- Know how to solve simple simple, compound and mixed capitalisation problems.
- Knowing how to solve simple annuity and amortisation problems.

CONTENTS

In the fourth year, financial mathematics topics are planned. In addition, the PROGREEN project includes statistical hypothesis testing to evaluate the effectiveness of a new product or service and the mean and proportion test to evaluate the effectiveness of a new product or service.





SUMMARY OF TEACHING MODULES

TEACHING MODULE 0: TEACHING MODULE 1: TEACHING MODULE 2: Successions and progressions Statistics (PROGREEN) Financial mathematics

TEACHING STRATEGIES

• Topics will possibly be introduced in problem form, starting with examples that are as concrete as possible and then generalised. It will be ensured that application exercises relating to the subject matter are carried out in class in order to verify, with a certain immediacy, understanding of it. There will also be guided conversations on known topics with the aim of making students reflect on what they have learnt, make comparisons, use previous knowledge in the construction of new knowledge, generalise acquired concepts and procedures. In this regard, topics of civic education will be dealt with as established at the departmental meeting. In particular, the following topics will be analysed: 'Using new technologies, financial education: agenda 2030'

MEANS AND TOOLS

- Interactive lessons
- Lectures
- Production work in small groups
- Textbooks
- Material provided by the teacher in the form of notes shared via Classroom and/or E-register

ARRANGEMENTS FOR VERIFICATION AND EVALUATION

The assessment tools suitable for verifying the levels achieved in the learning objectives already set will be:

(a) written and/or oral examinations;

(b) multiple-choice and/or open-ended questions;

(d) verification of the work carried out by the working groups.

The immediate verification of learning will also be carried out on a daily basis through the teacher/student interview (clarification of doubts, answering questions, requests for more in-depth studies ...).

Furthermore, the correction of homework assignments and the students' answers to individual questions posed by the teacher will be considered an integral part of the testing activity.

Written tests will generally be administered at the end of the individual teaching units (carried out in their entirety or even only partially if they are rather rich in different content).

When drafting the written tests, the teacher will take into account the complexity of the test, the time allotted and the point reached in the development of the syllabus.

The assessment will be communicated to the pupils immediately for oral examinations, while the written examinations will be handed in corrected if possible within the week following the date on which they are taken. For the number of tests per four-month period, written and oral, reference is made to what was established in the

Disciplinary Department. The following evaluation grid will be followed for the summative evaluation:

	MATHEMATICS EVALUATION GRID) - ORAL TEST	
Knowledge conceptual basic	Application: correctness in calculations, application of techniques and procedures. Correctness and accuracy in the execution of geometric representations and graphs. Propriety of language.	Logical skills: organising and using knowledge and skills to analyse, decompose, elaborate.	Vote
None and/or	None and/or minimal only under the	Null and/or incorrect and	
fragmentary	teacher's guidance, but with serious	improper	1 - 3





	errors. Not able to use specific		
	vocabulary.		
Superficial and	Minimal only under the guidance of	Minimal inadequate exposure	
deficient	the teacher, but with errors in the	and no analysis operations	4
	execution of simple tasks. Uses		
	inexact and imprecise vocabulary.		
Superficial and	Minimal but inaccurate execution of	Minimal in exposition always	
uncertain	simple tasks. Incurs some errors in the	coherent, but with difficulties	5
	use of specific vocabulary.	in logical connections; lacunar	
		analysis.	
Essential but not	Sufficient in the execution of simple	Sufficient in simple and	
in-depth	tasks without substantial errors but	adequate exposition, some	6
	with some uncertainties. Uses specific	difficulty in synthesis and	
	vocabulary, albeit with some	analysis	
	inaccuracies		
Essentials with	Discreet in the correct execution of	Fair in effective and correct	
possible insights	simple tasks and with some	exposition. Fair in analysis with	7
	inaccuracies in complex problems.	some difficulty in synthesis	
	Uses specific terminology correctly.		
Substantially	Good in the correct and autonomous	Good in effective exposition	8 - 9
complete with	execution of complex problems. Uses	with command of specific	
some	specific vocabulary correctly.	language. Correct analysis and	
independent in-		synthesis operations. Personal	
depth study		reworking	
Complete,	Excellent in the correct and	Excellent in correct, articulate	9 -
organic,	autonomous execution of even	and thorough exposition.	10
articulate and	complex problems. Uses a wide range	Personal and critical re-	
with	of specific vocabulary correctly.	elaboration	
independent			
insights			

For DSA pupils and pupils with BES, the same assessment criteria compensated by the regulations currently in force apply.

RECOVERY ACTIVITIES

As remedial activity is aimed at removing the causes of school failure, it must take the following guidelines into account:

- Researching techniques and strategies to improve reading, comprehension, revision
- Educating to pay attention, to question, to listen.
- Organise and plan activities like a job.

The remedial activity will be timely and targeted at the end of each individual subject and may consist of returning to it with the whole class or with a small group of students by changing the approach and/or development of the subject. The choice will depend on the failure to achieve the objectives.

This does not exclude the administration of supplementary and varied exercises to individual learners as required and the subsequent monitoring of these by the teacher.

ORGANISATION OF THE ACTIVITY

MODULE 0





FUNCTIONS, SUCCESSION AND THEIR PROPERTIES

NAME MODULE 0	FUNCTIONS. SUCCESSIONS AND THEIR PROPERTIES
1st LEARNING UNIT (transversal competences to be developed in itinere)	Successions and progressions
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING OBJECTIVES	 Being able to recognise and describe an arithmetic sequence by means of the general term or recursive formula. Being able to recognise a geometric progression and knowing its characteristics. Knowing how to perform operations on the terms of arithmetic and geometric progressions.
PREREQUISITES	 Algebraic symbolism and inverse formulas. Equations and systems of equations. Power in the real field.
PERIOD OF APPLICATION	During the year
TIMES	3 hours
CONTENTS	 Succession Sum of the terms of a succession Arithmetic progressions Sum of the terms of an arithmetic progression Generalities on geometric progressions Sum of the terms of a geometric progression
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.

Ν	NODULE 1
S	TATISTICS





NAME MODULE 1	STATISTICS (PROGREEN Project)
1ST LEARNING UNIT	Bivariate Statistics
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING OBJECTIVES	 Calculate statistical reports. Assess the dependence between two characters, given their joint distribution.
PREREQUISITES	 Graphically representing statistical distributions and interpreting fundamental characteristics. Calculate statistical indices and indicators.
PERIOD OF APPLICATION	September-October
TIMES	6 hours
CONTENTS	 Statistical Reports Joint Distributions Independence and dependence
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.
2ND LEARNING UNIT	Regression and correlation
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.





TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING	Linearly interpolate statistical data.
OBJECTIVES	• Calculate linear regression coefficients and assess the correlation
	between two statistical variables.
PREREQUISITES	Graphically representing statistical distributions and interpreting
	fundamental characteristics.
	Calculate statistical indices and indicators.
PERIOD OF APPLICATION	October - November
TIMES	6 hours
CONTENTS	Linear interpolating function
	Linear regression
	Correlation
METHODS	Lectures.
	• Creation of working aroups (formation of aroups, assianment of
	tasks).
	 Individual work.
	• Oral exposition.
EVALUATION CRITERIA AND	Written tests and individual questions
MODALITIES	 Exercises in class and/or at home
	 Multiple-choice and structured tests
	 Comprehensive aroun assessment through tests, exercises
	auestionnaires summaries oral expositions and auided dialogues
	questionnunes, summares, si al expositions and galaca alabyaes.
TRAINING OBJECTIVES	• Assiduous and participative follow-up of teaching activities.
	• Carrying out one's school duties punctually.
	• Relating in a correct and appropriate manner with all school
	components: peers, teachers, environment and structure.

3RD LEARNING UNIT	Inferential statistics
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING OBJECTIVES	• Dealing with simple sampling and estimation problems and hypothesis testing.





	 Construct an average or ratio test to verify the effectiveness of a product or service.
PREREQUISITES	 Graphically representing statistical distributions and interpreting fundamental characteristics. Calculate statistical indices and indicators. Content of previous learning units.
PERIOD OF APPLICATION	November -January
TIMES	13 hours
CONTENTS	 Population and sample Statistics, sample distributions and estimators Testing of statistical hypotheses to assess the effectiveness of a new product or service Averaging and proportion testing to assess the effectiveness of a new product or service Field tests of simple statistical applications
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





MODULE 2 FINANCIAL MATHEMATICS

NAME MODULE 2	FINANCIAL MATHEMATICS
1ST LEARNING UNIT	Financial Laws
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING OBJECTIVES	 Knowing how to solve problems related to simple and compound capitalisation. Knowing how to determine the interest on an investment transaction. Knowing how to calculate a relative rate. Know how to solve problems on commercial, rational and compound discounting. Know how to use the principle of financial equivalence to solve problems.
PREREQUISITES	 Functions in the Cartesian plane and their graphs. Exponential functions. Logarithms. Geometric progressions.
PERIOD OF APPLICATION	December -March
TIMES	10 hours
CONTENTS	 The financial transaction The law of simple capitalisation The law of compound capitalisation The calculation of the compounded amount The amount of capital employed for a non-integer number of periods The comparison of uprights in simple and compound capitalisations The Discount Concept The convertible nominal rate and effective rate
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.





