STARS EU

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Joint Micro-credentials Catalogue

Deliverable 3.4

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1. Understanding micro-credentials

Due to current rapid social and technological changes, the importance of lifelong learning and acquiring of new and diverse knowledge, skills, and competences becomes paramount to keep pace with the job market demands. Micro-credentials emerge as a solution to meet this demand, offering a pathway for individuals to enhance their skills and stay relevant in evolving times.

Micro-credentials are rapidly becoming one of the most popular areas of higher education. They are ideal for individuals with specific information or career development needs who seek to achieve their goals in the most time- and cost- effective way.

The STARS EU alliance is therefore committed to explore the role of micro-credentials in providing learning opportunities to diverse learners, particularly by expanding an attractive, accessible, inclusive, and learner-centered offer of lifelong learning activities.

The benefits for the STARS EU alliance, the individual institution, the learners, and the regions are undeniable. Many micro-credentials shall be offered jointly by the alliance members, strengthening networking and enhancing the expertise of the universities. Educators will gain a transformative experience as micro- credentials demand a new teaching approach, fostering mutual learning inside the Alliance and benefiting the Alliance as a whole. Learners will be better equipped to tackle the challenges of their jobs, having increased knowledge and the ability to address emerging problems more effectively and in a short time period. While, ultimately, employers will benefit from a more qualified/skilled workforce, contributing to the economic and social well-being of the entire community.

2. Micro-credentials: Upskilling and Reskilling

Micro-credentials offer a flexible and modern approach to education and training, providing learners with specific skills, knowledge, and competencies tailored to current market needs. They are becoming increasingly significant in the upskilling and reskilling of students, lifelong learners, educators, as well as industry professionals. This guidebook presents the opportunities and challenges associated with micro-credentials found during the research. It also presents the first version of the Catalogue of Micro-credentials that the STARS EU Alliance can offer.

During this task, significant opportunities and challenges were identified. While the former enables society to evolve and the Alliance to grow, the latter must be addressed cautiously to avoid conflicts with the established education systems in each country.

Opportunities:

Micro-credentials offer flexible, on-demand units of learning that enhance:

- Students' employability by providing them with relevant and up-to-date knowledge, skills, and competencies, thereby improving their job prospects.
- Employees' ability to adapt to new demands and acquire the skills, knowledge, or competencies needed to keep up with the latest trends.
- The relevance and target-based content.
- The upskilling of employees in specific areas, leading to increased productivity and innovation.
- Wider accessibility offers less financially demanding and time-consuming learning.

Micro-credentials reflect the European commitment to inclusive and accessible education for all, facilitating the recognition of skills and qualifications across Europe and supporting mobility and lifelong learning.

Challenges:

The following major challenges were also identified:

- Lack of shared standards;
- Lack of global recognition by employers and industry;
- Nonexistence of a transversal quality assurance system;
- Integration of micro-credentials into existing educational frameworks without redundancy or overlap;
- Securing accessibility of micro-credentials to wide and diverse groups of learners. Motivating both learners and employers.

The micro-credential approach requires innovative design strategies to be effective for lifelong learners. Developing micro-credentials in cooperation with industry partners and stakeholders is essential to ensure they reflect current and future needs and are immidiately applicable. Motivating learners to select their learning paths by stacking multiple micro-credentials towards larger qualifications will support lifelong learning and their career development. It is also crucial to ensure that learners can carry their credentials across different platforms and institutions.

Micro-credentials should be offered through various formats, including online, blended, and in-person, to accommodate different learning styles and schedules. Establishing shared standards and frameworks for micro-credentials will ensure quality and recognition across Alliance members and Europe. Additionally, it is essential to secure wide accessibility for learners from diverse backgrounds and areas.

Micro-credentials represent a significant innovation in education and training, offering flexible, targeted, and accessible pathways for upskilling and reskilling. The adoption of modular and stackable credentials, stakeholder partnerships, personalized learning platforms, recognition frameworks, and securing inclusivity and accessibility is the road to innovative practices in education, as well as higher employability and economic development.

3. Introduction to the Joint Micro-credentials Catalogue

This Handbook Guide provides the basis of the STARS EU Alliance approach to micro-credentials, as well as their role and function. It also includes a comprehensive overview of micro-credentials currently offered or suggested by the partner universities, including their structure and content. These learning offers can be delivered by one or multiple institutions. The aim is to leverage the synergies among all alliance members to provide thematic, enhanced, and more diverse programs, promoting mutual teaching and learning to benefit the alliance's community as well as the development of the individual partners' regions.

The basis for this work is the Council Recommendation (2022/C 243/02).

This Joint Micro-credentials Catalogue represents the Deliverable 3.4 of Work Package 3, the Curriculum Lab and serves as the first version of the Catalogue of Micro-credentials that the STARS EU Alliance will be offering. The selection and variety of micro-credentials shall be understood as a living document, which will be updated throughout the project lifecycle and beyond.

4. STARS EU Joint Micro-credentials Catalogue: Methodology

To develop the set of micro-credentials presented in this handbook, a collaborative and comprehensive approach was employed to gather, refine, and complement the information about each one.

Currently, the STARS EU Alliance has already compiled a catalogue of skills and competencies related to each TIG (thematic interest group) area. Each institution has its own specific areas of research and expertise, reflecting the needs of its region and other stakeholders. This catalogue, therefore, provides a list of areas and potential micro-credentials suggested and selected by all Alliance members.

The European standard for micro-credentials (as described in Annex I, of this Recommendation) include the following elements:

- Identification of the learner;
- Title of the micro-credential;
- Country(ies)/region(s) of the issuer;
- Awarding body(ies);
- Date of issuing;
- Learning outcomes;
- Notional workload needed to achieve the learning outcomes (in European Credit Transfer and Accumulation System – ECTS, wherever possible);
- Level (and cycle, if applicable) of the learning experience leading to the micro-credential (European Qualifications Framework, Qualifications Frameworks in the European Higher Education Area), if applicable;
- Type of assessment; form of participation in the learning activity; type of quality assurance used to underpin the micro-credential.

For the purpose of the joint micro-credentials offer and considering the STARS EU proposal (WP3 – T3.5) submitted to the European Commission, after all HEIs agreement, STARS EU micro-credentials were included if having from 2 to 3 ECTS. From the above-listed elements of micro-credential, the current Catalogue includes the following information for each micro-credential:

- Title of the micro-credential;
- Number of ECTS;
- Institution;
- Learning outcomes;

- Content.

As previously mentioned, this information was derived from the Council Recommendation (2022/C 243/02).

The selection of these five criteria emphasizes the learning outcomes and content. This methodology provides a clean and user-friendly way to present the offerings of the STARS EU Alliance. After determining which courses will be delivered jointly or individually, the teaching methodology will also be updated for each micro-credential.

For the sake of clarity, the list of micro-credentials was categorized into three priority areas: Green Transition, Digital Transformation, and Social & Health.

The current objective is to publish the micro-credential offerings of the STARS EU Alliance rather than provide a detailed description of the mandatory standard elements that should describe the owner of/and the micro-credential.

To summarize, the Catalogue presents 131 potential micro-credentials that can be chosen by the students or lifelong learners. The relevance, development, and continuous improvement of micro-credentials will stem out of the cooperation and collaboration among regional and national authorities, STARS EU Alliance, and sectoral and cross-industry social dialogues. This dialogue should include representatives from worker and employer organizations across both private and public sectors and industries as well as professional and managerial staff. This way, the STARS EU Alliance micro-credential offer will remain up-to-date, targeted, and relevant.

5. STARS EU Micro-credentials

5.1 Digital Transformation

AI in activity systems/organizations

(3 ECTS)

Learning outcomes:

1.Describe what type of technology AI is;
2.Develop technical solutions with respect to electromagnetic compatibility for electric vehicles;
3.Analyze how AI is used in businesses and organizations;
4.Reflect on the consequences of AI in businesses and organizations.

Contents:

1.Artificial Intelligence: How it can be defined, and how it differs from other types of technology.
2.Historical overview of AI and its development, reflecting various phases of AI's position within businesses and organizations.
3.Applications of AI in businesses and organizations: Consequences of its use and how relevant stakeholders can maximize benefits and minimize risks associated with AI.

Analysis and design with respect to electromagnetic compatibility

(2,5 ECTS)

Learning outcomes:

1.Describe how electromagnetic interference can affect the components of an electric vehicle;
2.Explain how electromagnetic disturbances are generated;
3.Explain the theoretical basis of the finite element method (FEM).
4.Develop technical solutions with respect to electromagnetic compatibility for electric vehicles;
5.Minimize the impact when integrating new electrical components with respect to electromagnetic compatibility in the electric drivetrain;
6.Independently perform analyzes of electromagnetic compatibility problems with FEM: analyze the problem, choose and create a model, calculate and critically interpret the results;
6.Deal with electromagnetic disturbances on and from the electrical systems of an electric vehicle.

Contents:

1.Finite element methods and electromagnetic compatibility as well as knowledge to analyze its impact on the system;
2.Interaction between electromagnetic fields and electrical circuits and also includes elements about transients, high-frequency behavior, shielding and grounding;
3.How to implement different solutions to minimize the electromagnetic interference on the electric driveline.

Artificial intelligence and creativity

(3 ECTS)

Learning outcomes:

1.Conceptually understand Artificial Intelligence technologies, such as machine learning, deep learning, neural networks and algorithms;
2.Identify and evaluate the possibilities of applying Artificial Intelligence in generating creative content in artistic/cultural projects;
3.Generate creative content using Artificial Intelligence;
4.Propose well-founded perspectives on Artificial Intelligence and its social and ethical implications;
5.Understand the evolutionary context of Artificial Intelligence, in order to make relevant predictions about its future impacts on cultural and creative industries.

Contents:

1.Introduction to the Artificial Intelligence and its creative applications; 2.Fundamentals of Machine Learning and Neural Networks;
3.Main tools and technologies for Creating Textual and Visual Content with AI;
4.Advanced AI techniques in Creative Content generation;
5.Creative possibilities of Generative Adversarial Networks (GANs);
6.Integration of creative visual narratives generated using AI with marketing strategies;
7.Case studies and practical examples of AI applications in Creative Content generation;
8.Development of creative projects using AI;
9.Ethics and responsibility when using AI for creative purposes;
10.Reflect on future perspectives and trends in Creative AI.

Artificial intelligence applied to tourism and hospitality

(3 ECTS)

Learning outcomes:

1.Understand the basic concepts and principles of Artificial Intelligence;
2.Understand the main contributions of Artificial Intelligence in the tourism and hospitality sector;
3.Use a set of Artificial Intelligence tools, with an emphasis on Generative Artificial Intelligence, to create useful content for practicing the profession;
4.Critically analyze the benefits of Artificial Intelligence in the tourism and hospitality sector;
5.Understand the ethical challenges of using Artificial Intelligence in the context of tourism and hospitality.

Contents:

1. Introduction to Artificial:
1.1 Intelligence Definition and basic concepts of AI;
1.2 History and evolution of AI;
1.3 Importance of AI in the Tourism sector;
2.AI Fundamentals for Tourism:
2.1 Definition and basic concepts of generative AI;
2.2 Potential of generative AI in the Tourism sector;
2.3 Practical AI applications in the Tourism sector;
3.AI Tools for Tourism Professionals:
3.1 AI-based recommendation systems for tourist destinations and activities;
3.2 Chatbots and virtual assistants for real-time customer service;
3.3 Demonstration and use of specific generative AI tools for Tourism professionals;
3.4 Success stories of implementing generative AI in companies in the sector;
3.6 Critical analysis of the benefits and challenges associated with using generative AI;
4.Case Studies and Practical Examples;
5.Challenges and Ethics in AI for Tourism:
5.1 Ethical issues related to the use of AI;
5.2 Impact of AI on customer privacy and data security.

Audio Lab

(3 ECTS)

Learning outcomes:

1.Understand elementary concepts of acoustics and psychoacoustics;
2.Master the handling of audio capture equipment;
3.Consistently edit the audio material captured;
4.Carry out practical audio capture and editing exercise.

Contents:

1.Acoustics and Psychoacoustics:
1.1 Frequency, Amplitude, Timbre and Duration;
1.2 Sound waves and speed of propagation;
1.3 Auditory masking, Haas effects and loudness;
2.Audio recording equipment:
2.1 Digital recording systems;
2.2 Dynamic and condenser microphones;
2.3 Frequency response, polar patterns and other specifications;
2.4 Headphones, cables and accessories;
3.Audio editing:
3.1 DAW (Digital Audio Workstation) and monitoring systems;
3.2 Sound editing software;
3.3 Editing and applying sound effects;
3.3 Mixing and mastering;
4.Capturing and editing audio:
4.1 Practical exercises in capturing and editing audio.

Automation

(3 ECTS)

Learning outcomes:

1.Read and interpret electrical diagrams;
2.Identify the different elements associated with electromechanical automation systems;
3.Be able to implement electrical control circuits in automation systems;
4.Be able to program automata in Ladder and SFC for different case studies.

Contents:

1.Electrical diagrams, control and protection devices in electrical panels; 2.Electromechanical automation: contact logic;
3.Electric induction motors;
4.Parameterization of speed variators for induction motors;
5.Ladder Programming;
6.Programming in SFC.

Building Information Modelling (BIM)

(3 ECTS)

Learning outcomes:

1.Demonstrate specific knowledge about the BIM Methodology, particularly with regard to interoperability in the construction process and the ISO 19650 Standard;
2.Model three-dimensionally using BIM software; Work in a collaborative BIM environment and export models to IFC format;
3.Carry out analyzes of federated BIM models, namely clash detection;
4.Have knowledge about the different BIM dimensions.