2ND LEARNING UNIT	CERTAIN ANNUITIES AND DEPRECIATION
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.
TARGETED SKILLS	 Use the language and methods of mathematics to adequately organise and evaluate qualitative and quantitative information. Use rational thinking strategies to deal with problematic situations, devising appropriate solutions. Use concepts and models from the experimental sciences to investigate social and natural phenomena and to interpret data.
SPECIFIC LEARNING OBJECTIVES	 Knowing how to classify annuities. Knowing how to calculate the present value of an annuity in the simple and compound financial regime. Knowing how to calculate the present value of a perpetual annuity.
PREREQUISITES	 Functions in the Cartesian plane and their graphs. Exponential functions. Logarithms. Geometric progressions.
PERIOD OF APPLICATION	March-June
TIMES	10 hours
CONTENTS	 The concept of annuity The classification of annuities The value of an annuity Reverse problems on annuities Depreciation Principal and interest share Outstanding and discharged debt
METHODS	 Lectures. Creation of working groups (formation of groups, assignment of tasks). Individual work. Oral exposition.
EVALUATION CRITERIA AND MODALITIES	 Written tests and individual questions. Exercises in class and/or at home. Multiple-choice and structured tests. Comprehensive group assessment through tests, exercises, questionnaires, summaries, oral expositions and guided dialogues.
TRAINING OBJECTIVES	 Assiduous and participative follow-up of teaching activities. Carrying out one's school duties punctually. Relating in a correct and appropriate manner with all school components: peers, teachers, environment and structure.

ITA 'Emilio Sereni

PROGRAMMING CLASS FOUR - CURRICULUM

Plant Production





Prof. Giuseppe Altobelli - Prof. Luca Corbezzoli

Articulation:

- Plant production and product processing

PROGRAMMING Plant Productions

The learning outcomes related to the educational, cultural and professional profile in the

fourth year of studies can be identified in:

- Knowledge of the main herbaceous essences of agronomic interest.
- Knowing how to manage the technical itinerary of a herbaceous crop.
- Knowing how to design a farm cultivation plan.
- Being able to present acquired knowledge.

MODULE I: Cereal cropping systems 5 LEARNING UNITS	Technological-scientific (a.s. 2023/24)
SUBJECT: Plant Production	
DENOMINATION	Cereal cultivation systems
TRAINING OBJECTIVES	 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SPECIFIC LEARNING OBJECTIVES	 Recognise the crop in the field by orienting on the phenological phases; Correlate phenological phases with cultivation interventions; Recognise and classify the main pests caused by fungi, bacteria, viruses and insects; Application and use of the product
USERS/RECIPIENTS	Second two-year class
PREREQUISITES	General Agronomy Notions of general and special botany;





	PERIOD OF APPLIC	ATION	September - January (66 hours of which: 11 assessment, 5 remedial, 50 learning)	
PHASED SEQUENCE		 Preparation and research of material by lecturers and learners. Presentation of the teaching unit to the class, using textbook, magazines 		
			• Lectures	
			• Creation of working groups.	
			• Workshop and research lessons	
			Realisation of the Task/Product	
			 Verification of skills and objectives through presentation and display of the final product Recovery 	
CONTENTS	м		IODULE I: CEREAL CROPPING SYSTEMS 5 UDA: CEREALS	
	LANGUAGE SKILLS		CONTEN TS	
	Speaking, describing,		Soft and hard wheat	
	writing		Barley	
			Date	
			Com	
		UDA 4.		
		•	origin and aissemination;	
		•	botanical framework.	
		•	morphology;	
		•	biological cycle (phenological phases)	
		•	soil and climate requirements;	
		•	genetic improvement.	
		•	cultivation technique and defence.	
		Uti	lisation and quality aspects	
		UDA 5 :	EXERCISES (recognition of phenological phases,	
		nutritiona	a status of herbaceous crops, germination tests,	
	MINIMUM OBJECTIVES:	cultivation	techniques for autumn-winter cereals and maize	
	VERIFICATION TEST			
	MULTIPLE-CHOICE AND/O	R OPEN-ENDI	ED TESTS, ORAL EXAMINATIONS	
	MET	THODS	• Lectures and dialogues through the functional- communicative approach	
			• Creation of working groups (formation of groups, assignment of tasks)	
		Parallel class work with open classes		
		Group work in the Agronomy laboratory		
			• Oral exposition.	
INSTRUMENTS		Adopted textbooks		
		Agronomy Laboratory		
		Dictionaries and trade journals		
			 Photocopies of various materials 	
77174777	TION ODITEDIA AND MO			
EVALUA	ATION CRITERIA AND MOI	DALITIES	Individual assessment of acquired skills	
			Comprehensive group assessment through tests, avariant and a stranglations and a stranglations are avariant.	
			oral expositions and guided dialogues.	
			1 0	
4 LEARNING UNITS			(a s 2023/24)	
			(4.5. 2023/27)	





SUBJECT: Plant Production	1		
	DENOMINA	ATION	Forage cropping systems
	TRAINING OBJECTIVES		 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
TARGETED SKILLS		• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.	
SPECIFIC I	LEARNING OBJECTIVES		• Recognise the crop in the field by orienting on the phenological phases;
			Correlate phenological phases with cultivation interventions;
			• Recognise and classify the main pests caused by fungi, bacteria, viruses and insects;
			Use and application of the product
	USERS/RECIPI	ENTS	Second two-year class
PREREQUISITES		ISITES	General Agronomy Notions of general and special botany;
PERIOD OF APPLICATION		TION	February - March (25 hours of which: 6 for assessment, 3 for remedial work, 16 for learning)
PHASED SEQUENCE		• Preparation and research of material by lecturers and learners.	
		• Presentation of the teaching unit to the class, using textbook, magazines	
			• Lectures
			Creation of working groups.
			Workshop and research lessons
			• Realisation of the Task/Product
			• Verification of skills and objectives through presentation and display of the final product
			• Recovery
CONTENTS			MODULE 2: FORAGE CROPPING SYSTEMS
			4 UDA: fodder
	LANGUAGE SKILLS		CONTENTS
	• Talking	UL	DA 1: fodder crops, monophyte
	• Describe gr • Write en		assland: systematics, morphology,
			vironmental requirements and Itivation techniques (alfalfa, clover spn.,
		et	c.)
			DA 2: Forage grasses for lawns:
			stematics, morphology, environmental
		(lolium spp, poa spp, oats spp).	
	UL		DA 3: Grasslands: general notions
		UL	DA 4: field exercises (analysis of stanical and cultural aspects)
	MINIMUM OBJECTIVES: CULTIVATION TE		ECHNIQUES OF FODDER CROPS AND THEIR UTILISATION
	VERIFICATION TEST MULTIPLE-CHOICE AND/OR	OPEN-ENDED	TESTS, ORAL EXAMINATIONS
METHODS		Lectures and dialogues through the functional- communicative approach	
			• Creation of working groups (formation of groups, assignment of tasks)





<i>MODULE II: FORAGE CROPPING SYSTEMS</i>	Technological- scientific	
		Parallel class work with open classes
		• Group work in the Agronomy laboratory
		Oral exposition.
	INSTRUME	NTS • Adopted textbooks
		Agronomy Laboratory
		Dictionaries, and trade journals
		Photocopies of various materials
EVALUATI	ON CRITERIA AND MODALI	TIES • Individual assessment of acquired skills
		• Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.