Contents:

1.Introduction to Information Modeling in Construction – BIM;
2.ISO 19650 Standard - Organization and digitization of information about buildings and civil engineering works, including building information modeling (BIM);
3.Interoperability in the design process;
4.Three-dimensional modeling using BIM software:
4.1 Introduction to modeling;
4.2 Modeling rules;
4.3 Georeferencing;
4.4 Federation of models;
4.5 Clash detection;
4.6 Export to IFC;
4.7 Automatic production of 2D drawings;
4.8 Modeling according to BIM purposes;
4.9 BIM information management: Common Data Environment (CDE).

Computer Vision

(3 ECTS)

Learning outcomes:

1.Understand the basic concepts of human vision;
2.Become familiar with the various image technologies;
3.Learn basic image and video processing techniques;
4.Learn object recognition techniques;
5.Discover the most important application fields of computer vision today.

Contents:

1.Digital imaging: The human visual system, image formation, digital representation of an image, color, noise;
2.Image processing: Point-by-point manipulation, spatial filters, extraction of geometric structures, segmentation;
3.Video processing;
4.Object recognition: Introduction, knowledge representation, statistical pattern recognition, machine learning;
5.Deep learning in the context of computer vision;
6.Fields of application.

Cybersecurity compliance

(2,5 ECTS)

Learning outcomes:

1.Identify and interpret the concept of cybersecurity policy and understand the role of security policy within an organization.
2.Show an understanding of the principal differences between industrial standards, international standards, national standards, and regulatory standards.
3.Examine and interpret challenges related to compliance with cybersecurity standards that may emerge when adhering to multiple standards.
4.Suggest effective security controls derived from the standards to respond to queries related to real or perceived cybersecurity risks.

Contents:

1.Overview of cybersecurity policies and standards;
2.Identification of policies, rules, and procedures that ensure connected devices and networks meet an acceptable level of security based on emerging cybersecurity standards and frameworks.

Cyber risk management

(2,5 ECTS)

Learning outcomes:

1.Explain the purpose, function, and importance of risk assessment in managing cybersecurity;
2.Demonstrate an understanding of the steps and functions involved in risk management and their compliance with cybersecurity standards;
3.Select appropriate models for various cybersecurity risk assessment scenarios.

Contents:

1.Introduction to cybersecurity risk analysis and assessment, as a foundation for cybersecurity protection mechanisms;
2.Comprehensive cybersecurity assessment techniques are practiced to learn about means to protect industrial infrastructure assets;
3.Cybersecurity management is emphasized through processes for assessing vulnerabilities and prioritizing remedial actions to reduce cyber risk.

Digital communication strategies in tourism

(3 ECTS)

Learning outcomes:

1.Understand the importance of the Internet in hospitality and tourism;
2.Identify the type of online consumer;
3.Understand the importance of digital communication in hospitality and tourism;
4.Understand the various digital communication tools used in hospitality and tourism.

Contents:

1.The evolution and importance of the Internet in Hospitality and Tourism;
2.Profile of the online consumer;
3.The Internet and digital communication in hospitality and tourism;
4.Digital communication tools in hospitality and tourism: websites; SEO; SEM; Google Analytics; email marketing; social networks; mobile applications; blogs and vlogs.

Digital content creation

(3 ECTS)

Learning outcomes:

1.Understand and know how to apply the principles of visual languages concerned with the production of digital photographic and videographic contents;
2.Acquire skills related to the usage of different equipment's for micro-video and photographic recordings, their edition process and digital publication;
3.Develop projects for the creation, edition and publication of audiovisual digital content to different platforms (websites, mobile apps and social media);
4.Be able to distinguish and correctly apply different aesthetics and language for each distribution and publication channel;
5.Understand the workflow in the production of digital contents.

Contents:

1.Potential for contents in the digital universe;
2.Target audience and engagement;
3.Copywritting;
4.Design and infographics;
5.Recording and editing photography, video, micro-video and sound;
6.Podcasting e Videocasting;
7.Editing software's (Adobe premiere, Adobe Audition, Adobe Lightroom e Adobe Photoshop);
8.Plataforms and languages;
9.Content optimization and accessibility;
10.Data and social media reports.

Digital currencies and blockchain technology

(3 ECTS)

Learning outcomes:

1.The basics of Bitcoin including its key features, the structure of the Bitcoin Blockchain, current challenges of the Bitcoin network, the history of digital currencies, the invention of decentralized consensus through proof-of-work, and a technical overview of Bitcoin, as well as alternative/advanced uses of the blockchain;
2.A practical introduction to digital currencies including practical, introductory exercises in utilizing and constructing cryptocurrency transactions;
3.Banking and financial implications of digital currencies: overview of how cryptocurrencies map to the existing monetary and banking system;
4.Discussion of the newest developments in the space (e.g. Lightning Network, Decentralized Finance, Central Banks Digital Currencies).

Contents:

1.Introduction to the understanding of blockchain and cryptocurrencies such as Bitcoin, an exciting new form of digital currency and store of value which can be transferred between people and companies without the need for a middleman (e.g. banks).

Digital learning

(2 ECTS)

Learning outcomes:

1.Understand the digital competences;
2.Understand and use different platforms as moodle, google classroom, edmondo, microsoft teams;
3.Exploit digital whiteboards for their lessons;
4.Conduct fruitful live lessons;
5.Create effective presentations and worksheets;
6.Manage their classrooms easily with the help of differentiated activities;
7.Design digital material and digital classroom.

Contents:

1.E- learning: Moodle, google classroom, edmondo, microsoft teams;
2.The stages of e-content development: Analysis: learning objectives and user profiles, create a design vision, develop your content, Review and refine;
3.Digital classroom: internet connectivity, educational software and apps, Digital content, Collaboration and communication tools.

Digitization of ancient structures and reverse engineering

(3 ECTS)

Learning outcomes:

1.Know the main Digitization techniques;
2.Know the main equipment and its operation;
3.Understand the advantages and disadvantages of using open source software;
4.Know how to use solid modeling software applied to scanning and digital manufacturing;
5.Develop projects and produce prototypes;
6.Understand the relationship between digitalization, reverse engineering and sustainability.

Contents:

1.Introduction; a. How to produce (almost) everything in small laboratories; b. The FabLab concept;
2.Digital manufacturing equipment, Digitization equipment; others;
3.Software used in digitization and reverse engineering in general;
4.Practical application of equipment: Case study.

Electronic converters

(3 ECTS)

Learning outcomes:

1.Understand how variable speed systems work;
2.Know how to select and use electronic converters to power different types of electrical machines;
3.Identify and apply commercial solutions to solve real-world problems in the field of speed variation;
4.Design solutions based on variable speed drives and their programming.

Contents:

1.Techniques for regulating torque, speed and position using direct current, asynchronous and synchronous machines;
2.Commercial variable speed drives;
3.Interfaces of variable speed drives;
4.Programming a variable speed drive.

Engineering methods – Finite elements

(2,5 ECTS)

Learning outcomes:

1.Show understanding of how the finite element method works both theoretically and practically.
2.Be able to account for application areas and how the method relates to comparable alternative methodology.
3.Be able to carry out their own calculations with the method and reflect on the obtained results.
4.Be able to make assessments of the quality of the obtained calculation results and what affects this.

Contents:

1.The derivation of the finite element method based on physical models using mathematical analysis;
2.The history and development of the methodology through research, and its relation to alternative methods;
3.Calculation and simulation platforms based on FEM, specifically COMSOL Multiphysics;
4.Problem solving through the application of the finite element method in a number of selected areas.

Financing in hospitality and tourism

(3 ECTS)

Learning outcomes:

1.Understand the importance of financing programs for the development of hotels and tourism;
2.Understand the main financing programs available in the hotel and tourism sector;
3.Identify relevant financing opportunities;
4.Critically analyze the available financing proposals and select those most aligned with the organization's strategic objectives;
5.Understand the eligibility and evaluation criteria associated with each program;
6.Know the main entities that manage financing programs in the hospitality and tourism sector;
7.Prepare and submit applications for financing programs;
8.Analyze the result of an application.

Contents:

1.The need for financing in the hotel and tourism industry:
1.1 The importance of financing for the development of the sector and its specific financial challenges;
1.2 Specific financial challenges in the hotel and tourism sector;
2.Financing programs:
2.1 National and international programs;
2.2 Intervention areas of funding programs;
2.3 Eligibility and evaluation criteria;
3.Funding organizations (public and private);
4.Applying for funding:
4.1 Researching calls for proposals: using online platforms and relevant sources of information;
4.2 Analyzing the application form and necessary documentation;
4.3 Developing a solid project plan in line with the objectives of the funding programme;
4.4 Completing and analyzing the application and reviewing and critically analysing strategies prior to submission;
4.5 Submitting the application;
5.Application outcome:
5.1 Evaluation of the outcome;
5.2 Steps to follow after approval.

Heritage digitalization

(3 ECTS)

Learning outcomes:

1.Understand the concept of heritage and examine its various uses in contemporary society;
2.Understand and frame the digitization of heritage in the digital transformation era;
3.Know how to use digital media, techniques, and technologies to safeguard, communicate and disseminate heritage;
4.Demonstrate skills in information management processes and methodological principles associated with material heritage digitization techniques;
5.Understand the contributions of information and communication technologies to the dissemination of digitized heritage.

Contents:

1.Part 1:
1.1 Cultural heritage: main dimensions and possible interpretations;
1.2 Heritage as the basis of collective identity;
1.3 The role of heritage stakeholders for local development.
2.Part 2:
2.1 Introduction to digital transformation;
2.2 Digital strategy in cultural sectors;
2.6 Digital technologies, media and techniques applied to the digitization of heritage;
2.7 Information and communication technologies in information management processes, including the dissemination and communication of heritage.
3.Part 3:
3.1 Introduction to the photogrammetry technique for digitizing material heritage and 3D model representation;
3.2 Introduction to the use of online platforms for dissemination and communication of digitized heritage.

Home automation technology

(3 ECTS)

Learning outcomes:

1.Know how to define the appropriate technological solutions for home automation;
2.Program, configure and install home automation networks;
3.Know supervision techniques to increase comfort and energy efficiency in buildings;
4.Use mobile applications to control and supervise buildings.

Contents:

1.Introduction to Home Automation: Overview of home automation and its benefits;
2.Evolution and importance of standardized protocols such as KNX;
3.KNX for home automation:
3.1 Devices, topology and wiring;
3.2 ETS (Engineering Tool Software);
3.3 Home Automation Functions and Applications: Setting up lighting control with KNX; HVAC and climate control; shading and blind control; energy management and efficiency.
3.4 KNX programming for home automation: creating automation scenarios; logic functions and conditional programming; integration with mobile applications;
3.5 Maintenance and troubleshooting.
4.Communication protocols with application domain in monitoring and supervisory control: Modbus over TCP/IP;
5.Supervision and control applications on mobile devices.

Image lab

(3 ECTS)

Learning outcomes:

1.Understand the main aspects of various areas of image studies, namely: theories of visual communication; human psychology and visual perception; history of art and visual culture;
2.Develop a critical and contextualized understanding of the image, enabling reflection on its conception, use, and impact on society;
3.Identify the value of building a visual repertoire and culture;
4.Recognize the importance of operationalizing methods of image analysis that stimulate and develop the ability to interpret images, mainly in the context of communication, applied in case studies;
5.Reflect on ethical issues related to the production, dissemination, and consumption of images, including issues of representation, digital manipulation, privacy, and artificial intelligence.

Contents:

1.Image Semantics. Symbolic visual devices. Visual grammar and vocabulary;
2.Exploration of the elements of visual language;
3.Typologies and functions of images;
4.Critical analysis of texts framing the semiotic and material nature of images 5.Fundamental issues raised by the history of art and visual culture, emphasizing the evolution, utilization, and interpretation of images throughout history, in different cultures;
6.Different cultural perspectives on the production, consumption, and interpretation of images;
7.Visual language and rhetoric in journalistic, advertising, and artistic contexts;
8.Case studies that allow the identification and exploration of the semantic potential of various types of images, as well as the development of critical analysis of images; 9.Reflection on the ethical responsibility involved in the production, dissemination, and consumption of images, covering issues framed by modes of representation and media privacy;
10.Image creation through AI.

Industrial robotics

(3 ECTS)

Learning outcomes:

1.Understand the concepts of robotics;
2.Understand the perception and actuation systems in the field of robotics;
3.Identify and apply existing robotic solutions for real-world problem solving; 4.Design, simulate or implement solutions based on commercial robots (industrial and collaborative).

Contents:

1.Introduction to robotics;
2.Sensors and actuators for application in robotic systems;
3.Industrial robots;
4.Collaborative robots;
5.Simulation environments;
6.Programming robotic systems and development industrial applications;
7.Safety, legislation and standards.

Internet of things

(3 ECTS)

Learning outcomes:

1.Know the importance and role of the Internet of Things (IoT) in the context of digital transformation;
2.Understand communication technologies and mechanisms for the IoT.;
3.Use communication protocols for the IoT;
4.Know and develop IoT applications using e.g., the Node-RED platform;
5.Know the problems associated with the security of IoT devices platforms, and mechanisms to mitigate them.

Contents:

1.Concepts, definitions, history, applications and trends in the Internet of Things (IoT);
2.Interfacing with the physical world;
3.Wireless communication technologies and communication protocols for IoT;
4.Platforms for handling, processing and visualizing data;
5.Security in the Internet of Things;
6.Development of simple IoT applications using the Node-RED platform.

Introduction to artificial intelligence and machine learning

(2,5 ECTS)

Learning outcomes:

1.Describe various types of ML and AI algorithms and their application areas;
2.Explain various sources of input data for algorithms;
3.Discuss testing and validation of ML and AI algorithms;
4.Select ML and AI algorithms depending on the usage scenario;
5.Show insight into the impact that ML and AI have on society.

Contents:

1.Introduction to common concepts ML and AI;
2.Applicability of different algorithms to diverse types of data;
3.Practical exercises are provided to give hands-on experience;
4.Importance of the quality of the data as one of the keys to successful data analysis.

Introduction to Big Data

(2,5 ECTS)

Learning outcomes:

1.Show understanding of major concepts and technologies in Big Data;
2.Show understanding of SQL and NoSQL database technologies and their applications in Big Data;
3.Show understanding of the areas of application of Big Data technologies;
4.Be able to perform Big Data analysis tasks and reflect the result.

Contents:

1.Introduction to the concept of Big Data (BD) and its place in modern IT infrastructure and business solutions;
2.Description of major BD technical solutions and an introduction to the NoSQL database technology in relation to BD;
3.BD analysis cases are presented to emphasize the practical aspect of the technology;
4.Hands-on exercise is used to get familiar with principles of BD analysis.

Introduction to cyber security of industrial systems

(2,5 ECTS)

Learning outcomes:

1.Describe principles and methods within IT and OT (operational technology) security;
2.Show understanding of main threats and threat sources against IT and OT security as well as of main methods for defending against these threats;
3.Show an understanding of specific threats against industrial manufacturing systems and of methods for protecting such systems against these threats;
4.Evaluate security as an integral part of design, support, and maintenance of IT and OT systems.

Contents:

1.Introduction to IT and OT(operational technology) security with particular focus on industrial manufacturing systems;
2.Aspects of IT security including threats related to manufacturing systems. The main sources of the threats to the industrial systems are also covered;
3.Design principles of industrial cyber security systems including technical methods such as authentication, access control and logging, as wells as non- technical aspects such as legislation, regulations and insurance;
4.Insights into specific areas within cybersecurity of manufacturing systems.

Introduction to databases

(3 ECTS)

Learning outcomes:

1.Have a global view of the databases development process;
2.Know the structure and functions of a DataBase Management System;
3.Know the different techniques of modelling data;
4.Know the different types of physical implementation of databases;
5.Know the different types of normalization techniques;
6.Implement relational databases;
7.Know the main concepts of noSQL databases;
8.Implement document-oriented databases.

Contents:

1.Introduction to Databases;
1.1 Understanding of Information System;
1.2 Structure of Database Management Systems;
2.Relational databases:
2.1 Introduction to relational databases;
2.2Modeling and design of relational databases - E-R Diagrams;
2.4Physical Data Models, logical/conceptual and external/view;
2.5Data normalization;
2.6Introduction to SQL (Structured Query Language);
2.7SQL language types: Data Definition Language (DDL), Data Manipulation Language (DML), Data Query Language (DQL).
3.NoSQL databases:
3.1 Introduction to NoSQL databases;
3.2 Document-oriented data modeling;
3.3 CRUD operations and data filtering.

Introduction to data networks

(3 ECTS)

Learning outcomes:

1.Describe services used to support communications in data networks; 2.Understand the importance of computer networks today and how they operate;
3.Describe the functions of the various protocol model layers, namely understanding the TCP/IP protocol structure, from the physical to the application layer;
4.Identify and understand network devices operation and transmission media for computer networks;
5.Understand the operation of IP protocol and its addressing structure (v4 and v6);
6.Build and configure small local area networks, using Cisco routers and switches;
7.Analyze the operation of small networks and troubleshoot their configuration.

Contents:

1.Today's networks;
2.Basic configuration of switches and end devices;
3.Protocols and models. Physical Layer;
4.Numbering systems. Data Link Layer;
5.Ethernet Switching. Network Layer;
6.Address Resolution;
7.Basic configuration of a router;
8.IPv4 addressing;
9.IPv6 Addressing;
10.The ICMP protocol;
11.Transport Layer;
12.Application Layer;
13.Network security fundamentals;
14.Creating a small network.

Programming for industrial applications

(3 ECTS)

Learning outcomes:

1.Describe common components of a programming language: variables, data types and data structures, control structures, functions and modules, error handling;
2.Explain the basics of object-oriented programming;
3.Construct basic computer programs in the Python language;
4.Use existing tools, modules, and standard libraries to develop computer programs;
5.Construct computer programs that solve problems in industrial applications;
6.Evaluate quality and readability of code.

Contents:

1.Basic programming concepts;
2.Structured programming in Python;
3.Data management and visualization;
4.Object-oriented programming.

Python programming for artificial intelligence

(3 ECTS)

Learning outcomes:

1.Know the elementary programming structures in Python and its object- oriented structures;
2.Know Python's transversal modules for application in digitalization;
3Use some Python modules for application in digitalization engineering;
4.Develop applications with an intelligent digitization nature (e.g. Pytorch).

Contents:

1.Classic structures in Python;
2.Object-oriented programming in Python;
3.Digital engineering modules for use in Python;
4.Python platforms for use in intelligent digitalization.

Sustainable automation

(2,5 ECTS)

Learning outcomes:

1.Describe and show understanding of sustainability and its core concepts;
2.Demonstrate the knowledge of how to implement sustainability into an automation project;
3.Explain how sustainability affects Industry 4.0;
4.Consider and identify sustainable elements and factors in an automation project;
5.Interpret, discuss and draw conclusions from impacts of sustainability in automation.

Contents:

1.Introduction to sustainability;
2.Sustainability aspects in automation projects as well as how sustainability and Industry 4.0 are related;
3.Product lifecycle management (PLM).

Video lab

(3 ECTS)

Learning outcomes:

1.Recognize the different production stages and understand the work process related to audiovisual production;
2.Recognize and properly use different camera shots, frames, positions and movements;
3.Properly use the technical equipment related to audiovisual production;
4.Know and to apply post-production components;
5.Produce audiovisual content, autonomously, in different formats and towards different platforms.

Contents:

1.Cinema history;
1.1 Historical perspective and main movements;
2.Terminology and concepts related to cinema and audiovisual production;
2.1 Video formats and definitions;
2.2 Equipment;
3.Production stages:
3.1 Pre-production;
3.2 Synopses, script and storyboard;
3.3 Production – Framing, plans, angles and movements; color; illumination;
3.4 Post-production: montage, editing, titles and credits;
4.Production and responsibility organogram:
4.1 Description and responsibilities within the technical team;
5.Sound:
5.1 Microphones;
5.2 Operating sound equipment's;
6.Video and image:
6.1 Plans, angles and movements;
6.2 Concepts of light and their types;
6.3 Framing and image composition;
6.4 Operating video and photography equipment's;
7.Shooting:
7.1 Répèrage;
7.2Practical recommendations.

Web programming

(3 ECTS)

Learning outcomes:

1.Understand the technologies inherent to the Web;
2.Know how to develop pages in HTML and CSS;
3.Understand the need for and advantages of using a development framework;
4.Develop dynamic web applications with access to databases.

Contents:

1.Website development technologies;
2.HTML 5;
3.CSS3 style sheets;
4.The Bootstrap framework;
5.The Yii framework;
6.Database access and abstraction;
7.Collecting user data;
8.Data visualization.

5.2 Green Transition

Agricultural policy and sectoral support

(3 ECTS)

Learning outcomes:

1.Know the main sources of funding for agriculture and other sources of funding for rural activities;
2.Understand the objectives and particularities of their use;
3.Know the main mechanisms of the Common Agricultural Policy in force and their application in Portugal;
4.Analyze specific cases of CAP implementation in Portugal, understanding the regional contexts in which it is applied, the difficulties in implementing it and the chances of overcoming them.

Contents:

1.Common Agricultural Policy in the European Union: a brief retrospective and new guidelines;
2.Structural Measures and Rural Development Programs;
3.Rural Development Programs 2007-2014, 2014-2020;
4.PEPAC 2023-2027;
5.Other national and EU funding sources applicable to the agricultural and agri- food sector.

Bakery products with yeast mother dough

(2 ECTS)

Learning outcomes:

1.Learn the different baking techniques, both in theory and in practice, for breads made with yeast sourdough.

Contents:

1.Flour specifications;
2.Understand the difference between pH and degree of acidity;
3.Use pH in daily production to obtain good results;
4.Create a Mother Dough from scratch;
5.Apply different preparation techniques in baking:
5.1 Yeast mother doughs (Biga, Poolish, Fermented dough, Cucharón), from white flour;
5.2 Use of special flours (rye, corn, etc.):
6.Knowing when raw materials should be added and their influence.
7.Learn how to handle dipping and blanching to make the bread last longer;
8.Know the different types of Poolish (Wheat, Rye) and their advantages;
9.Evaluate how quality is affected by resting dough;
10.Prepare and evaluate pasta (types of kneading, fermentation times, cooking, etc.);
11.Knowing the different types of ovens. Advantages and differences between them;
12.Adapting supply to the new demand for bread;
13.Know healthy, nutritious, digestible and functional breads (concept of well- being).

Cover cropping in woody crops

(3 ECTS)

Learning outcomes:

1.Framework of the different soil management systems from a social, technical and economic points of view;
2.Understand the importance and extent of the environmental impacts associated with the soil management systems, with relevance to soil erosion and carbon sequestration in the soil;
3.Assess the potential effect of soil management systems on the nutritional and water balance of trees and crop productivity;
4.Evaluate the relevant soil, climatic and/or technological variables that determine the selection of species and cultivars for sowing;
5.Understand and apply cropping techniques that ensure seed germination and management of seedlings that lead to high persistence after sowing.

Contents:

1.Soil management systems:
1.1 Conventional tillage;
1.2 Use of herbicides;
1.3 Management of natural vegetation by mowing;
1.4 Sown cover crops;
1.5 Mixed systems;
2.Environmental impacts of soil management systems:
2.1 Soil erosion;
2.2 Organic matter content and carbon sequestration in the soil;
2.3 Soil structure, compaction and trafficability of soils;
2.4 Interaction with pests, diseases and auxiliary fauna;
3.Effect of soil management systems on the nutritional and water status of trees and productivity;
4.Sown mulches:
4.1 Suitability of mulches to local agro-ecological conditions;
4.2 Choice of cover depending on soil texture;
4.3 Mulches sown for irrigated fruit growing;
4.4 Covers sown for dryland fruit growing;
4.5 Covers sown for organic farming;
5.Installation and management of cover crops:
5.1 Choosing species and cultivars for sown covers;
5.2 Dates and techniques for installing sown covers;
5.3 Management of sown covers;
5.4 Evaluation and optimization of vegetation persistence.

Domestic and wild animal production and health

(3 ECTS)

Learning outcomes:

1.Know and understand the concept of One-Health and Public Health, the transmission cycle of diseases and their treatment, control and prevention based on evidence-based medicine;
2.Contribute to animal welfare, production sustainability, agricultural defense and low carbon economy, animal health and nutrition;
3.Understand and apply the fundamental concepts of medical and sanitary prophylaxis. Setting up preventive health and vaccination plans. Implementing biosecurity measures in different animal production activities. Interface between production animals and wild animals.

Contents:

1.One-Health and Public Health Concept;
2.Concept and description of health and disease: Etiological agent and disease transmission cycle; / Study of diseases and evidence-based medicine; / Diagnostic tests; 3.Human-Animal-Environment Interface: Human-Animal connection vs. zoonoses; / Health of the planet vs. climate change vs. diseases; / Environmental impact of animal production;
4.Animal Production: Production Systems; / Animal behavior and welfare; / Sustainability of production and defense of agricultural production; / Low carbon economy; / Animal nutrition and health;
5.Wild Animals: General management, animal behavior and restraint; / Ecology and biology of exotic and wild fauna; / Domesticated and wild animal interface;
6.Diseases of domesticated and wild animals: Main infectious and parasitic diseases;
7.General principles of biosafety;
8.Case studies.

Electric vehicles – Power electronics and electrical motors

(2,5 ECTS)

Learning outcomes:

1.Demonstrate knowledge of power electronics and the electric motor in hybrid and electric vehicles;
2.Demonstrate knowledge of drive cycles and the information they provide;
3.Analyze and reflect on the advantages and disadvantages of different technical solutions in different applications.

Contents:

1.The placement of the inverter in the electric driveline;
2.Different electric motor topologies, discussions about advantages and disadvantages;
3.Review of the drive cycle and the information it provides.

Electric vehicles – Manufacturing and recycling of lithium ion batteries

(2,5 ECTS)

Learning outcomes:

1.Demonstrate knowledge of how batteries are made;
2.Demonstrate knowledge of lithium-ion battery costs;
3.Demonstrate knowledge of and be able to evaluate different methods of recycling batteries;
4.Carry out an analysis of kg CO2/km emissions and assess the impact of manufacturing methods on the environment.

Contents:

1.Battery manufacturing;
2.Reuse of batteries;
3.Recycling of batteries;
4. Analyses of CO2 emission;
5.Risk analysis in recycling.

Electric vehicles – Batteries in electric vehicles

(2,5 ECTS)

Learning outcomes:

1.Show basic understanding of the properties of different lithium-ion battery types;
2.Demonstrate knowledge about components and design needed for the lithium- ion battery of an electric vehicle;
3.Demonstrate an understanding of battery type selection in relation to the vehicle's use;
4.Demonstrate knowledge of the characteristics of the fuel cell;
5.Explain and analyze safety risks related to fire and electricity.