MODULE III: INDUS SYSTEMS 4 learning units	STRIAL CROPPIN	'G	Technological-scientific (a.s. 2023/24)
SUBJECT: Plant Production	1		
	DENOMINA	TION	Industrial cultivation systems
	TRAINING OBJEC	CTIVES	 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile
	TARGETED	SKILLS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SP	ECIFIC LEARNING OBJEC	CTIVES	 Recognise the crop in the field by orienting on the phenological phases; Correlate phenological phases with cultivation
			 Recognise and classify the main pests caused by fungi, bacteria, viruses and insects;
			Application and use of the product
	USERS/RECII	PIENTS	Second two-year class
	PREREQU	ISITES	General Agronomy Notions of general and special botany;
PERIOD OF APPLICATION		March-April (22 hours of which: 5 for assessment, 2 for remedial work, 15 for learning)	
	PHASED SEQU	JENCE	• Preparation and research of material by lecturers and learners.
			• Presentation of the teaching unit to the class, using textbook, magazines
			 Lectures Creation of working groups
			Workshop and research lessons
			Realisation of the Task/Product
			• Verification of skills and objectives through presentation and display of the final product
			• Recovery
CONTENTS			MODULE 3: INDUSTRIAL CULTIVATION SYSTEMS
	I NOT OF		4 UDA: INDUSTRIAL CROPS
	LANGUAGE SKILLS		CONTEN TS





Talking Describe Write	UDA 1	: SOYBEAN
Describe Write		
• Write	UDA 2	: SUNFLOWER
	UDA 3	: GRAIN LEGUMES
	• or	igin and dissemination;
	• bo	tanical framework.
	• mo	orpholoav:
	• bio	plogical cycle.
	• 50	il and climate requirements:
	• 78	netic improvement
	ge 	Itivation technique
		eversion technique.
	cultura	l aspects)
МІЛІМИМ ОВ	JECTIVES: CULTIVATI	ON TECHNIQUES FOR SOYA, SUNFLOWER, GRAIN LEGUMES AND
	SATION	
MULTIPLE-CHOI	TEST CE AND/OR OPEN-ENDED 1	TESTS, ORAL EXAMINATIONS
	METHODS	• Lectures and dialogues through the functional- communicative approach
		• Creation of working groups (formation of groups, assignment of tasks)
		• Parallel class work with open classes
		• Group work in the Agronomy laboratory
		• Oral exposition.
	INSTRUMENTS	Adopted textbooks
		Agronomy Laboratory
		Dictionaries, and trade journals
		Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES		Individual assessment of acquired skills
Lyndon ton CMTERIA	nite modularillo	Comprehensive group assessment through tests
		exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.





MODULE IV: HORTICULTURAL CROPPING SYSTEMS		Technological-scientific (a.s. 2023/24)	
SUBJECT: Plant Production	1		
	DENOMINA	TION	HORTICULTURAL CROPPING SYSTEMS
TRAINING OBJECTIVES		 Approach to discipline Acquisition of awareness of the educational value of the discipline in the construction of one's professional profile 	
	TARGETED S	SKILLS	• Mastery of the expressive tools (oral and written) of the discipline to manage communicative interaction in the group context.
SP	ECIFIC LEARNING OBJEC	CTIVES	• Recognise the crop in the field by orienting on the phenological phases;
			Correlate phenological phases with cultivation interventions;
			 Recognise and classify the main pests caused by fungi, bacteria, viruses and insects; Use and emplications of the number of the sector.
	USERS/RECIPI	ENTS	Use and application of the product Second two-year class
PREREQUISITES		General Agronomy Notions of general botany;	
PERIOD OF APPLICATION		April - June (19 hours of which: 4 for assessment, 2 for remedial work, 13 for learning)	
PHASED SEQUENCE		 Preparation and research of material by lecturers and learners. Presentation of the teaching unit to the class, using textbook, magazines 	
			Lectures
			 Creation of working groups. Workshop and research lessons
			Realisation of the Task/Product
		• Verification of skills and objectives through presentation and display of the final product	
			Recovery
CONTENTS		2.4	MODULE 4 HORTICULTURAL CROPPING SYSTEMS
	LANCHACE	30	DA: HORIICOLIURAL CROPS
	SKILLS		CONTEN TS
•	• Talking	UL	DA 1: Main autumn-
DescribeWrite		wi	inter horticultural crops
		UL	DA 2: main horticultural
		cr	ops with spring-
		Su	initiar cycle
			igin and dissemination;
		• m	orpholoav:
		• bi	ological cycle.
		• SO	il and climate requirements;
		• <i>g</i> e	enetic improvement.





· cu UDA scho	<i>ultivation technique and defence.</i> A 3: Management and analysis of the ol's horticultural system
MINIMUM OBJECTIVES: CULTIVAT MULTIPLE-CHOICE AND/OR OPEN-ENDED	ION TECHNIQUES FOR HORTICULTURAL CROPS TESTS, ORAL EXAMINATIONS
METHODS	 Lectures and dialogues through the functional- communicative approach Creation of working groups (formation of groups, assignment of tasks) Parallel class work with open classes Group work in the Agronomy laboratory Oral exposition.
INSTRUMENTS	 Adopted textbooks Agronomy Laboratory Dictionaries, and trade journals Photocopies of various materials
EVALUATION CRITERIA AND MODALITIES	 Individual assessment of acquired skills Comprehensive group assessment through tests, exercises, questionnaires, translations, summaries, oral expositions and guided dialogues.

Rome

Teachers





ITA 'Emilio Sereni

PROGRAMMING CLASS FOUR - CURRICULUM

Product Processing

Prof.ssa Paola Longo - Prof.ssa Enza Morrone

Articulation:

- Plant production and product processing

PROGRAMMING

Product Processing

MODULE 1:	
The biochemistry of	food technology
TASK / PRODUCT	Maps and diagrams relating to metabolic processes, inorganic compounds of molecules.
	Insights into water footprint.
	Written work on the properties and functions of inorganic compounds in food and biomolecules
TRAINING OBJECTIVES	Finding materials selecting and cataloguing them: analysing and summarising also using
	challenging and complex texts; being able to compare and correlate information.
	Produce texts, diagrams and tables independently, using appropriate sources.
	Know and apply analytical methods for the determination of major constituents. Organise analytical findings of raw material quality.
	Know physical, chemical, biological and typological aspects of raw materials; know chemical aspects of transformation processes.
	To acquire knowledge about the composition of foodstuffs. Know the main functions performed by biomolecules.
	Being able to recognise biomolecules on the basis of their structure, classify them and define their functions.
	Know how to compare the chemical composition of foods and recognise their energy and nutrient power.
TARGETED SKILLS	Identify, based on acquired knowledge, the biological and nutritional function of biomolecules.
SPECIFIC LEADNING	Organise analytical feedback of the composition and quality of raw materials.
OBJECTIVES	Consolidation of the scientific basis and understanding of the technical principles necessary for the interpretation of environmental problems and integrated production processes.
	Use appropriate models to investigate phenomena and interpret experimental data.
	Knowing how to write technical reports and document individual and group activities.
USERS	Fourth grade students
PREREQUISITES	Knowing how to interpret acid-base behaviour according to Bronsted-Lowry theories.
	Knowing how to classify an organic compound by recognising its functional group.





	Knowing how to define the type of interaction between atomic groups of the same or different molecules.
	Knowing how to identify the functional groups involved in a reaction.
	Knowing how to move around in the laboratory while respecting basic safety rules.
	Knowing how to write a technical report of the activities carried out in the laboratory.
PERIOD OF	September - December
APPLICATION	
CONTENTS and SEQUENCE IN PHASES	UDA.1 (4/5 hours) Foods and their metabolism
	UDA.2 $(3/4 \text{ hours})$
	Inorganic compounds in food: water, mineral salts
	UDA.3 (5/8 hours)
	Carbohydrates: classification, structure formulas, metabolism;
	UDA. 4 (5/8 hours)
	insolubility of fats in water, emulsions.
	UDA , 5 (4/8 hours)
	Proteins: amino acids, classification, isoelectric point, electrophoretic mobility, peptide bonding,
	protein structure, metabolism and nutritional value.
TIMES	21/33 hours
METHODS	Participatory lectures
	Reversed class
	Laboratory exercises
	Group activities
	Problem
INSTRUMENTS	Textbook
	Fact Sneets
	Computer supports
	<i>On-line</i> materials (presentations, animations, videos, questionnaires and quizzes etc.).
	Glassware, instruments and laboratory materials
HUMAN RESOURCES	Chemistry teacher
AND RELATED TASKS	Practical technical lecturer
	Laboratory technician
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA	Formal and formative tests, with Rubrics and observation and evaluation grids:
AND MODALITIES	• Oral expositions; purposeful participation in lessons with relevant interventions, including in-depth studies; participative lessons through dialogue, in order to constantly and participative lessons are also as the close.
	periodically ascertain the rearning of the class.
	• Structured individual or small group avancies for the application of the approximate 1
	 Structured individual or small group exercises for the application of the concepts learnt. Structured (correct structured application of the concepts learnt).
	 Structured individual or small group exercises for the application of the concepts learnt. Structured/semi-structured written tests, also in online mode e.g. with Google forms. Written reports.