Contents:

1.Electrochemistry basics;
2.Performance of lithium-ion battery properties;
3.Design of cells, modules and packs for lithium-ion battery;
4.Function of battery management system;
5.Safety;
6.Dimensioning towards different application, lithium-ion and fuel cell;
7.Future secondary battery such as L-S, non-cobalt, solid state;
8.Performance of fuel cells.

Electrical design of traction battery

(2,5 ECTS)

Learning outcomes:

1.Explain the propulsion battery systems for electric vehicles, especially with regard to energy and power density and their capacity to deliver energy and power;
2.Explain the life of the battery system and the influence of external parameters on it;
3Design of propulsion battery systems for electric vehicles;
4.Relate to current research and development work in the field, including ethical aspects and sustainable battery value chain;
5.Relate to the choice of propulsion battery systems in terms of risks and accidents;
6.Evaluate when one's own competence needs to be supplemented.

Contents:

1.Different storage media for electrical energy in electric vehicles;
2.Various properties with an emphasis on ethical aspects and sustainable battery value chain, advantages and disadvantages for each media are presented;
3.Calculations regarding, for example, dimensioning and energy density.

Electrical solutions of auxiliary systems in vehicles

(2,5 ECTS)

Learning outcomes:

1.Demonstrate knowledge of the electrical and traditional auxiliary systems that are found in electric vehicles;
2.Explain the pros and cons of traditional and electric auxiliary system solutions;
3.Explain how the system's boundary conditions affect the choice of the auxiliary system;
4.Propose eletrical alternatives to existing traditional solutions;
5.Evaluate the pros and cons of various technical solutions for auxiliary systems in electric vehicles;
6.Demonstrate the ability to argue for a selected technical solution regarding auxiliary systems;
7.Demonstrate the ability to evaluate a technical solution from a sustainability perspective.

Contents:

1.Knowledge about how electric auxiliary systems can replace traditional auxiliary systems in a vehicle;
2.Electrical solutions that are found in a vehicle today as well as which technical solutions could be replaced with an electric drive system.

Electrical solutions of auxiliary systems in vehicles

(2,5 ECTS)

Learning outcomes:

1.Demonstrate knowledge of the electrical and traditional auxiliary systems that are found in electric vehicles;
2.Explain the pros and cons of traditional and electric auxiliary system solutions;
3.Explain how the system's boundary conditions affect the choice of the auxiliary system;
4.Propose eletrical alternatives to existing traditional solutions;
5.Evaluate the pros and cons of various technical solutions for auxiliary systems in electric vehicles;
6.Demonstrate the ability to argue for a selected technical solution regarding auxiliary systems;
7.Demonstrate the ability to evaluate a technical solution from a sustainability perspective.

Contents:

1.Knowledge about how electric auxiliary systems can replace traditional auxiliary systems in a vehicle;
2.Electrical solutions that are found in a vehicle today as well as which technical solutions could be replaced with an electric drive system.

Energy transition

(3 ECTS)

Learning outcomes:

1.Understand the need for energy transition and its current legal framework;
2.Know the main technologies and trends in energy conversion systems based on renewable sources;
3.Understand and evaluate the pros and cons of energy storage solutions in different ranges;
4.Analyze the principles and solutions based on smart microgrids in the context of the energy transition;
5.Understand blockchain concepts applied to energy communities.

Contents:

1.The energy transition and the energy policy trilemma: equity, security and sustainability;
2.Renewable energy resources and conversion technologies: trends, barriers and comparative analysis;
3.Technologies for energy storage systems;
4.The industrial and transport sectors in the energy transition;
5.Smart grids and microgrids: case studies; 6.Blockchain applied to energy communities.

Fertigation

(3 ECTS)

Learning outcomes:

1.Create a fertilization plan based on irrigation, depending on the plants' needs and soil fertility, expressed in a fertilization recommendation;
2.Must be able to prepare fertilizer mixtures and control their distribution in irrigation water throughout the vegetative cycle of crops;
3.Know the constraints on soil quality that may arise in associated with fertigation;
4.Know possible negative impacts of fertigation and ways to avoid them.

Contets:

1.Soil fertility. Soil properties that affect the nutrient cycle in fertigation mode: physical (texture, structure, porosity, soil water) and chemical (pH, distribution of salts and nutrients, organic matter, exchange capacity);
2.Plant nutrition. Essential nutrients for crop development. Function in plants. Appropriate concentrations;
3.Monitoring the state of soil fertility and the nutritional status of crops. Monitoring the quality of irrigation water, soil quality and monitoring the nutritional status of plants. Interpretation of analytical bulletins;
4.Fertilizers. Classification of the main types of fertilizers on the market. Properties and suitability of fertilizers for fertigation (composition, solubility, compatibility between products);
5.Techniques for applying fertilizers to irrigation water. Equipment used in fertigation. Product mix. pH adjustment;
6.Advantages and disadvantages of fertigation.

Food product labeling and certification

(3 ECTS)

Learning outcomes:

1.Know the legislation on the labeling and nutritional labeling of food products;
2.Know and understand the principles, concepts and objectives of the certification of raw materials and food products;
3.Understand the methodologies for certification in the agro-industry;
4.Acquire the skills to use/implement and maintain certification;
5.Know the legal and regulatory aspects of food product certification, as well as being able to search for this information and interpret it;
6.Understand the relationship between the structure and content of ISO 9001 and ISO 22000;
7.Know the IFS and BRC references.

Contents:

1.Food product labeling. Mandatory information. Nutritional labeling. Bar codes. Closing systems;
2.Certification systems for agri-food products: principles and objectives, technical references, regulations and control and certification systems; 3.Institutional certification systems (DOP/IGP/ETG, PI, Organic Farming) and private certification systems (industry, distribution and other organizations: IFS, BRC, Global Gap, Demeter, Bio Dinâmica, Fair Trade, UTZ, MSC);
4.Standards and Standardization;
5.Structure and requirements of ISO 22000 and its relationship with ISO 9001;
6.Other normative references such as the BRC and IFS standards.

Food quality and safety

(3 ECTS)

Learning outcomes:

1.Know and understand the concepts related to the issue of quality and food safety;
2.Understand the language of Quality applied to quality control and quality management systems in organizations operating in the food chain;
3.Know how to research and interpret standards, national legislation and European Union legislation for the food sector;
4.Identify the main hazards associated with raw materials and food products;
5.Have knowledge of Codes of Good Practice and the HACCP methodology;
6.Be able to integrate the knowledge acquired in obtaining innocuous products and their traceability throughout the chain.

Contents:

1.Quality and Food Safety:
1.1 Associated concepts;
1.2 Main quality and safety problems in food matrices;
2.Quality lexicon.
2.1 Main currents of thought and action in Quality;
2.2 Portuguese Quality Institute and the Portuguese Quality System:
2.3 Metrology, qualification and standardization subsystems;
2.4 Quality and Food Safety Management Systems.
2.5 HACCP methodology;
3.Hazards in food raw materials and end products:
3.1 Characterization, sources, prevention and control measures;
4.Codes of Good Practice (Primary Production, Manufacturing, Hygiene): Traceability;
5.Production methods vs. food safety and quality enhancement.

Hygienization in agri-food companies

(3 ECTS)

Learning outcomes:

1.Understand the importance of hygiene in companies in the agri-food sector;
2.Know the main stages of the sanitization process;
3.Know the purpose of each stage of the sanitization process;
4.Know the main types of cleaning and disinfecting agents;
5.Choosing the right type of detergent and disinfectant for each situation;
6.Draw up a sanitization plan.

Contents:

1.Introduction:
1.1 Concept of hygiene;
1.2 The relationship between the concepts of hygiene, quality and food safety;
2.Main sanitization methods:
2.1 Classic method: Stages and their purpose; Advantages and disadvantages;
2.2 Simplified method: Steps and their purpose; Advantages and disadvantages;
3.Cleaning agents and their characteristics:
3.1 Acid cleaning;
3.2 Alkaline cleaning;
3.3 Neutral cleaning;
3.4 Enzymatic cleaning;
4.Disinfection agents and their characteristics:
4.1 Chlorine and derivatives;
4.2 Iodine and derivatives;
4.3 Peracetic acid;
4.4 Amphoteric compounds;
4.5 Quaternary ammonium compounds;
4.6 Alcohols;
4.7 Aldehydes;
5.Choice of cleaning and disinfection method:
5.1 Type of equipment, surfaces and utensils;
5.2 Level of dirt and microbial load;
5.3 Time available;
5.4 Experience of staff;
5.5 Monetary cost;
6.Hygiene plan:
6.1 Importance;
6.2 Information that must be included in the plan.

Introduction to sustainability within industrial production

(2,5 ECTS)

Learning outcomes:

1.Demonstrate knowledge of the causes of climate change and the UN's sustainability goals.
2.Be able to explain the basic relationship between material production and environmental impact.
3.Be able to provide examples of energy aspects of environmental technology and transport.
4.Demonstrate an understanding of the life cycle concept related to industrial production.
5.Show the ability to apply the concept of circular economy in applications within industrial production.

Contents:

1.Causes of climate change and the UN's sustainability goals;
2.Relationship between material production and environmental impact, as well as the field of environmental technology and transport;
3.Life cycle concept within industrial production and circular economy.

Materials and sustainable development

(2,5 ECTS)

Learning outcomes:

1.Demonstrate knowledge and familiarity with different types of materials and properties;
2.Be able to explain the basic relationship between material production, use, and environment;
3.Demonstrate an understanding of critical materials in advanced applications;
4.Show familiarity with how material selection and eco-design can be done with computer aids;
5.Show familiarity with the UN's sustainability goals and the concept of circular economy.

Contents:

1.Basic materials science;
2.Life cycle and environmental impact of materials;
3.Critical materials for electric vehicles and aviation;
4.Computer-aided material selection and eco-design are included;
5.UN's 17 sustainability goals and circular economy are discussed.

Plant cell and tissue culture

(3 ECTS)

Learning outcomes:

1.Know theoretically the micropropagation technique and its importance;
2.Identify advantages/disadvantages/difficulties;
3.Identify acclimatization conditions;
4.Know the basics of plant physiology.

Contents:

1.Fundamentals of cell and tissue culture;
2.Cellular totipotency, dedifferentiation/organogenesis;
3.Culture conditions/physiological effects;
4.Types of culture and applications;
5.In vitro cultures: organs, tissues and cell suspension;
6.Cell culture and genetic engineering: applications in agriculture, forestry/biotech industries;
7.Laboratory culture material/equipment;
8.Aseptic conditions. Solutions, concentrations/calculations;
9.Dedifferentiation /micropropagation.
10.Liquid medium Somatic embryogenesis;
11.Immorphogenesis.

Power quality

(2,5 ECTS)

Learning outcomes:

1.Account for the factors that affect power quality;
2.Show understanding of which factors affect power quality and be able to calculate how power quality can be improved through various measures;
3.Show the ability to analyze the power quality in an electrical network;
4.Calculate various power quality indices and interruption indicators;
5.Show the ability to interpret standards and regulations regarding power quality.

Contents:

1.Calculation of voltage drops in weak networks, calculation of motor starters, calculation of various forms of overvoltage, calculation of harmonics and various power quality indices, and calculation of various interruption indicators;
2.Orientation about regulatory requirements and application of standards.

Preservation and processing agricultural products

(3 ECTS)

Learning outcomes:

1.Identify the optimum point and conditions for harvesting and transporting agricultural products;
2.Know the technologies, processes and equipment for the screening, calibration, cleaning, and disinfection of agricultural products, with particular emphasis on almonds, chestnuts, table olives and bee products.;
3.Choose the appropriate storage conditions according to the agricultural product;
4.Know the phenomena involved in the preservation processes of agricultural products and the justification of the technological processes to be applied.;
5.Choose the appropriate equipment and techniques to obtain specific products derived from agricultural products;
6.Know methods for determining the expiry dates of processed agricultural products.

Contents:

1.Determination of the optimal harvest time;
2.Factors that affect the food quality and safety of post-harvest products;
3.Transport;
4.Reception. Screening, cleaning and disinfection;
5.Calibration and standardization;
6.Storage at room temperature and cold, without and with a controlled atmosphere: physico-chemical and microbiological phenomena, installations and equipment; 7.Technological processing of different agricultural products and development of new products;
8.Packaging and the use of modified atmospheres;
9.Methods for determining the shelf-life of processed agricultural products.

Pruning forestry and urban trees

(3 ECTS)

Learning outcomes:

1.Update knowledge of the physiological characteristics of different tree species;
2.Understand the importance of the correct development of a tree in different contexts and ecological systems;
3.Skills in managing trees in an urban context and in forestry and agroforestry systems;
4.Apply training cuts to young trees, interventions in monumental trees, notable chestnut and other forest formations.

Contents:

1.The tree, its development and associated physiological processes;
2.Requirements for trees in the nursery and preparation for placement in a permanent location;
3.Physiological reactions to cultural intervention;
4.Intervention techniques in terms of tree formation and maintenance in forestry, agroforestry and urban contexts;
5.Special care for notable specimens.

Pruning fruit trees

(3 ECTS)

Learning outcomes:

1.Understand from a technical and economic point of view the different trellising systems for fruit trees;
2.Understand and learn how to carry out training pruning for different training systems;
3.Understand the role of the perennial structure and the year's releases and distinguish fruiting habits;
4.Relate vegetative vigor to pruning intensity and pruning times;
5.Learn how to use pruning tools and perform the best cutting techniques;
6.Evaluate mechanical pruning strategies from a technical and economic point of view;
7.Carry out practical training and production pruning on deciduous and evergreen fruit trees.

Contents:

1.Tree size, apical dominance and resounding vegetation, training systems; Training pruning for different management systems and harvesting methods;
2.Perennial structure, year releases, reproductive structures and fruiting habits;
3.Concept of vigor, frequency and intensity of pruning and pruning season;
4.Pruning tools and cutting techniques;
5.Mechanical pruning, pruning deciduous and evergreen fruit trees.

Renewable electricity and energy storage

(2,5 ECTS)

Learning outcomes:

1.Explain how different types of electricity production (hydropower, wind power, thermal power, solar cells) work from primary energy source to electricity out on the grid;
2.Explain how different types of energy storage (battery, pumped storage) work;
3.Account for generator systems with synchronous generators (hydropower, nuclear power, thermal power);
4.Account for generator systems connected via power electronics (wind power, solar cells).
5.Account for and calculate the technical potential in different energy storages;
6.Perform load flow calculations and fault current calculations on power stations and their various components.

Contents:

1.Traditional power production: Hydropower and thermal power; New power production: wind and solar power;
2.Energy conversion, turbine and turbine regulation, generator systems, generator systems with power electronics, collection networks, capability diagrams, unit transformers and connection requirements to the grid, for the different facilities;
3.Differences in available power and duration for the different types of production are discussed;
4.Review of different types of energy storage is included, including principles for storage, charging and discharging, power and energy in the energy storage.

Safety when working on and in electric vehicles

(2,5 ECTS)

Learning outcomes:

1.Demonstrate risks associated with working with high voltage and current in electric vehicles;
2.Understand the risks of handling batteries inside and outside a vehicle;
3.Create a risk-free working environment when working with electric drive systems for electric vehicles;
4.Perform risk analysis in work with electricity in electric vehicles and their surroundings;
5.Critically review a work environment related to electric vehicles;
6.Make assessment with regards to safety guidelines prepared by, among others, authorities.

Contents:

1.Electrical safety guidelines required for work on and in electric vehicles;
2.Creation of a risk-free environment with electric drive systems, electrical safety, maintenance of electrical installations;
3.Chemical risks and the use of batteries can entail.

Sustainability

(3 ECTS)

Learning outcomes:

1.Identify and evaluate environmental, social and economic measures that promote sustainability;
2.Describe sustainable approaches to rethinking and redesigning production and consumption;
3.Reflect on approaches and practices that contribute to achieving sustainable development goals;
4.Critically analyze their own experiences and plan contributions to a more sustainable future.

Contents:

1.Introduction and sustainable development goals;
2.Education, gender and equality;
3.Health, well-being and demography;
4.Sustainable cities and communities;
5.Energy, decarbonization and sustainable industry;
6.Sustainable food, land, water and oceans;
7.Digitalization for sustainable development;
8.Circularity and sustainability;
9.Definition of sustainability indicators.

Sustainability practices in construction

(3 ECTS)

Learning outcomes:

1.Understand the fundamental concepts of sustainability and its role in the construction sector;
2.Recognize the importance of sustainable use of water in the built environment and be able to identify, analyze, select and implement measures for the efficient use of water in the building design, construction and operational use stages;
3.Understand the main concepts about energy sustainability in the built environment and identify, analyze, select and implement energy saving measures in the building design, construction and operational use stages;
4.Understand the construction and demolition waste management and select the most efficient and sustainable solutions in construction works, improving current solutions and minimizing environmental impacts.

Contents:

1.Introduction to sustainability in the construction sector: sustainable construction and the circular economy;
2.Sustainability in the use of water: reducing consumption and using alternative water sources;
3.Energy sustainability: energy sufficiency and efficiency and renewable energies;
4.Sustainability in construction and demolition waste management (CDW): sustainable construction, sustainability assessment methods and CDW management solutions.

Sustainability forest management and certification

(3 ECTS)

Learning outcomes:

1.Understanding the principles of sustainable forest management (SFM):
2.Develop an in-depth understanding of the main forest certification systems, highlighting internationally recognized standards such as FSC (Forest Stewardship Council) and PEFC (Program for the Endorsement of Forest Certification);
3.Training to implement sustainable practices;
4.Foster communication and collaboration skills.

Contents:

1.Sustainable forest management and sustainability criteria;
2.The importance of certification as a market tool at the service of conservation and sustainability; Existing forest certification systems;
3.Certification of sustainable forest management, ecosystem services and the chain of responsibility;
4.The certification process and the role of the certification auditor; 5.Sustainable forest management standards and good forestry practices.

Technology and analysis of meat and meat products

(3 ECTS)

Learning outcomes:

1.Become aware of the role of meat and meat products in the diet of most societies today;
2.Increase interest in improving the use of meat proteins through the correct use of methods and processes;
3.Develop knowledge of all the production aspects of the fresh and processed meat industry, as well as how to carry out quality control;
4.Know the importance of quality control and be able to implement or propose methodologies for assessing the authenticity of meat and meat products;
5.Know how to assess the quality of meat and meat products: what to analyze and how to analyze it.

Contents:

1.The importance of technology in meat processing;
2.Meat processing: slaughtering, obtaining the carcass and analyzing its quality;
3.Meat preservation, packaging and storage;
4.Curing and maturation technology. Additives and ingredients in the meat industry;
5.Meat and processed meat product technology. Filling and breading technology;
6.Development of new products and processes;
7.Regulations and quality standards;
8.Instrumental, physical-chemical and sensory analysis of meat and meat products;
9.Principles of food safety and good manufacturing practices.

Training of trainer's climate fresk

(3 ECTS)

Learning outcomes:

1.Provide training required for the animation of Climate Fresk workshops.

Contents:

1.Official Climate Fresk training program;
2.Introduction to the climactic machine, to the impacts of climate change on societies, and to technical, social and economic solutions;
3.Initiation to critical thinking through critical analysis of documents;
4.Simulation of workshop environment to consolidate training.

Winemaking practices

(3 ECTS)

Learning outcomes:

1.Know how to assess the degree of ripeness and quality of grapes through chemical and sensory analysis;
2.Understand the most important physical, chemical and enzymatic phenomena in musts and wines and know how to plan, monitor and carry out the unit operations associated with wine production;
3.Identify the most common problems that can occur during winemaking processes and implement the most appropriate methodologies to overcome them.

Contents:

1.Assessment and control of grape ripeness and quality: quality parameters for white and red grapes; sampling, analytical and sensory control of the grapes; types of ripeness and determination of the harvest date; harvesting and transportation of the grapes to the winery; selection of grapes in the winery;
2.Winemaking technologies for white, red and rosé wines: pre-fermentation operations: acidification/deacidification and pH control; inoculations; use of sulfur dioxide; addition of nutrients; enzymes; oxygenation; temperature control;
3.Monitoring alcoholic fermentation: types of problems that can occur during fermentation;
4.Technologies to increase extraction during maceration and fermentation;
5.Control of malolactic fermentation: the main factors conditioning malolactic fermentation; impact on the chemical and organoleptic properties of wines. Analytical and sensory control of musts and wine during alcoholic and malolactic fermentation.

5.3 Social and Health

Administrative innovation and modernization

(3 ECTS)

Learning outcomes:

1.Present a critical attitude towards innovation and modernization management models in the public sector, theories and real cases;
2.Develop knowledge and practice of current trends in innovation and modernization in public management;
3.Understand co-creation and innovation in public management;
4.Understand how public management deals with modernization and innovation in a global environment;
5.Apply acquired (theoretical) knowledge and ideas to real cases.

Contents:

1.New Public Management:
1.1 Contemporary public sector management;
1.2 Real cases of innovation and modernization in Western and Portuguese administration;
2.Innovation Management and Modernization:
2.1 Innovation, modernization, competitiveness and development;
2.2 Public innovation policies;
2.3 Innovation ecosystems and the innovative public company;
2.4 Planning and managing the innovation process in public organizations;
3.Co-creation in the public sector:
3.1 Innovation in the public sector and governance approaches in the global context;
3.2 Co-creation spaces in the Western and Portuguese worlds;
3.3 Collaborative processes of innovation and modernization in public administration.

Ancient Greek

(3 ECTS)

Learning outcomes:

1.Level 1: Introduction to Greek alphabet; Introduction to familiar vocabulary (using etymology); Familiarization with language structure;
2.Level 2: Acquisition and mastery of fundamental vocabulary and language structure;
3.Level 3: Acquire of specific vocabulary related to learners' thematic field; Identify and describe civilizations of Antiquity;
4.Level 4: Enrich knowledge of Ancient Greek through commentary; Mastery of specific vocabulary;
5.Level 5: Autonomously approach original and authentic texts; Enrich learners' ancient culture.

Contents:

1.Level 1: Ancient Greek quickly (art history, philosophy, ancient history, medicine, psychology, sociology or language sciences...); Introduction to the Greek alphabet and familiar vocabulary (using etymology), common vocabulary and the structure of the language through the reading of simple texts related to ancient culture;
2.Level 2: Through a cursive reading of simple original texts, supplemented by written or oral exercises to consolidate the acquisition and mastery of fundamental knowledge (vocabulary and language structure); Students gradually tackle more complex texts, while at the same time enriching their ancient culture;
3.Level 3: While continuing to acquire the knowledge necessary to practice the language through cursive reading of selected original texts, accompanied by written and oral exercises, students begin to learn specific vocabulary and read texts related to their disciplinary concerns and the civilizations of Antiquity.
4.Level 4: Students continue to read original texts combining simple and complex sentences; The students consolidate their language practice through short, specific written and oral exercises, they enrich their knowledge of the language and civilization through simple commentary, version and theme practice (reflection on the meaning of the text, the transition from one language to another and the appropriate translation, vocabulary acquisition).
5.Level 5: Overview of the Greek language; Precise and in-depth reading of original Greek texts: simple commentary (with attention to the nuances of vocabulary, structure and style of texts), like versioning, enables them to approach authentic texts with increasing autonomy from a disciplinary perspective, and to enrich their ancient culture on their own (and/or with the necessary assistance).

Business development – User driven digitalization

(2,5 ECTS)

Learning outcomes:

1.Knowledge of different types of development models around digitization;
2.Ability to design and create prototypes based on development models;
3.Approach to the consequences of digital solutions in practical operations based on various user-centered development models.

Contents:

1.Concepts such as design principles, design processes, development models, graphic design, evaluation, and validation;
2.Development process via needs analysis, requirement specification, prototype, design proposal;
3.UX principles, and the Scandinavian school;
4.Design over time - historical review and anchoring;
5.Experience-based and business-anchored analysis;
6.Theoretical development models linked to practical activity - concrete consequence analysis based on the effects of digital solutions in the business with and without user-driven focus;
7.The different theoretical moments are linked through examples to reality- based practical cases, where the students' previous experiences are taken in and become part of the learning.

Communication and interaction in cultural and artistic contexts

(3 ECTS)

Learning outcomes:

1.Understand the concept of communication in its different guises, with special emphasis on cultural and artistic contexts;
2.Recognize the differences between verbal and non-verbal communication
3.Identify the different levels of oral expression/production;
4.Understand the principles that regulate the use of language, as well as the maxims/rules of communication;
5.Improve oral communication skills to enable them to express themselves effectively and clearly when communicating information, in different circumstances and with different audiences in artistic and cultural contexts;
6.Improve linguistic correctness in verbal and conversational interactions in cultural and artistic contexts;
7.Apply knowledge of oral expression in the socio-professional context;
8.Reflect on strategies for interaction and communication with different audiences, with special attention to understanding cultural differences.

Contents:

1.Communication: definition and characterization: Verbal and non-verbal communication;
2.Levels of oral expression/production: phonetic-phonological, lexical-semantic, morphosyntactic, textual;
3.Principles governing the use of language: co-operation, relevance, courtesy;
4.Oral communication techniques:
4.1 Discursive practices;
4.2 Speech and social identity: linguistic markers, forms of address;
4.3 Verbal interaction: Conversational maxims (quantity, quality, relevance and manner);
5.Intercultural communication: understanding differences.

Construction of an international mobility project

(2 ECTS)

Learning outcomes:

1.Prepare students for 1 academic or professional stay abroad;
2.Communicate in the language of the host country;
3.Gain an understanding of the host country's culture;
4.Acquire new skills/working methods in the host country.

Contents:

1.Exchange programs: ISEP/Erasmus +/BCI/AIU;
2.Internships;
3.Possible destinations;
4.Project construction stages;
5.Administrative formalities;
6.Educational contract;
7.Financial aid.

Creativity and design thinking

(3 ECTS)

Learning outcomes:

1.Have a holistic view of creativity and its performance, establishing links between emerging paradigms and contemporary times;
2.Know and apply methodologies and techniques to support creativity and the development of ideas;
3.Identify the methodological and cognitive foundations of Design Thinking;
4.Know and apply Design Thinking practices, languages and methods;
5.Choose management and creative strategies for teamwork;
6.Work with multidisciplinary teams;
7.Apply the methods and techniques of Design Thinking in exercises and real projects to be developed in teams;
8.Master the process of designing, realizing and communicating a product.

Contents:

1.Creativity:
1.1 Background and theoretical framework on creativity;
1.2 Development of creativity;
1.3 Creativity techniques;
1.4 The creative process as a project.
2.Design thinking: Contextualization;
3.Models of the design thinking process:
3.1 3 I's models;
3.2 IDEO's HCD;
3.3 Design Thinking School/Stanford;
3.4 Double Diamond from the British Design Council;
3.5Other current models;
3.6 Analysis of case studies;
4.Project:
4.1 Proposal for the development of a practical project;
4.2 Methodologies;
4.3Articulation and intersections between disciplines;
4.4 Collaborative approaches;
4.5 Project culture;
4.6 Project practice;
5.Public presentation of the project: Project justification and presentation.