MODULE 2.	
Ouality, safety, sustain	nability and valorisation of food products
TASK / PRODUCT	Written or graphic work on food quality and safety.
TRAINING OBJECTIVES	Finding materials, selecting and cataloguing them; analysing and summarising, also using demanding and complex texts; being able to compare and correlate information.
	Produce texts, diagrams and tables independently, using appropriate sources.
	To know the requirements and parameters of food quality and typicality and to organise analytical testing of food quality with reference to the regulations in force. To be able to identify critical points and control methods.
	Knowing the chemical and physical aspects of contamination and alteration processes; mastering measures to prevent and control contamination and alteration.
TARGETED SKILLS	Implement strategies in the agri-food chain to safeguard food safety and quality by enhancing typical products
SPECIFIC LEARNING OBJECTIVES	Consolidation of the scientific basis and understanding of the technical principles necessary for the interpretation of environmental problems and integrated production processes.
	Use appropriate models to investigate phenomena and interpret experimental data.
	Knowing how to write technical reports and document individual and group activities.
	Identifying and applying EU, national and regional regulations on integrated agricultural activities
	Carrying out promotional activities for the valorisation of agri-food products linked to territorial characteristics and environmental quality.
	Managing production and processing activities, enhancing quality aspects and ensuring traceability and safety.
USERS	Fourth grade students
PREREQUISITES	Knowing physical, chemical, biological and typological aspects of raw materials.
	Know the nutritional principles of foodstuffs. Know the main properties and functions of biomolecules. Know how to recognise biomolecules on the basis of their structure, classify them and define their functions.
	Know and apply analytical methods for the determination of the main constituents.
	Knowing how to move around in the laboratory while respecting basic safety rules.
	Knowing how to write a technical report of the activities carried out in the laboratory.
PERIOD OF APPLICATION	December -
CONTENTS and	UDA.1 (5/7 hours)
SEQUENCE IN PHASES	Quality in the agri-food chain: quality parameters of raw materials, semi-finished and finished products; legal food quality; quality assurance and control; regulatory aspects of the agri-food chain; food labelling, quality marks.
	UDA. 2 (5/10 hours) Food contamination: the possible causes of food harm; food contamination; chemical contamination; biological contamination; physical contamination by foreign bodies.
	UDA.3 (5/10 hours) Chemical-physical and microbial changes in food: food alterations: causes and processes; microbial fermentations.
TIMES	15/27 hours
METHODS	- Participatory lectures





	- Reversed class
	- Laboratory exercises
	- Group activities and, if possible, activities for parallel classes
	- Reality task
	- Problem solving
INSTRUMENTS	- Textbook
	- Fact Sheets
	- Summary diagrams and maps
	- Legal references; newspaper and magazine articles
	- On-line materials (presentations, animations, videos, questionnaires and quizzes etc.)
	- Glassware, instruments and laboratory materials
HUMAN RESOURCES	- Chemistry teacher
AND RELATED TASKS	- Practical technical lecturer
	- Laboratory technician
EXPERIENCES	- Laboratory experiences
EVALUATION CRITERIA	Formal and formative tests , with Rubrics and observation and evaluation grids:
AND MODALITIES	Oral expositions; purposeful participation in lessons with relevant interventions, including in-
	depth studies; participative lessons through dialogue, in order to constantly and periodically
	ascertain the learning of the class.
	Structured individual or small group exercises for the application of the concepts learnt.
	Structured/semi-structured written tests, also in online mode e.g. with Google forms. Written
	reports.
	Recovery : after the test with correction, clarification, review, exercises. If necessary and possible
	remedial work with remedial courses or disciplinary help.





MODULE 3:		
Raw material proces	ssing lines, machines and materials	
TASK / PRODUCT	Written or graphic work on the processing of raw materials and the use of machines and tools.	
TRAINING OBJECTIVES	Know the physical, chemical, biological and typological aspects of raw materials; know the chemical aspects of transformation processes.	
	Knowledge of processing procedures, machines and tools, physical, chemical and microbiological principles.	
	Knowing how to identify the stages of processing lines, critical points and control methods.	
	Knowledge of the general processes and chemical aspects of transformation.	
	Survey the functional aspects of general transformation operations, energy commitments and possible yields.	
TARGETED SKILLS	Knowing how to create and manage an agri-food production chain by identifying materials, tools and techniques with particular attention to man and the environment.	
SPECIFIC LEARNING OBJECTIVES	Consolidation of the scientific basis and understanding of the technical principles necessary for the interpretation of environmental problems and integrated production processes.	
	Use appropriate models to investigate phenomena and interpret experimental data.	
	Managing production and processing activities, enhancing the quality aspects of products and ensuring traceability and safety.	
	Analysing the value, limitations and risks of various technical solutions.	
	Realise technical solutions that take into account safety in the living and working environment, personal, environmental and territorial protection.	
USERS	Fourth grade students	
PREREQUISITES	Finding materials, selecting and cataloguing them; analysing and summarising, also using demanding and complex texts; being able to compare and correlate information.	
	Produce texts, diagrams and tables independently, using appropriate sources.	
	To know the requirements and parameters of food quality, safety and typicality and to organise analytical testing of food quality with reference to current legislation.	
	To know the chemical and physical aspects of contamination and modification processes and their prevention and control measures.	
PERIOD OF APPLICATION	March - April	
CONTENTS and	UDA.1 (5 hours)	
SEQUENCE IN PHASES	Packaging materials and equipment: materials and objects intended for food contact; materials for equipment and facilities; packaging and containers; recycling symbols and codes.	
	IIDA = 2 (2 hours)	
	Technological Operations	
	UDA. 3 (4 hours)	
	UDA 4 (4 hours)	
	Main separation techniques and machines	
TIMES	15 hours	
METHODS	- Participatory lectures	
	- Reversed class	
	- Laboratory exercises	
	- Reality task	
	- Group activities and, if possible, activities for parallel classes	





	- Problem solving
INSTRUMENTS	- Textbook
	- Fact Sheets
	- Summary diagrams and maps
	- Legal references; newspaper and magazine articles
	- On-line materials (presentations, animations, videos, questionnaires and quizzes etc.)
	- Glassware, instruments and laboratory materials
HUMAN RESOURCES	- Chemistry teacher
AND RELATED TASKS	- Practical technical lecturer
	- Laboratory technician
EXPERIENCES	- Laboratory experiences
	- Educational outings, if possible
EVALUATION CRITERIA	Formal and formative tests, with Rubrics and observation and evaluation grids:
AND MODALITIES	Oral expositions; purposeful participation in lessons with relevant interventions, also in-depth; participative lessons through dialogue, to constantly and periodically ascertain the learning of the class
	ute class. Structured individual or small group overeises for the application of the concepts learnt
	Structured marvidual of small group exercises for the application of the concepts learni.
	reports.
	Recovery : after the test with correction, clarification, review, exercises. If necessary and possible remedial work with remedial courses or disciplinary help.





MODULE 4:	
Conservation techni	ques
TASK / PRODUCT	Written or graphic work on different conservation techniques.
TRAINING OBJECTIVES	Knowing physical, chemical, biological and typological aspects of raw materials and processed products.
	Knowing the conservation processes of raw materials and processed products, machines and tools, physical, chemical and microbiological principles and being able to identify critical points and control methods.
	Know and apply analytical methods for the determination of major constituents. Organise analytical findings of raw material quality.
TARGETED SKILLS	Knowledge of the physical, chemical and biological aspects of food preservation;
	To know the different preservation methods and techniques and to apply them according to the type of food and/or raw materials in order to guarantee safety and enhance genuineness and quality.
SPECIFIC LEARNING OBJECTIVES	Consolidation of the scientific basis and understanding of the technical principles necessary for the interpretation of environmental problems and integrated production processes.
	Use appropriate models to investigate phenomena and interpret experimental data.
	Managing production and processing activities, enhancing the quality aspects of products and ensuring traceability and safety.
	Analysing the value, limitations and risks of various technical solutions.
USERS	Fourth grade students
PREREQUISITES	Finding materials, selecting and cataloguing them; analysing and summarising, also using challenging and complex texts; being able to compare and correlate information.
	Produce texts, diagrams and tables independently, using appropriate sources.
	Knowing how to interpret the concept of quality, safety and enhancement of food products.
	To know the requirements and parameters of food quality, safety and typicality and to organise analytical testing of food quality with reference to current legislation.
	To know the chemical and physical aspects of contamination and modification processes and their prevention and control measures.
PERIOD OF	April - May
APPLICATION	
CONTENTS and SEQUENCE IN PHASES	UDA.1 (5/9 hours) Preservation (sanitisation) with heat (pasteurisation and sterilisation). Preservation (stabilisation) with cold (refrigeration, freezing and deep-freezing).
	UDA.2 (5/7 hours) Preservation by dehydration (drying and freeze-drying). Storage in modified environments, fourth range.
	UDA.3 (5 hours) Preservation by natural and artificial additives.
TIMES	15/21 hours
METHODS	- Participatory lectures - Reversed class
	- Laboratory exercises
	- Group activities and, if possible, activities for parallel classes - <i>Problem solving</i>
INSTRUMENTS	- Textbook
	- Fact Sheets
	- Summary magrants and maps





	 Legal references; newspaper and magazine articles On-line materials (presentations, animations, videos, questionnaires and quizzes etc.) Glassware, instruments and laboratory materials
HUMAN RESOURCES	- Chemistry teacher Practical teacher (ITP)
AND RELATED TASKS	- Laboratory technician
EXPERIENCES	- Laboratory experiences
EVALUATION CRITERIA AND MODALITIES	 Formal and formative tests, with Rubrics and observation and evaluation grids: Oral expositions; purposeful participation in lessons with relevant interventions, including indepth studies; participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class. Structured individual or small group exercises for the application of the concepts learnt. Structured/semi-structured written tests, also in online mode e.g. with Google forms. Written reports.
	Recovery : after the test with correction, clarification, review, exercises. If necessary and possible remedial work with remedial courses or disciplinary help.