Cultural accessibility

(3 ECTS)

Learning outcomes:

1.Identify types of cultural spaces;
2.Understand the role of accessibility in cultural spaces;
3.Carry out accessibility diagnoses in cultural spaces;
4.Design accessibility plans for cultural spaces;
5.Demonstrate knowledge of national and international legislation and standards;
6.Develop accessible resources for people with impairments;
7.Show knowledge of audio description, subtitling, plain and easy language, alternative and augmentative, and haptic communication.

Contents:

1.Introduction to Cultural Accessibility:
1.1 Types of cultural spaces;
1.2 Accessibility dimensions;
1.3 Accessibility diagnosis;
1.4 Accessibility plan;
2.Legislation and standards:
2.1 National and international legislation;
2.2 National and international standards;
2.3National and international guides of good practices and recommendations;
3.Communicative accessibility:
3.1 Audio description;
3.2 Interlingual subtitling and subtitling for the deaf and hard-of-hearing;
3.3 Plain and easy language;
3.4 Sign languages;
3.5 Augmentative and alternative communication;
3.6 Haptic communication;
4.Examples of good practices in Portugal.

Cultural heritage interpretation

(3 ECTS)

Learning outcomes:

1.Know the concept, theoretical principles and main means of heritage interpretation;
2.Identify conceptual and technical similarities between interpretation and the respective institutions and support infrastructures;
3.Apply techniques and interpretation tools appropriate to specific situations;
4.Design strategies for interpreting cultural heritage that contribute to sustainability in cultural places;
5.Use digital interpretation instruments in cultural areas for the promotion of educational processes and for participatory workflows;
6.Assess the potential of cultural heritage for the implementation of interpretation projects, considering public policies and applicable support instruments;
7.Adopt critical and creative thinking to create solutions that promote social innovation;
8.Apply collaborative, sustainable and inclusive techniques to influence change in the cultural heritage sector.

Contents:

1.Definitions of Cultural Heritage Interpretation;
2.The objectives of interpretation;
3.The principles of Interpretation;
4.Interpretation and dynamization techniques in cultural contexts;
5.The interpretation plan;
6.Case Studies (Urban and rural): Cultural Interpretation Programs – Museums, Interpretation Centres, Archaeological Sites, Historic Centres, among others.

Design of tourism products and experiences

(3 ECTS)

Learning outcomes:

1.Know the stages in the creation and development of tourism products and experiences;
2.Understand the fundamental principles and concepts of tourism experience design, highlighting its importance in the tourism, hospitality and leisure industry;
3.Recognize the importance of local and regional products in the creation of authentic products and experiences, developing strategies to incorporate them effectively into tourism offers;
4.Apply the knowledge by developing concrete projects that promote innovation and the creation of unique tourist experiences for specific destinations.

Contents:

1.Introduction to the Design of Tourism Products and Experiences:
1.1 Definitions and key concepts;
1.2 Procedures for developing tourism products;
1.3 Creativity and co-creation of sustainable tourist experiences;
2.Design Process:
2.1 Stages of product and experience design;
2.2 Practical tools for generating ideas;
3.Local/regional tourism products and experiences:
3.1 Strategies for incorporating local/regional resources into tourism experiences in the context of the following Tourism Products: Nature Tourism; Health and Wellness Tourism; Wine Tourism; Oil Tourism; Cultural Tourism, among others;
3.2 Case studies;
3.3 Development of practical projects.

Developing critical and creative thinking skills

(2 ECTS)

Learning outcomes:

1.Understand the forms and elements of critical and creative thinking;
2.Understand the basic concepts of reasons, argument, induction, premises and conclusions;
3.Identify the factors that lead the process of critical thinking to the manipulation of truth;
4.Apply models for each of the twelve creative thinking skills (school vocabulary, sentence starters and school frameworks).

Contents:

1.Critical thinking and logic: Statements and claims, arguments and reasons, premises, when the claims contradict each other;
2.The words in categorical sentences that name classes or categories of things are called terms. Creative thinking: the creative process, the creative spirit and characteristics of creative children, play and its role in creativity, creativity in practice;
3.Understanding Cultural Relativism and Its Importance: concept and definitions; The subjective influence of the self, The dangers of subjective worldview, The power of the group.

Digital and social marketing strategies

(3 ECTS)

Learning outcomes:

1.Differentiating between marketing and PR;
2.What is my message and how to reach target groups with it;
3.Which channels to use to achieve the most output and results;
4.What kind of media has which abilities to communicate my message.

Contents:

1.Overview in the endless variety of communication ways;
2.Combining the fundamental power of writing in all styles with the innovative force of creating pictures;
3.Successful Social Media workflow as well Search Engine Optimized strategies and the magnetic effect of successful Storytelling.

Digital content marketing and management in health

(3 ECTS)

Learning outcomes:

1.Manage digital content such as marketing products and point of contact with customers and institutions;
2.Develop graphic content, in text, photography or video format, among others;
3.Acquire knowledge about metrics and performance analysis in digital marketing.

Contents:

1.Digital marketing, social networks and health: concepts;
2.Social networks:
2.1 Typology and applicability (Typologies, Clinical practice, Health literacy, Clinical research, Health marketing);
2.2 Social media management (Target audience and choice of platforms, Creation and optimization of social media profiles, Social media management and algorithms, Planning, metrics and performance indicators);
3.Content creation and Introduction to digital marketing:
3.1 Good content creation practices in the healthcare sector;
3.2 Interaction with the public, management of comments/messages;
3.3 Digital marketing strategies and increasing reach.

Digital creation

(3 ECTS)

Learning outcomes:

1.Develop methods and creativity around digital projects;
2.Work and apply digital experiments;
3.Develop individual and collective projects.

Contents:

1.Basic introduction to programming;
2.Discovery of digital tools in a creative process;
3.Discovery of digital art;
4.Creation of one (or more) poster(s) or small literary object(s);
5.Restitution in the form of an exhibition or other.

Diversity and equality in university studies

(2 ECTS)

Learning outcomes:

1.Identify question inequalities in access for men and women to different university courses;
2.Conduct a semi-directive interview and know how to report on it;
3.Valuing atypical student career paths.

Contents:

1.Introduction to the notions of gender, stereotypes, parity, discrimination and co-education;
2.Discussions based on observations of inequalities in everyday life. Analysis of data from the "Women in Higher Education" survey. Introduction to the tools of qualitative inquiry;
3.Construction and finalization of the interview grid;
4.Support for survey work, help with difficulties encountered;
5.Interview processing, transcription, analysis;
6.Support in writing a portrait. Selection of representative excerpts from the interview for enhancement: text and image (photo or avatar) to be integrated into templates;
7.Pooling and discussion. Reflection on enhancement. Possibility of publishing portraits on social networks.

Emotional education and health promotion/education

(3 ECTS)

Learning outcomes:

1.Recognize the concepts of Health and Illness, from a holistic perspective, in the different contexts of Health Promotion and Education and Disease Prevention;
2.Recognize the importance and differences in intervention between the field of Health Promotion/Education and Disease Prevention, at primary, secondary and tertiary level;
3.Recognize the concepts of Emotional Intelligence (EI), Emotional Education (EE), Emotional Competence (EC), as health-promoting strategies, from a holistic perspective, at a personal, social, family and community level;
4.Develop EE interventions in contexts of Health Promotion and Education, from a holistic perspective, and Primary Disease Prevention.

Contents:

1.Concepts of Health and Disease from a holistic perspective - Differentiating between Health Promotion and Disease Prevention;
2.Health promotion and disease prevention at primary, secondary, tertiary and quaternary level;
3.EI, EE and CE - Health-promoting strategies from a holistic perspective;
4.EE interventions in Health Promotion/Education and Primary Disease Prevention.

Emotional education strategies: Emo-laboratories

(3 ECTS)

Learning outcomes:

1.Recognize Emotional Education Strategies;
2.Develop the dimension of self-awareness;
3.Develop emotion management and emotional self-control exercises in intra- and inter-relational dynamics;
4.Developing the dimension of self-motivation;
5.Developing the dimension of Empathy;
6.To develop Emotional Education initiatives;
7.Develop Emotional Education strategies in Health Promotion and Education and/or Primary Disease Prevention.

Contents:

1.Emotional Education and Emotion - concept, typology, identification and characteristics;
2.Emotional Awareness or Self-Awareness;
3.Managing Emotions or Regulating Emotional Behavior;
4.Self-motivation;
5.Socio-emotional skills - empathy;
6.Management of Emotions in Groups or Social Skills;
7.Emotional Education in Health Promotion and Education and Primary Disease Prevention programs.

Enogastronomy

(3 ECTS)

Learning outcomes:

1.Realize the importance of regional, national and international gastronomy and enology;
2.Describe and apply techniques for pairing gastronomy with wine;
3.Organize and manage a wine list;
4.Present an articulated vision of gastronomy and wine in the kitchen and at the table and their importance in tourism, hospitality and catering.

Contents:

1.Gastronomy, wine and tourism;
2.Notions of gastronomy;
3.Notions of viticulture and oenology;
4.Classification of wine products;
5.Wine service and wine tasting;
6.Preparing menus;
7.Food and wine pairing.

Exhibition design and curating

(3 ECTS)

Learning outcomes:

1.Have a holistic view of exhibition design and curatorship, establishing links between emerging paradigms and the different types of exhibition spaces;
2.Develop the ability to interpret and reflect on curatorial practices, from a theoretical and diachronic perspective;
3.Understand the nature of curatorial work as a practice of research, conception and organization of exhibitions and cultural events;
4.Identify and understand different approaches and possibilities for intervention in the fields of curatorship and exhibition design;
5.Distinguish between the main curatorial models;
6.Interpret contemporary curatorship and the respective exhibition models.
7.Reflect on the challenge and potential of curatorial practices and forms of exhibition design;
8.Be able to master the process of conceiving and realizing an exhibition in an autonomous and authorial curatorial project.

Contents:

1.Exhibition design and curatorship: Introduction to exhibition design and curatorship; History and main examples from around the world; Types of cultural and museum spaces; Exhibition Design and Curatorship in today's society;
2.Exhibition design: Types of spaces; Exhibition strategies; Temporary and permanent exhibitions: Conception, planning and management of exhibition design and curatorial projects; Setting up exhibitions; Contemporary challenges; Transforming concepts;
3.Curating: Role of the curator; The artist-curator relationship; Field of action of curatorship; Analysis of practical cases with museology and curatorial professionals; Museum and curatorial programming;
4.Exhibition design and curatorial project: Proposal for the development of a practical Exhibition Design and Curatorship project; Conception and planning;
5.Public presentation of the project: Project justification and presentation.

Financial management and performance analysis

(3 ECTS)

Learning outcomes:

1.Carry out an economic and financial analysis of the company;
2.Carry out appropriate treasury/availability management for the company;
3.Evaluate the various medium and long-term financing options available to the company, and choose the one best suited to the company's strategic objectives;
4.Know the main features of performance evaluation.

Contents:

1.Introductory concepts. The company. The role and objectives of financial management.
1.1 Financial statements and their limitations.
1.2 Financial analysis methods and techniques;
1.3 The economic and financial analysis of companies;
2.Short-term financial management:
2.1 Financial needs and resources and the structural cash balance;
2.2 Management of current assets and liabilities;
2.3 Short-term financial planning;
3.Medium and long-term financial management.
3.1Sources of finance for companies in the medium and long term, own and third party sources of finance;
3.2 Cost of capital and optimal capital structure. Dividends and profit distribution policy.
3.3 Financial policies.
4.Analyzing performance using quantitative and qualitative indicators.

Financial support for investment

(3 ECTS)

Learning outcomes:

1.Know the different criteria and methods for evaluating investment projects;
2.Determine the cash flow of an investment project;
3.Analyze the risk inherent in the investment project;
4.Match the sources of finance to the investment to be made.

Contents:

1.Criteria and methods for evaluating investment projects;
2.Determining the cash flow of an investment project;
3.Analysing investment project risk:
3.1 Sensitivity analysis;
3.2 Scenario analysis;
4. Sources of finance for the investment project:
4.1 Own capital;
4.2 Debt capital;
4.3 Community support.

First aid and basic life support

(3 ECTS)

Learning outcomes:

1.List the general principles of first aid;
2.Describe the Integrated Emergency Medical System (SIEM) and the Chain of Survival;
3.Recognize a cardiopulmonary arrest situation;
4.Perform Basic Life Support and AEDs (BLS). 5.Performing first aid in the most common situations.

Contents:

1.First aid:
1.1 Concept;
1.2 General principles of first aid;
1.3 Integrated Medical Emergency System;
1.4 Chain of Survival;
2.Cardiopulmonary resuscitation:
2.1 Adult BLS algorithm;
2.2 BLS algorithm for special situations;
2.3 Automatic External Defibrillation;
3.First aid in the most common situations:
3.1 Airway obstruction;
3.2 Bleeding;
3.3 Burns;
3.4 Soft tissue injuries;
3.5 Fractures;
3.6 Traumatic brain and spinal cord injuries;
3.7 Eye injuries;
3.8 Poisoning;
3.9 Sudden illness (stroke, AMI, hypoglycemia, epilepsy, etc.).

German language

(3 ECTS)

Learning outcomes:

1.Level 1: Familiarize with German language orally and in writing; Learn vocabulary of family, place of living, food, profession, leisure activities, tourism; Use simple statements in German;
2.Level 2: Understand and use expressions of daily life; Learn vocabulary of personal information, shopping, housing, work; Practice communication of daily life in format of presentation, emails, announcements.

Contents:

1.Level 1: Students will become familiar with the language of everyday life, both orally and in writing; Students will learn to talk about themselves and their immediate environment (family, place of living, food, profession, leisure activities, tourism, etc.); Students will learn to use simple statements and communicate with a slow speaker;
2.Level 2: Students will be able to understand expressions frequently used in everyday life (e.g. personal information, shopping, housing, work, etc.); Students will learn how to communicate in everyday situations that only require an exchange of simple information; Students will be able to write short, simple texts (e.g. presentations, e-mails, announcements, etc.).

Healthy aging

(3 ECTS)

Learning outcomes:

1.Reflect on population ageing and the new longevity societies;
2.Understand the health/disease processes related to ageing;
3.Understand the strategies for maintaining quality of life and well-being in the ageing process;
4.Analyze the determinants of healthy ageing: balanced diet, regular physical activity, mental exercise, sleep hygiene, preventive examinations and check-ups, stress reduction, hydration and sun protection.

Contents:

1.Population ageing:
1.1 Life expectancy at birth;
1.2 Healthy life expectancy;
1.3 Old age dependency ratio;
2.New long-lived societies:
2.1 Determinants of longevity;
2.2 Blue Zones;
2.3 Centenarians;
2.4 The impact of longevity on the economy and the labour market;
3.Ageing and health:
3.1 Physiological changes related to the ageing process;
3.2 Psychological changes related to the ageing process;
3.3 Social changes related to the ageing process;
4.Determinants of healthy ageing:
4.1 Physical activity and ageing;
4.2 Physical exercise and ageing;
4.3 Diet and ageing;
4.4 Preventive examinations and check-ups.

Health and social protection for contemporary social challenges

(3 ECTS)

Learning outcomes:

1.Identify contemporary social problems;
2.Analyze and contextualize contemporary social problems;
3.Discuss and use methods of analyzing social problems;
4.Identify the main challenges facing the Health System, from the point of view of migrants and health professionals;
5.Develop specific professional competences in the field of health and social protection.

Contents:

1.The social construction of social problems;
2.Social change and social inequalities;
3.A reflective look at the social problems present in today's society;
4.Analyzing and supporting technical intervention in context of health and social protection;
5.Equity in access to healthcare;
6.Prevention and health promotion;
7.Main challenges of the Portuguese Health System;
8.Language and cultural barriers;
9.Sensitivity to cultural differences;
10.Administrative and legal challenges;
11.Innovation and technology as support tools.

Hospitality and tourism communication

(3 ECTS)

Learning outcomes:

1.Clarifying the specificities of communication in tourism;
2.Identify and analyze the different communication channels;
3.Identify and analyze the different elements of communication policy for tourism products and destinations;
4.Understand the formal business communication processes typically used in the hotel and tourism workplace;
5.Practice the art of effective business communication in the hospitality and tourism workplace;
6.Understand the verbal and non-verbal means of business communication;
7.Adopt effective communication strategies to resolve conflict situations;
8.Provide fast, accurate and efficient information through various business communication tools, particularly technological ones.

Contents:

1.Tourism communication:
1.1 Communication objectives;
1.2 Communication target audiences;
1.3 Communication channels;
1.4 Communication mix;
2.Communication for tourism products and destinations:
2.1 Communication objectives;
2.2 The main means of communication;
2.3 Developing communication programs;
3.Communication in Hospitality:
3.1 Communication channels;
3.2 Elements of communication: verbal and non-verbal;
3.3 Written communication;
3.4 Negotiation and conflict resolution techniques;
4.New communication technologies in hotels and tourism:
4.1 Applications and trends.

Inclusive education

(2 ECTS)

Learning outcomes:

1.Understand the types of disabilities, the main characteristics and the differences between them.
2.Understand the binding and supportive legislation in force for his profession and for children with special needs;
3.Develop organizational skills, decision-making skills, to bring constructive changes in the lives of children with special needs;
3.Identify the methods and strategies of collaboration with professional teachers, psychologists and parents to be successful in his work;
4.Apply different methods and therapies of his work with children with special needs.

Contents:

1.The concept of inclusive education: The Rights of Children with Disabilities, The use of teacher assistants and education support personnel in inclusive education.
2.Child With Special Needs: Clinical Characteristics of Intellectual Disabilities ADHD: Classroom Interventions, Motivating Students Who Encounter Difficulties in Learning.
3.Autism spectrum disorder: Down syndrome, Students with hearing problems, Students with vision problems, Definitions for each of the disorders and their characteristics.

Industrial licensing and legislation

(3 ECTS)

Learning outcomes:

1.Know how to research and collect legislation. Identify and interpret legislation on the licensing and operation of industrial establishments;
2.Know the procedures required for the industrial licensing process;
3.Collect the information needed to complete the documents required for the licensing process for industrial establishments.

Contents:

1.Legislation;
2.The legal framework for industrial licensing (SIR);
3.Classification of industrial establishments;
4.Complementary and related legislation;
5.Entities involved in the licensing process;
6.Procedure for setting up and operating an industrial establishment;
7.Formal requirements and instructional elements of licensing applications.

Infection prevention

(3 ECTS)

Learning outcomes:

1.Know the fundamentals of food safety;
2.Identify the main food-borne infections;
3.Understand the design and implementation of infection prevention and control plans to meet the needs of the healthcare setting;
4.Incorporate the development of infection control procedures in accordance with prevention standards, particularly for HCAI and antimicrobial resistance;
5.Master the concepts of cleaning, disinfection and sterilization;
6.Know the strategies for decontaminating medical devices, equipment and the environment in the context of healthcare;
7.Describe the methods used for waste sorting, packing, and treatment.

Contents:

1.Fundamentals of Food Safety: main types of contamination (chemical, physical, and biological), main pathogenic microorganisms, General Principles of Food Hygiene;
2.Food-born infections;
3.Introduction to Healthcare-Associated Infections (HAIs);
4.National and institutional organization for the prevention and control of HCAI:
4.1Program for the Prevention and Control of Infections and Antimicrobial Resistance (PPCIRA);
5.National Plan for the Prevention and Control of HCAI:
5.1 Individual and collective protection strategies;
5.2 Basic infection control precautions;
5.3 Precautions based on routes of transmission;
6.Concepts of cleaning, disinfection and sterilization;
7.Decontamination of medical devices, equipment and the environment;
8.Sorting and packaging waste, circuits and treatment.

Innovation in cultural and creative industries

(3 ECTS)

Learning outcomes:

1.Conceptualize Innovation in the context of cultural and creative industries (process, product, service, by-product);
2.Identify key themes in the contemporary and future context applicable to the preparation of applications in the cultural and creative areas;
3.Understand the mechanisms for applying for national and international support; 4.Interpret notices and know how to write an application in the cultural and creative areas;
5.Recognize the importance of collaborative work networks and master the steps to achieve them.

Contents:

1.Part 1:
1.1 Innovation Concept;
1.2 Motivations and barriers to Innovation in Cultural and Creative Industries;
1.3 Innovation Models;
1.4 Artistic creativity as a determining factor in Innovation in Cultural and Creative Industries (artistic innovation, aesthetic innovation, stylistic innovation, cultural innovation, etc.)
2.Part 2:
2.1 Evolutionary context of Cultural and Creative Industries;
2.2 Agents in the Cultural and Creative Industries;
2.3 Policies and incentives for Cultural and Creative Industries;
3.Part 3:
3.1 Platforms and communication channels for publishing support notices;
3.2 Interpretation of notices and specialized interlocutors;
3.3 Preparation of applications;
3.4 Collaborative networks for co-promoting projects.

Innovation in tourism

(3 ECTS)

Learning outcomes:

1.Understand the concept of innovation and its evolution;
2.Know and understand the typologies of innovation;
3.Identify and understand the specificities of innovation in services in general and in Tourism in particular, as well as its determinants;
4.Understand the territorial dimension in the innovation process, with emphasis in the innovation models and networks;
5.Understand the relationship between innovation and entrepreneurship, namely the role of digitalization.

Contents:

1.Conceptualization of Innovation:
1.1 Concept of innovation and its evolution;
1.2 Typologies of innovation;
2.Innovation in Tourism:
2.1 Specificities of innovation in services;
2.2 Specificities and typologies of innovation in tourism;
2.3 Facilitators and barriers to innovation in tourism;
3.Territorial Innovation in Tourism:
3.1 Systemic perspective applied to tourism;
3.2 Innovation models based on the territory;
3.3 Innovation networks;
4.Innovation and Entrepreneurship:
4.1 Digitalization and business models;
4.2 Innovation management in organizations;
4.3 Case studies.

Intercultural competence and communication

(3 ECTS)

Learning outcomes:

1.Understand and accept the complexity of culture;
2.Be able to understand issues of minority groups, prejudices and stereotypes;
3.Understand issues of inter-cultural communication: barriers and aids;
4.Understand and be able to cultivate appropriate knowledge, values and skills to be able to interact in cross cultural context;
5.Be able to reflect on their own cultures and their experiences in Germany.

Contents:

1.Introduction to the concept of culture: what is culture, our cultural self, complexities and diversity within our culture;
2.Knowing other cultures: outlook to the world, orientation and goals in education, prejudices and stereotypes, values and attitudes, working with complexity;
3.Culture and communication and developing inter-cultural skills: communicating effectively, language and culture;
4.Issues of integration: inclusion and exclusion, identity and intergroup relations, culture clashes;
5.Intercultural competence, education and careers: embracing multiculturalism.

International business: Engaging in commerce across the globe

(3 ECTS)

Learning outcomes:

1.Examinate both selling into and sourcing from other economies;
2.Identify of firm-specific advantages and match these with opportunities presented in countries and territories across the world;
3.Participation in case study discussions, lectures and mini-projects to develop and reinforce your knowledge of this business area.

Contents:

1.An exploration of the foundations of developing a strategy for doing business globally.

International project management

(3 ECTS)

Learning outcomes:

1.Acquisition of skills and in-depth know-how of the latest instruments, tools and organizational methods that are available and necessary for the implementation of international projects;
2.How to effectively plan a project from scratch to its final implementation;
3.How to make work packages and ensure the right delegation of tasks;
4.Honing your change and risk management skills through effective risk management plans, managing risk escalation; to predict and be prepared for change;
5.Develop strategic communications and problem-solving skills;
6.Understand the intricacies and dynamics of the relationships with the stakeholders;
7.Produce project documentation at all phases of the project, including intermediary reports and final project report, schedules and budget.

Contents:

1.Principles of the Project Manager in complex international projects in various fields of IT;
2.Development cooperation;
3.Engineering;
4.Infrastructure;
5.Marketing, etc.

Internationalization strategies

(3 ECTS)

Learning outcomes:

1.Understand the specificities of approaching foreign markets;
2.Identify international target markets;
3.Know the different ways of accessing international markets;
4.Understand the foundations and procedures of internationalization processes;
5.Learn about new internationalization models and strategies for early internationalization.

Contents:

1.Introduction:
1.1 Concept of internationalization;
1.2 International Environment;
1.3 International trade;
1.4 Main internationalization trends;
1.5 Analysis and selection of international markets;
2.Internationalization process:
2.1 Introduction to internationalization
2.2 Classic and current internationalization models;
2.3 The importance of networks in internationalization;
2.4 Preparing the organizational structure for change;
2.5 Challenges and barriers;
2.6 Success factors and good practices in internationalization.

Interpretation of financial statements

(3 ECTS)

Learning outcomes:

1.Know the purposes and principles of financial reporting;
2.Understand the equity variations that support the preparation of the financial statements;
3.Interpret and employ the financial reporting and other related information.

Contents:

1.Fundamental concepts underlying the study of accounting: equity, account, and double entry bookkeeping;
2.Equity variations: equity variations and accountings rules;
3.Financial statements: balance sheet, equity and financial analysis; income statement, economic and profitability analysis.

Italian language

(3 ECTS)

Learning outcomes:

1.Level 1: Identify and know Italian phonetics and grammar; master phonemes such as [ʃ], [tʃ], [k], [dʒ], [ʎ], as well as simple sentences, nominal morphology (nouns and adjectives - possessive and qualifying - first and second class), articles, contracted articles, the main prepositions for expressing position in space, adverbs; Conjugate the present and past tenses of regular verbs and the main irregular verbs; Be able to understand and use colloquial expressions and express themselves through simple statements;
2.Level 2: Learn the present subjunctive, enabling students to express their opinion on a given subject, and the hypothetical period; Consolidate continuous oral expression, enrich specific vocabulary; Consolidate syntax (grouped pronouns, participial verbs, impersonal form of the verb).

Contents:

1.Level 1: Introduction to the grammatical and phonetic foundations of the Italian language; Vocabulary for communicative situations; Different registers;
2.Level 2: Expression activities; Reinforcement of grammatical and phonetic foundations of the Italian language, and develop specific vocabulary for everyday communication situations; Different Italian registers; Oral interaction.

Job applications in Germany – Procedures and opportunities

(3 ECTS)

Learning outcomes:

1.Winning strategies to find interesting internships;
2.Writing application letters and C.V.s;
3.How to perform well in interviews.

Contents:

1.Adoption of a successfully approach for finding/applying for and getting an internship in Germany in particular and the job market in general;
2.Analysis and research about internships, companies/industries and the trade-off between applicants and companies (experience, knowledge, transferable skills), among other.