CHEMICAL LABORATORY TESTS

- Alcoholic fermentation
- Lactic fermentation
- Acid-base titrations; Redox titrations
- Biomolecule recognition assays
- Searching for sugars in food; recognition of starches
- Fat recognition
- Saponification of glycerides
- Protein recognition
- Protein coagulation
- Enzyme activity
- Organoleptic characteristics of foods





MINIMUM OBJECTIVES

They will be achieved when the pupil acquires **knowledge and skills of the essentials of each teaching unit**, in particular: Knowing the chemical characteristics of food. Knowing chemical aspects of metabolic processes: respiration and fermentation. Knowing the main functions performed by biomolecules. Being able to recognise biomolecules on the basis of their structure, classify them and define their functions.

Importance and functions of water in food.

To know the requirements and parameters of quality, traceability and typicality of foodstuffs in relation to current legislation.

Knowing the chemical and physical aspects of food contamination and alteration processes.

Knowledge of processing procedures, machines and tools, physical, chemical and microbiological principles.

Knowing how to identify the stages of processing lines, critical points and control methods.

Know the main methods of food preservation.

Main analytical methods (chemical and physical) for determining food constituents

Finding materials, selecting and cataloguing them; making simple analyses and summaries; being able to identify the main correlations between information. To produce simple texts, diagrams and tables independently.

Basic, discipline-specific scientific terminology.

Correct exposition of disciplinary concepts in simple but appropriate language.





ITA 'Emilio Sereni

PROGRAMMING CLASS FOUR - CURRICULUM

Rural Engineering: Rural Buildings

Prof. Carmine Casciello - Prof. Luca Corbezzoli

Articulation:

- Plant production and product processing

PROGRAMMING

Rural Engineering: Rural Construction

Objectives:

The course of study aims to provide students not only with fundamental knowledge of construction materials, building elements and related construction methods, but also with skills regarding production processes and organisational structures of agricultural and livestock holdings. The analysis techniques learnt in this way will enable the agricultural expert to direct the most appropriate design and construction choices for the various production contexts.

Minimum objectives (indicated with * in the activity schedule):

Building materials; the equilibrium of bodies, degrees of freedom and constraints, the beam and the calculation of constraint reactions; cattle sheds.

Methodology:

The teaching methodologies are mainly based on frontal lectures for purely theoretical topics, on dialogues for descriptive and informative ones. The topics to be developed during the school year will be subdivided into modules and didactic units according to the attached schedule of activities. It is specified that, depending on the preparation of the class and the aptitude of the students, the chronological order of the didactic units, organised for the most part in a non-preparatory manner, may be modified.

Modalities of verification:

Assessments will be carried out periodically through both written and oral tests, and occasionally, if necessary, through tests or structured tests. At the end of each module, a summative assessment of the knowledge acquired will be carried out. Student interventions will be encouraged during the dialogue lessons, promoting the didactic-educational dialogue as much as possible.

Recovery and support activities:

Remedial and support activities are planned in itinere, both through lessons dedicated to the whole class and with differentiated teaching through group study and in-depth studies. Mock State Examination tests will be organised.

Activity scheduling:

(marked with (*) topics related to the minimum objectives)

MODULE 1:	Building materials and construction methods
UDA 1.1:	Building materials: (*)
	Classification of building materials
	Chemical, physical and mechanical properties
	Characteristics and strength capacity of materials
UDA 1.2:	Construction methods: (*)
	Stone and masonry construction
	Reinforced Concrete Construction
	Steel construction





UDA 1.3:	Wooden constructions Building elements and their organisation:		
	Structural elements: beams, columns, floors, partitions, foundations Construction details		
MODULE No	2: Principles of structural design		
UDA 2.1:	Forces and force systems:		
	The representation of forces and force systems (*)		
	Vector calculations, the composition of forces		
UDA 2.2:	The equilibrium of bodies:		
	The concept of equilibrium of bodies, degrees of freedom (gdl) and degrees of constraint		
	(gdv) (*)		
	The beam and the calculation of constraining reactions		
UDA 2.3:	Stresses and strains:		
	Stress characteristics (*)		
	Beam theory: bending and shear diagrams, deformations		
	Stresses and deformations in construction elements		
	Strength criteria and verifications		
MODULE 3:	Farm structures		
UDA 3.1:	Livestock farms:		
	Cattle stables (*)		

JDA 3.1: Livestock farms: Cattle stables (*) Construction standards and functions Design of a loose housing dairy barn

MODULE 4: Natural resources, safety and environmental protection

UDA 4.1: Natural resources, safety and environmental protection: Renewable energy sources: an overview

Practical part:

- Constraints in 'practice': focus on single girder, gerber, cable-stayed and suspension bridges
- Exercises on calculating forces in isostatic systems with distributed and concentrated loads
- Exercises on recognising the main issues related to the size of the

environments and building materials intended for breeding

- Exercises on pedo-agronomic expertise
- Design of a product processing company of the student's choice

Textbook: Cannarozzo, Cucchiarini, Meschieri, Vesta; Genio Rurale, Zanichelli





ITA 'Emilio Sereni

PROGRAMMING CLASS FOUR - CURRICULUM

Agricultural Biotechnologies

Prof. Arianna Massimi

Articulation:

- Plant production and product processing

PROGRAMMING

Agricultural biotechnology

MODULE 1: FUNDAMENTALS OF BIOLOGY	PRODUCTION AND PROCESSING' ARTICULATION SCHOOL YEAR 2024-2025	
ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY		
SUBJECT: Agricultural bio	otechnology	
TASK / PRODUCT	Diagram or map on nucleic acids and their functions. Written work on gene regulation mechanisms. Report of laboratory experiences.	
TRAINING OBJECTIVES	Acquisition of discipline-specific scientific terminology. Observe, describe and analyse phenomena belonging to natural and artificial reality. Understand and explain the cause-effect relationship of the phenomena considered. Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately. Consolidate the ability to independently draw up reference diagrams and draft a report of the experiences proposed in the workshop. Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles. Enhancement of individual skills.	
TARGETED SKILLS	Having a basis for interpreting genetics to understand its importance in the field of genetic improvement Being able to explain the mechanisms behind genetic improvement. Recognising the importance of microorganisms in industrial production and environmental remediation	
SPECIFIC LEARNING OBJECTIVES	Describe the structure of DNA; Knowing how to distinguish the roles of different RNAs; Summarising the stages of protein synthesis and the main regulatory mechanisms of gene expression; Knowing how to distinguish between sexual reproduction and vegetative propagation.	





	Understanding the transmission of hereditary traits ; Understand that hereditary traits are mostly multifactorial; Explain how polygenic inheritance can result in a wide range of phenotypes; Understand how the environment can influence the expression of a phenotype; Classifying and describing mutations Knowledge of genetic improvement techniques; Know the principles behind inbreeding and exo-breeding; Knowledge of the different hybridisation techniques and the concept of mutational biosynthesis applied to bioengineering
USERS	Fourth grade students
PREREQUISITES	Biochemistry: carbohydrates, lipids, proteins, nucleic acids. Biochemistry: biological processes, elementary physiological processes. General biology: DNA replication, the organisation of the eukaryotic cell, the nature of genes, meiosis and reproduction in multicellulars. General agronomy: basics. General and special botany: basics.
INTERDISCIPLINARY LINKS	Italian, English, Product Processing, Animal Production, Plant Production
PERIOD OF APPLICATION	September - January)
CONTENTS and SEQUENCE IN PHASES	 UDA.1 (10 hours) STRUCTURE AND FUNCTION OF NUCLEIC ACIDS Nucleic acids and the genetic code. Genes, chromosomes and the genome. Protein synthesis. The regulation of gene expression in prokaryotes and eukaryotes. The continuity of living organisms: DNA replication. Hints on the transmission of hereditary traits: Mendel's laws and inheritance UDA.2 (13) IMPROVEMENT Genetic improvement: selection, inbreeding, hybridisation. Genetic improvement and the green revolution INDUSTRIAL MICROBIOLOGY AND BIOENGINEERING Production of primary and secondary metabolites using bioreactors with bacteria, yeasts, ENVIRONMENTAL BIOREMEDIATION biotechnological applications in environmental remediation
TIMES	23 hours
METHODS	Exhibition lectures Expository lessons with participatory method Laboratory exercises Group activities Inductive method Deductive method Problem solving Flipped classroom Peer education Peer tutoring DAD
INSTRUMENTS	Supporting teaching texts Notes and handouts Fact Sheets Summary diagrams and maps Computer aids - interactive whiteboard





	On-line materials (images, animations, videos, etc.) Glassware, instruments and laboratory materials Personal computer GSuite platform Viva Class
HUMAN RESOURCES AND RELATED TASKS	Lecturer in Biotechnology Practical technical lecturer Laboratory technician
EXPERIENCES	Laboratory experiences using some of the products grown in the hydroponic greenhouse
EVALUATION CRITERIA AND MODALITIES	Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Reality tasks, to be carried out in presence or via GSuite platform. Individual assessment of acquired competences in itinere and at the end. Oral examinations: Oral expositions also from the spot, and/or participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class. Structured/semi-structured written tests. Written reports on laboratory experiences.





MODULE 3: INNOVATIVE BIOTECHNOLOGY	PRODUCTION AND PROCESSING' ARTICULATION SCHOOL YEAR 2024-2025	
ADDRESS: AGRICULTURE, AGRIBUSINESS, AGRO-INDUSTRY		
SUBJECT: Agricultural bio	technology	
TASK / PRODUCT	Summary map of different in vitro culture techniques. Written work on genetically modified organisms. Report of laboratory experiences.	
TRAINING OBJECTIVES	Acquisition of discipline-specific scientific terminology. Observe, describe and analyse phenomena belonging to natural and artificial reality. Understand and explain the cause-effect relationship of the phenomena considered. Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately. Consolidate the ability to independently draw up reference diagrams and draft a report of the experiences proposed in the workshop. Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles. Enhancement of individual skills.	
TARGETED SKILLS	Explain the advantages of using in vitro cultures. Describe the tools used to 'cut and stitch' DNA. Outline the steps of the polymerase chain reaction Explain the applications of the recombinant DNA technique	
SPECIFIC LEARNING OBJECTIVES	Know the fields of application of cell cultures. Know how to perform in vitro cultures. Knowing the stages of hybridoma production. Knowing the steps of cloning. Know the applications and describe the steps of a PCR. Be aware that genetic properties can be modified. To know the basic techniques used for the identification, amplification and cloning of genes. Know the basic tools of genetic engineering; Know the types of vectors used to clone genes.	
USERS	Fourth grade students	
PREREQUISITES	General agronomy: basics. General and special botany: basics. Skills acquired in the previous teaching unit.	
INTERDISCIPLINARY LINKS	Italian, English, Product Processing, Animal Production, Plant Production	
PERIOD OF APPLICATION	January - February.	
CONTENTS and SEQUENCE IN PHASES	UDA.1 (10 hours) CELLULAR BIOTECHNOLOGY Cellular biotechnology. Technique of in vitro plant cultures and their classification. Animal cell cultures. Hybridomes. Cloning. UDA.2 (10 hours) MOLECULAR BIOTECHNOLOGISTS	




	DNA analysis techniques. DNA polymerase chain reaction (PCR). Molecular biotechnology. Genetic engineering
TIMES	20 hours
METHODS	Exhibition lectures Expository lessons with participatory method Laboratory exercises Group activities Inductive method Deductive method Problem solving Flipped classroom Peer education Peer tutoring DAD
INSTRUMENTS	Supporting teaching texts Notes and handouts Fact Sheets Summary diagrams and maps Computer aids - interactive whiteboard On-line materials (images, animations, videos, etc.) Glassware, instruments and laboratory materials Personal computer GSuite platform Viva Class
HUMAN RESOURCES AND RELATED TASKS	Lecturer in Biotechnology Practical technical lecturer Laboratory technician
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA AND MODALITIES	Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Reality tasks, to be carried out in presence or via GSuite platform. Individual assessment of acquired competences in itinere and at the end. Oral examinations: Oral expositions also from the spot, and/or participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class. Structured/semi-structured written tests. Written reports on laboratory experiences.





MODULE 4: BIOLOGY AND BIOTECHNOLOGY APPLIED TO PRODUCTION	PRODUCTION AND PROCESSING' ARTICULATION SCHOOL YEAR 2024-2025
ADDRESS: AGRICULTURE,	AGRIBUSINESS, AGRO-INDUSTRY
SUBJECT: Agricultural biot	echnology
TASK / PRODUCT	Summary map of different in vitro culture techniques. Written work on genetically modified organisms. Report of laboratory experiences.
TRAINING OBJECTIVES	Acquisition of discipline-specific scientific terminology. Observe, describe and analyse phenomena belonging to natural and artificial reality. Understand and explain the cause-effect relationship of the phenomena considered. Consolidate the ability to move around safely in the laboratory using glassware and instruments appropriately. Consolidate the ability to independently draw up reference diagrams and draft a report of the experiences proposed in the workshop. Ability to work in a team, cooperating and confronting peers by assuming responsibilities and roles. Enhancement of individual skills.
TARGETED SKILLS	Describe the biology of fungi, bacteria, phytoplasmas and viruses Know the parasitic implications of fungi, bacteria, phytoplasmas and viruses on plants. Describe the characteristics of the main orders of insects of agricultural interest Distinguishing the different mouthparts Knowing how to relate the insect's mouthparts to the type of damage produced
SPECIFIC LEARNING OBJECTIVES	Knowing how to classify different micro-organisms according to the complexity of their organisation. Being able to describe the general aspects of viruses, distinguishing viruses, viroids and prions Knowing the characteristics of phytoviruses. Describe the general characteristics of phytopathogenic bacteria Describe the general characteristics of fungi. Classify the main types of fungi according to their reproductive cycle characteristics. Describe the general morphology of an Insect; Knowing the main mouthparts of Insects and their feeding regimes; Knowing the main aspects of Insect physiology; Distinguishing the development cycle of Heterometabolous Insects from that of Holometabolous Insects; Knowing the structure of mites; Knowing the structure of Nematodes
USERS	Fourth grade students
PREREQUISITES	GENERAL BIOLOGY: concept of biodiversity. TASSONOMY: kingdoms, phyla, classes, orders, families, genera, species. Principles of classification. Skills acquired in previous teaching units





INTERDISCIPLINARY LINKS	Italian, English, Product Processing, Animal Production, Plant Production
PERIOD OF APPLICATION	March - May.
CONTENTS and SEQUENCE IN PHASES	UDA.1 (11 hours) PHYTOPATHOGENIC ORGANISMS VIRUSES, VIROIDS, PRIONS (general aspects). PHYTOVIRUSES (pathogenesis and damage, transmission and dissemination). BACTERIA, PHYTOPLASMS (general aspects. Phytopathogenic bacteria: symptomatology, infective process, types of bacterial diseases). FUNGI (general characters). PSEUDOFUNGES. EUMYCHES UDA.2 (11 hours) INSECTS AND OTHER ANIMALS OF AGRICULTURAL INTEREST INSECTS, MITES AND NEMATODES. (General aspects of arthropods. General aspects of insects. Classification of insects. Morphology, anatomy, physiology and relationship life of insects. General characteristics of mites and nematodes. Mites and nematodes of agricultural interest).
TIMES	22 hours
METHODS	Exhibition lectures Expository lessons with participatory method Laboratory exercises Group activities Inductive method Deductive method Problem solving Flipped classroom Peer education Peer tutoring DAD
INSTRUMENTS	Supporting teaching texts Notes and handouts Fact Sheets Summary diagrams and maps Computer aids - interactive whiteboard On-line materials (images, animations, videos, etc.) Glassware, instruments and laboratory materials Personal computer GSuite platform Viva Class
HUMAN RESOURCES AND RELATED TASKS	Lecturer in Biotechnology Practical technical lecturer Laboratory technician
EXPERIENCES	Laboratory experiences
EVALUATION CRITERIA AND MODALITIES	Oral examinations in presence or via GSuite platform, in the form of a question, interview, conversation or return of work done Written tests (entry test, end-of-module test) to be carried out in presence or via GSuite platform, in synchronous or asynchronous mode Practical tests, to be carried out in person or via GSuite platform. Reality tasks, to be carried out in presence or via GSuite platform. Individual assessment of acquired competences in itinere and at the end. Oral examinations: Oral expositions also from the spot, and/or participative lessons through dialogue, in order to constantly and periodically ascertain the learning of the class.





Structured/semi-structured written tests. Written reports on laboratory experiences.

The application period given for each subject is purely indicative and may vary according to the needs of the classes.

Evaluation rubric for the "Task/Product" in the individual modules, according to EU competences:

Skille	Evidonco	Mastery level				
SKIIIS	Evidence	initial	base	Intermediate	advanced	
Functional The learner literacy understands and uses information from various types of documents		only if guided	autonomously but elementary	adequately	with full awareness	
	The student communicates in oral form	roughly	in an elementary way	adequately	richly and effectively	
	The student communicates in written form	roughly	in an elementary way	adequately	richly and effectively	
	Media	D	С	В	A	
Personal, social and learning competence	The student recognises, selects, analyses and compares information and knowledge derived from personal experience and that of others	only if guided	autonomously but elementary	adequately	in an organised and critical manner	
	The student works with others	passively	with performer duties	Acts proactively and makes decisions	assumes responsibility, mediates and facilitates the work of peers	
	Media	D	С	В	A	
Citizenship competence	The student acts as a responsible citizen and participates fully in civic and social life	must be induced to respect the rules of associated life	respects the rules of associated life	Acts in the associated context in a responsible and constructive manner	in a fully responsible and constructive manner demonstrating internalisation of the rules of associated life	
	Media	D	С	В	A	
Digital Competence	The student knows the operation and basic use of various devices, software and networks	in an unconscious manner	mechanically	consciously	critically	
	The student uses digital technologies as an aid to active citizenship and social inclusion, collaboration with others and creativity	with the help of comrades	mechanically but autonomously	consciously	with critical and creative contributions	
	Media	D	С	B	A	





Overall mastery level count

COMPETENCE	EVALUATION			
Functional literacy	D= 1	C= 2	B= 3	A= 4
Personal, social and	D- 1	C- 2	B- 3	Δ- 1
learning to learn	D= 1	C- 2	D= 3	~- -
Citizenship competence	D= 1	C= 2	B= 3	A= 4
Digital competence	D= 1	C= 2	B= 3	A= 4
Total sum				

Conversion table for evaluation in tenths

OVERALL LEVEL	EVALUATION IN TENTHS
4	4
5	4 1/2
6	5
7	51/2
8	6
9	61/2
10	7
11	71/2
12	8
13	81/2
14	9
15	91/2
16	10





Evaluation Concept for Tests: "Farmer "

Curriculum, teaching materials and examination for a dual initial vocational training

1. The Aim of the Evaluation

The overall objective of the study is to evaluate the effectiveness of the dual vocational training "Farmer" provided under the "Promoting and Upgrading Green Skills in Agriculture (ProGreen)" project. The conclusions of the evaluation research will contribute to improve the quality, and especially the effectiveness of the dual vocational training, show the limitations of the training model and indicate the direction for further activities.

A training management cycle can be divided into three major steps: *planning, implementation and evaluation*. The evaluation is the final step of the training management cycle. Evaluation of training is one of the main components of a training programme. The results of the training evaluation are reflected in the next phase of training planning to improve future training programmes. It does not only provide the trainer with useful information in order to further improve the training course, but also creates an impression of completeness.

What is an Evaluation?

Several definitions of evaluation have been offered, and the following are some of those most commonly used: An evaluation is the systematic and objective assessment of an ongoing or completed project, programme or policy, its design, implementation and results. The aim is to determine the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability. (Source: Glossary of Key Terms in Evaluation and Results Based Management).

A **programme evaluation** is the systematic collection of information about the activities, characteristics, and outcomes of programmes to make judgments about the programme, improve programme effectiveness, and/or inform decisions about future programming. (*Source: Patton, M.Q. (1997). Utilization-focused Evaluation: The New Century Text (3rd ed.). Thousand Oaks, CA: Sage.*)

There are many different types of evaluations depending on the object being evaluated and the purpose of the evaluation.

Perhaps the most important basic distinction in evaluation types is that between *formative* and *summative* evaluation. Formative evaluations strengthen or improve the object being evaluated - they help form it by examining the delivery of the programme or technology, the quality of its implementation, and the assessment of the organisational context, personnel, procedures, inputs, and so on. Summative evaluations, in contrast, examine the effects or outcomes of some object - they summarise it by describing what happens subsequent to delivery of the programme or technology; assessing whether the object can be said to have caused the outcome; determining the overall impact of the causal factor beyond only the immediate target outcomes; and estimating the relative costs associated with the object.





Formative evaluation includes several evaluation types:

- *needs assessment* determines who needs the programme, how great the need is, and what might work to meet the need
- *evaluability assessment* determines whether an evaluation is feasible and how stakeholders can help shape its usefulness
- *structured conceptualisation* helps stakeholders define the programme or technology, the target population, and the possible outcomes
- *implementation evaluation* monitors the fidelity of the programme or technology delivery
- process *evaluation* investigates the process of delivering the programme or technology, including alternative delivery procedures

Summative evaluation can also be subdivided:

- outcome evaluations investigate whether the programme or technology caused demonstrable effects on specifically defined target outcomes
- *impact evaluation is broader and assesses the overall or net effects -- intended or unintended -- of the programme or technology as a whole*
- cost-effectiveness and cost-benefit analysis address questions of efficiency by standardising outcomes in terms of their dollar costs and values secondary analysis reexamines existing data to address new questions or use methods not previously employed
- meta-analysis integrates the outcome estimates from multiple studies to arrive at an overall or summary judgement on an evaluation question (Souce: Patton, M.Q.. (1997). Utilisation-focused Evaluation: The New Century Text (3rd ed.). Thousand Oaks, CA: Sage).





2. Five Steps of Training Evaluation

The processes of training evaluation can be divided into five steps: identify purposes of evaluation; select evaluation methods; design evaluation tools; collect data; and analyse and report results.

Step 1: Identify Purposes of Evaluation

Before developing evaluation systems, the purposes of evaluation must be determined. These will affect the types of data and the data collection methods. The most common reason for evaluating training programmes may be to determine the effectiveness of training programmes in order to improve future programmes. Evaluation can help us learn from experience of past training programmes. For example, we may want to know which parts of the training were successful and which not, or whether the approach to the training should be changed. We can use these lessons learned to improve plans for future training programmes:

The following 8 purposes of evaluating training programmes are:

- 1. To determine whether the objectives of the training were achieved.
- 2. To see how the knowledge and skills learned in the training are put into practice.
- 3. To assess the results and impacts of the training programmes.
- 4. To assess the effectiveness of the training programmes.
- 5. To assess whether the training programmes were properly implemented.
- 6. To identify the strengths and weaknesses of the training programmes.
- 7. To assess whether the training programmes were suitable in terms of the training contents, timing, participants and other aspects.
- 8. To find problems of the training programmes and solutions for improvement.





Step 2: Select Evaluation Method

One of the most commonly used methods for evaluating training programmes is the four levels of evaluation by D. L. Kirkpatrick. According to his concept, capacity development is realised by the four sequential steps:

- 1. **Reaction** evaluation on this level measures how participants react to the training programme. It is important to get a positive reaction. Although a positive reaction may not ensure learning, if participants do not react favourably, they probably will not be motivated to learn.
- 2. **Learning** evaluation on this level measures the extent to which participants change attitudes, improve knowledge, and/or increase skills as a result of attending the training programme. One or more of these changes must take place if a change in behaviour is to happen.
- 3. **Behaviour** evaluation on this level measures the extent to which change in participants' behaviour has occurred because of attending the training programme. In order for change to take place, four conditions are necessary:
 - The person must have a desire to change.
 - The person must know what to do and how to do it.
 - The person must work in the right climate.
 - The person must be rewarded for changing.
- 4. **Results** evaluation on this level measures the final results that occurred because the participants attended the training programme. Examples of the final results include increased production, improved quality and decreased costs. It is important to recognise that these results are the reason for having some training programmes. (Source: *Kirkpatrick (2006) Evaluating Training Programs*)

Step 3: Design Evaluation Tools

Various evaluation tools can be selected depending on the purposes and methods of evaluation:

- Questionnaires
- Surveys
- Tests
- Interviews
- Focus group discussions
- Observations
- Performance records

For the Train the Trainer in SMEs training evaluation the written questionnaire and the interview are used.





The questionnaire is probably the most common form of evaluating training programmes to assess the reactions of training participants. Questionnaires can be developed through five steps:

Step 3.1: Determine what you want to find out

The following are some common types of information we may want to ask participants.

Contents: Was the content appropriate?

Materials: Were the materials useful?

Teaching method: Was the teaching method appropriate?

Trainer/Facilitator: Was the trainer/facilitator effective?

Motivation to learn: Were you motivated to learn the contents?

Programme relevance: Was the programme relevant to your needs?

Level of understanding: Did you understand the contents? Time: Was the time and length of programme appropriate?

Length: Was the programme length appropriate?

Facilities: Were the training facilities appropriate?

Overall evaluation: What is your overall rating of the programme?

Planned improvements: How will you apply what you have learned?

Questions are developed later, but it might be useful to develop this information in outline form so that related questions can be grouped together.





Step 3.2: Select the types of questions

Questions that might be asked in a questionnaire can be classified into **two major categories:** openended and close-ended.

Open-ended questions have an unlimited answer. The question is followed by a blank space for response. Open-ended questions give participants the opportunity to express their own thoughts. They produce varieties of answers and more difficult to analyse. The following are some examples of open-ended questions: Which part of the contents of the training programme interests you more than others? How do you think we can improve the contents of the training programme?

Close-ended questions ask respondents to select one or multiple responses from the list.

Below are several types of close-ended questions

Two-option response: Respondents are asked to choose one out of two options, such as yes-no, true-false, disagree-agree.

Rating scale: Respondents are asked to choose the most appropriate answer to reflect their opinion from the complete range of possible answers. The range can be presented in numbers (e.g., 1 to 5), or in words (e.g., strongly agree to strongly disagree).

Checklist: It is a list of items. Respondents are asked to check those that apply to the situation **Multiple choice questions:** Respondents are requested to choose appropriate answers from multiple choices.

Open-ended short-answer questions: Respondents are requested to explain their answers in short sentences.





Step 3.3: Design the questionnaire

The third step in questionnaire design is to develop the questions based on the types of questions planned and the types of information needed.

Step 3.4: Pretest the questionnaire

The fourth step in questionnaire design is to test the questions. It is ideal if the prepared questions can be tested on a sample group of participants. If this is not feasible, they can be tested on a group of people at approximately the same job level as the participants.

Step 3.5: Finalise the questionnaire

Based on the result of pretest in Step 4, the questionnaire forms will be finalised. The most common data-collection method for the impact survey might be the follow-up questionnaire.





Interviews can be used especially when qualitative information is needed about the impact of the training programme.

Interviews have the following advantages and disadvantages that should be considered when selecting them as the data collection method.

Advantages of interviews:

- Good for uncovering feelings and hidden causes.
- Non-verbal signals can indicate key issues.
- Spontaneity following the unexpected issues.

Disadvantages of interviews:

- Time-consuming.
- An unrepresentative sample can skew the results.
- Can be difficult to quantify.
- Very dependent on the skills of the interviewer.

Interviews have three types from which a suitable one was selected for each survey.

- 1. Structured interview: the questions were set in advance.
- 2. Semi-structured interview: the general content was predetermined but additional exploration was allowed. This form of interview is particularly useful in situations where there are key issues to be investigated, but there is less certainty about the range of respondents' reactions to them.
- 3. Unstructured interview: free-flowing conversation rather than a specific set of questions.





Step 4: Collect Data

To improve the effectiveness of questionnaire data collection were recommended following:

- *Keep responses anonymous* -If there is no specific reason why you would like to identify each participant's questionnaire, it is recommended to keep responses anonymous. It allows the participants to feel open and comfortable to give comments that can help improve future
- *Distribute questionnaire forms in advance* For lengthy evaluations for training programmes that span several days, or if you want the participants to evaluate each individual session, it is helpful to distribute questionnaire forms early in the programme. This will allow the participants to familiarise themselves with the questions, and to answer specific questions as they are covered in the programme. Please note, however, that the participants should wait until the end of the programme to reach a final conclusion on general issues. For this reason, questionnaire forms for general questions could be distributed at the end of the programme. Explain the purpose of the questionnaire and how the information will be
- *Explain the purpose of the questionnaire and how the information will be used.* This will help improve the response rate and encourage them to make comments that can be useful to improve future programmes.
- Allow enough time for completing the questionnaire If we ask the participants to fill in the questionnaire forms at the end of the programme, they may be in a hurry to leave and may provide incomplete information. It is recommended to set aside enough time to fill in the questionnaire forms as a scheduled session before the end of the programme.





Step 5: Analyse and Report Results

Before summarising and analysing the questionnaire, the data need to be entered into a computer. Many statistical software programmes are available for such data. There are many ways to analyse data, but the analysis should be as simple as possible and limited to what is necessary to draw the required conclusions from the data. After knowing what kind of information will be relevant and useful to the primary users, the last step in evaluation process is to develop an evaluation report.

Use figures to present statistical and complex data fairly quickly and easily. *Pie charts* and *bar charts* are among commonly used figures. Bar charts work better when many categories are compared, and relative magnitude is to be shown.

Evaluation report outline

After knowing what kind of information will be relevant and useful to the primary users, you can develop an evaluation report outline.

Summar

- Purpose of
- Evaluation audiences
- Major findings and

Program

- Program background
- Programme goals/objectives
- Program participants Program activities

Evaluation Design and Methods

- Purpose of the
- Evaluation designs
- Data collection methods

Findings and

- Description of how the findings is organised (e.g., by evaluation questions, themes/issues)
- Results of analyses of quantitative and/or qualitative data collected

Recommendation

• Recommendations for action based on these conclusions

Appendice

- Questionnaires pre/post
- Programme expenditure summary

(Source: Manual on Training Evaluation. Project on Improvement of Local Administration in Cambodia)

3. Data Sources

The conclusions of the evaluation research will contribute to improve the quality, and especially the effectiveness of the dual vocational training, show the limitations of the training model and indicate the direction for further activities.





In the training courses will take part each at least with 10-15 participants.

The dual vocational training is aimed at young people in Italy and Lithuania who will have better opportunities in a constantly changing labour market through the transfer and implementation of dual vocational training.

They receive a sustainable education and a green perspective through this vocational training. They receive an innovative curriculum that enables dual training and workplace-based learning.

Furthermore, the participating schools and their teachers are a target group of the result. They receive an innovative curriculum that enables dual training and workplace-based learning

The scope of this evaluation includes the following aspects (among others):

- Assessment of the framework conditions conducive to learning (organisation, equipment),
- Teaching and learning concept
- Curriculum
- Didactics and methodology
- Learning atmosphere
- Fulfilment of the practical project work to make adjustments as needed and to optimise the training

Surveys and interviews must be carried out once - at the end of phase three. According to the methodology two questionnaires will be prepared:

• <u>One written surveys of participants</u>

Participants will be asked to fill out questionnaires after the first KAIN phase of the training and after the third phase of the training in which they will be able to assess the quality of the training in its various aspects.

• <u>One written surveys of all teachers using an identical</u>

All trainers will be asked to fill out questionnaires after the first KAIN phase of the training and after the third phase of the training in which they will be able to assess the quality of the training in its various aspects.





Farmer - vocational training

Questionnaire for Lecturers

Course: Location: Dates:

Subjects / Topics that you have taught

.....

Your participation in this survey will help us to evaluate all aspects of the qualification programme in order to assess what is good and what needs to be improved.

All information will of course be treated confidentially in accordance with data protection regulations and only analysed in anonymised form

 \Rightarrow Please tick the applicable box and write a comment if possible.





(1) The overall organisation and process of the vocational training (time management, communication, logistic, ...) was ...

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(2) How satisfied are you overall with the training and its implementation?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(3) The facilitation (location, room, technical equipment etc.) was ...

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(4) How well did the curricular contents fit the needs and learning objectives of the participants?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(5) How do you assess the qualification preconditions of the participants?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	





(6) How do you rate the motivation and willingness to learn of the participants?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(7) How do you assess the cooperation of the participants?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(8) How do the contents of the training match the requirements of the qualification?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(9) How well did the schedules match the training content and the time for the practical reports?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(10) How well were the participants prepared for the presentation of their practical reports?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	





(11) How do you assess the communication about the reports and the internal cooperation by the other course participants?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(12) Overall: What do you think of the KAIN concept in general?

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

(13) The ratio between the practical and theoretical parts seemed appropriate to me

1 = Insufficient	Comments:
2= Sufficient	
3= Moderate	
4= Good	
5= Excellent	

Thank you for your participation and cooperation.





Farmer - Vocational training Programme Questionnaire for Participants

Course:

Location:

Dates:

Your desired participation in this survey serves to assess all aspects of the qualification measure in order to evaluate what is good and what needs to be improved.

Of course, all information will be treated confidentially in compliance with data protection laws and will only be evaluated anonymously.

 \Rightarrow Please tick the applicable box.

Personal Data

Gender	□ Female (Mrs)	□ Evil (Mr)	\Box Other (Mx)		
Age					





Scale: 1 = absolutely disagree / 2 = rather disagree / 3 = neither disagree nor agree / 4 = tend to agree / 5 = fully agree

	1	2	3	4	5
The overall organisation and process of the vocational training		П			П
(time management, communication, logistics) was good					
suitable for the on-the-job training					
The facilitation (location, room, technical equipment etc.) was suitable for the theoretical training					
The course material is comprehensible and well-structured					
The training material reflects the state of knowledge well					
The 'red thread' was obvious; the sequence of lessons made sense					
I felt the theory-practice ratio to be good					
The topics and issues were relevant and responded to the goals of training					
The lecturers explained topics of the lessons, additional questions, experiences, and topical issues arisen during the course well					
The lecturers answer additional questions, experiences and current topics that have arisen during my work					
The lecturers have a good level of expertise					
The methodology and didactics of the lecturers were appropriate					
There was enough time planned for each topic, each presentation and each discussion					
I got valuable knowledge from lessons and examples presented by lecturers					
I got valuable insights from the presentations of other participants and the reflection on the results					
I believe that I can utilise the knowledge gained from lessons in my future career					
I believe that I will be able to use the knowledge I have gained in practical work in my future career					
It was a pleasant group atmosphere					
There was enough time for social contacts to other					
participants					
Approach to the issues in curricula was practical and close to the business					
Teachers, other lecturers and in-company trainers motivated me					





Comments (free text)

What was good? What has pleased you?

What was not good? Do you have any suggestions for improvement?

Was the proportion of theory and practice suitable or should something be increased / decreased?

Was anything missing that you might need in your future profession / occupation / job?

Would you recommend the course to someone you know? If not, why not?

Other comments

Thank you for your participation and cooperation.