Latin

(3 ECTS)

Learning outcomes:

1.Level 1: Discover of the origins of Latin and the casual system; Master simple sentences, nominal morphology (1st and 2nd declensions, adjectives), they know how to conjugate past tenses in the indicative tense; Tackle the complex sentence with a first subordinate proposition, the infinitive proposition, and the concordance of tenses;
2.Level 2: Enrich the mastery of nouns by studying the 3rd declension; Reinforce their knowledge of syntax with the relative subordinate clause and conjugation with the present, imperfect and future tenses of the indicative; Discover the passive voice and deponent verbs; the study of pronouns is completed (demonstrative and personal pronouns);
3.Level 3: Learn the second class of adjectives; Learn the 4th declension; Enrich the syntax by a specifically Latin turn of phrase, the absolute ablative; Know the four tenses of the subjunctive, as well as the imperative mode; Know how to use of the subjunctive in independent clauses and subordinate clauses are considered;
4.Level 4: Know the 5th declension; Deepen the syntax of the subjunctive (conditional system, relative subjunctives...); Know the interrogative pronoun and the indefinite pronoun; Enriched the conjugation with irregular verbs; Analyze the functioning of the verbal adjective and the gerund;
5.Level 5: Discover indirect discourse and familiarize with the version exercise, an opportunity to identify the various circumstantial subordinates; Gain an overview of the Latin language, enabling to read authentic texts from a disciplinary perspective.

Contents:

1.Level 1: Introduction to the grammatical foundations of the Latin language; Learn specific vocabulary; Gradually discover texts related to their disciplinary concerns, enriching their ancient culture at the same time;
2.Level 2: Introduction to the grammatical foundations of the Latin language; Specific vocabulary; Gradually discover texts related to their disciplinary concerns, enriching their ancient culture at the same time;
3.Level 3: Introduction to the grammatical foundations of the Latin language; Specific vocabulary; Gradually discover texts related to their disciplinary concerns, enriching their ancient culture at the same time.
4.Level 4: Introduction to the grammatical foundations of the Latin language; Specific vocabulary; Gradually discover texts related to their disciplinary concerns, enriching their ancient culture at the same time.
5.Level 5: Introduction to the grammatical foundations of the Latin language; Specific vocabulary; Gradually discover texts related to their disciplinary concerns, enriching their ancient culture at the same time.

Lean Production

(3 ECTS)

Learning outcomes:

1.Identify value and waste in processes.
2.Distinguish the Pull system from the traditional system (Push).
3.Understand how a Lean system works and can be implemented in production, as well as some of its main tools.

Contents:

1.Introduction to Lean Production:
1.1 Introduction to the Toyota Production System;
1.2 Lean fundamentals;
1.3 Types of waste.
2.Process analysis:
2.1 Tools for representing processes;
2.2 Indicators for evaluating process performance (KPI);
3.Tools to support the implementation of a Lean system:
3.1 Visual management;
3.2 Pull system;
3.3 Kanban method;
3.4 5S method;
3.5 Standard Work;
3.6 SMED (Single Minute Exchange of Die) method.

Learning in work life

(3 ECTS)

Learning outcomes:

1.Describe how people learn and develop in work-related contexts based on learning theories;
2.Analyze a learning situation in the workplace based on different learning theories;
3.Reflect on and evaluate how learning can be developed and understood in a lifelong learning perspective.

Contents:

1.Lifelong learning;
2.Work-integrated learning (workplace learning);
3.Reflection exercises;
4.Learning theories such as socio-cultural theory, activity theory, and others.

Learn to communicate about your science

(3 ECTS)

Learning outcomes:

1.Learn how to popularize science and research, whatever the discipline or subject;
2.Develop your own project (video, article, column, workshop, etc.) with the support of professionals;
3.Discover university research by meeting/interviewing researchers.

Contents:

1.University research: different laboratories, different statuses. Best practices of science popularization. Why talk about science? What are we talking about? Who do we talk to? How do we talk? Students choose a topic for the final presentation (individually or in pairs);
2.Different media and tools available for sharing science and research (TV or YouTube videos, radio features, exhibitions, interactive workshops, etc.);
3.Scientific sources and making contact with researchers: Practice interviewing;
4.Individual project support (writing workshops for articles, poster layout, experiment set-up for workshops, editing or mixing for videos or radio programs, etc.).

Marketing and digital content management

(3 ECTS)

Learning outcomes:

1.Understand the fundamental principles of marketing;
2.Understand the key concepts of content marketing;
3.Develop the ability to create and implement a content marketing strategy for a specific business or project;
4.Develop the ability to create engaging and relevant content for the target audience;
5.Improve digital content creation skills;
6.Know performance metrics in marketing applied to the digital environment;
7.Know relevant tools and platforms for marketing, such as Google Analytics, social networks and content management software;
8.Know search engine optimization (SEO) techniques to improve the visibility of online content;
9.Evaluate the performance of content marketing campaigns;
10.Know the main trends and developments in marketing and digital content management;
11.Apply knowledge acquired about content marketing and content management.

Contents:

1.Introduction to Marketing:
1.1 Marketing concepts;
1.2 Fundamentals of marketing applied to the digital environment;
1.3 Marketing strategy applied to the digital environment;
2.Content Marketing:
2.1 Introduction to content marketing;
2.2 Content marketing applied to the digital environment;
2.3 Types of digital content;
2.4 Platforms and channels used in content marketing;
3.Digital content creation:
3.1 Webwriting and copywriting strategies;
3.2 Practical application of strategies to attract and retain attention (e.g. humor, appeal to emotion, teaser, etc.);
4.Digital Content Management
4.1 Marketing tools and metrics applied to the digital environment;
4.2 Use of content management tools;
4.3 Key metrics in marketing applied to the digital environment;
4.4 Performance evaluation of content marketing campaigns;
5.Trends and developments in digital content marketing and management.

Natural heritage interpretation

(3 ECTS)

Learning outcomes:

1.Know the concept, theoretical principles and main means of heritage interpretation;
2.Identify conceptual and technical similarities between interpretation and the respective institutions and support infrastructures;
3.Apply techniques and interpretation tools appropriate to specific situations;
4.Design strategies for interpreting natural heritage that contribute to sustainability in protected areas;
5.Use digital interpretation instruments in cultural areas for the promotion of educational processes and for participatory workflows;
6.Assess the potential of natural heritage for the implementation of interpretation projects, considering public policies and applicable support instruments;
7.Adopt critical and creative thinking to create solutions that promote social innovation;
8.Apply collaborative, sustainable and inclusive techniques to influence change in the natural heritage sector.

Contents:

1.Natural heritage interpretation: The antecedents and evolution of the concept of interpretation;
2Particularities of the interpretation of natural heritage;
3.Signs and displays in protected areas and other classified itineraries (PR, GR); 4.Interpretive strategies and techniques applied in protected areas;
5.Conceptual interpretative plans;
6.Personal and Nonpersonal Services;
7.Real-world experience in nature: case studies and contact with experts (biologists, natural heritage managers, environmental monitors, etc.).

Neurophysiology of emotion

(3 ECTS)

Learning outcomes:

1.Know the Neurobiology of Emotion - between the SNC and the SNA;
2.Recognize the functional structures related to Innate Affective Programming;
3.Know the Typology and Characteristics of Emotion: Expression, Polarity, Intensity;
4.Know the Functions and Effects of Emotion on Cognitive Processes, Motivation and Behavior in daily life contexts.

Contents:

1.The Emotional Brain - Prefrontal Lobe / Amygdala / Limbic System relationship, Hippocampus and brainstem nuclei;
2.Innate Affective Programming - Primary Emotions, Neurotransmitters;
3.Typology of Emotions - Primary, Secondary, Social – characteristics;
4.Emotion - Characteristics: Expression, Polarity, Intensity... multidiversity in humans:
4.1 Functions and Effects on Cognition, Motivation and Behavior;
4.2 Functions and effects on learning and short, medium and long-term memories;
4.3 Neural networks and mental maps and their alteration by emotion.

Neurophysiology of the brain

(3 ECTS)

Learning outcomes:

1.Describe the anatomical organization of the nervous system - Central Nervous System and Autonomic Nervous System - particularly the encephalic components involved in emotion, memory and learning;
2.Describe the organization of nervous tissue and the morphological and functional aspects of the neuron as the cell responsible for the functions of the nervous system;
3.Describe the neurophysiological aspects involved in emotion, memory and learning.

Contents:

1.Anatomy of the nervous system – Central nervous system and autonomic nervous system;
2.Brain structures involved in emotion, memory and learning;
3.Neurophysiology: Resting membrane potential and action potential; Action potential conduction. Synapse;
4.Somatosensory and somatomotor systems;
5.Emotion and its relationship with the autonomic nervous system Neuronal circuits involved in memory.

Nutrition of specific groups

(3 ECTS)

Learning outcomes:

1.Know the main energy, nutritional, and food need in the life cycle;
2.Understand the role of nutrition pattern for human, society, and environmental health in the life cycle;
3.Be able to carry out assessment e/or intervention in a community, identifying dietary or nutritional risk and/or defining a strategy for reduce the dietary or nutritional risk.

Contents:

1.Energy and nutritional needs in the life cycle:
1.1 Direct, indirect assessment, and estimation of energy expenditure;
1.2 American and European dietary references;
1.3 Function, food sources and relationship with diseases of the main nutrients: macronutrients, vitamins and minerals;
1.4 Food guides: food wheel and others;
2.Food and cultural patterns:
2.1 Vegetarian, Mediterranean, DASH, MIND and other standards;
2.2 Food and fast food, restaurants and take-away;
2.3 One-heath, food production chains and sustainable food;
2.4 Food in situations of food insecurity and disasters;
3.Disease prevention and nutritional, dietary and other lifestyle recommendation:
3.1 Cancer;
3.2 Type 2 Diabetes;
3.3 Cardiovascular diseases;
3.4 Alzheimer's and cognitive decline;
4.Nutritional supplements and benefit/risk ratio:
4.1 Proteins and amino acids;
4.2 Lipids and fatty acids;
4.3 Antioxidants, vitamins, minerals;
4.4 Caffeine and other stimulants.

Patient safety

(3 ECTS)

Learning outcomes:

1.Understand the concept of safety culture and its importance in improving patient safety;
2.Identify key components and promote strategies for an effective safety culture within healthcare organizations;
3.Recognize the role and practices of leadership and governance in promoting and maintaining patient safety;
4.Identify principles of engagement and accountability of health professionals;
5.Manage effective communication techniques between healthcare professionals and patients;
6.Identify, analyze, communicate and report security incidents;
7.Develop skills in risk management;
8.Know and apply evidence-based safety practices in healthcare;
9.Contribute to the creation and maintenance of safe physical environments for patients and healthcare professionals.

Contents:

1.Safety Culture:
1.1 Definition and its importance in the context of health;
1.2 Constituent Elements Assessment: Methods and tools;
1.3 Promotion strategies;
2.Leadership and Governance:
2.1 Role in Patient Safety;
2.2 Policies and Strategies for Patient Safety;
2.3 Engagement and Accountability;
3.Communication:
3.1 Principles and techniques of communication between healthcare professionals and patients;
3.2 Security Incident Communication;
3.3 Communication Improvement Tools and Strategies;
4.Security Incident Prevention and Management:
4.1 Incident Identification and Reporting;
4.2 Incident Analysis and Learning;
4.3 Strategies and tools for proactive health risk management;
4.4Implementation of Improvements;
5.Safe Practices in Safe Environments:
5.1 Evidence-Based Security Practices;
5.2 Development and Implementation of Safe Clinical Practice Guides;
5.3 Safety in Medication and Clinical Procedures;

Planning and management of cultural events

(3 ECTS)

Learning outcomes:

1.Assess the importance of events for tourist attraction;
2.Identify the roles and profiles of event management professionals;
3.Distinguish some protocol rules inherent to events;
4.Recognize the process of organizing and managing events;
5.Analyze the production/distribution/consumption events' relationship;
6.Plan and organize a tourism/cultural event.

Contents:

1.General context of events:
1.1 Concept of event;
1.2 For-profit and nonprofit events;
1.3 Classification of events;
1.4 Types of events;
1.5 Impacts of events;
1.6 Case Studies;
2.The event organizer: profiles and functions;
3.Protocol and Events;
4.Event Planning
4.1 Strategic planning;
4.2 Phases of event planning;
5.Marketing Events:
5.1 Marketing context;
5.2 Events Marketing mix,
5.3 Marketing planning;
5.4 Marketing strategies;
5.5 Major trends in event marketing;
5.6 Case Studies.

Planning and management of sports events

(3 ECTS)

Learning outcomes:

1.Understand and identify the different types of sport events;
2.Know and apply management and marketing tools to develop sport event projects;
3.Prepare a project for a sporting event with the specificities of the modality and type of event in question;
4.Identify opportunities for local and regional application of different recreation and leisure sport events;
5.Plan a sport, recreation or leisure event.

Contents:

1.Introduction to Sports Events:
1.1 Concept, origin, and historical evolution of events;
1.2 Typology of events;
1.3 Relevance of events;
1.4 Applicable legal framework;
2.Management of Sports Events:
2.1 Ideation/concept of the event – Tools for sports event project planning;
2.2 Stakeholders;
2.3 Scope, WBS & Organization;
2.4 Schedule & budget;
2.5 Project Risk Management;
3.Marketing of Recreational and Leisure Sports Events;
3.1 Types and strategies of Marketing;
3.2 Ambush Marketing and event sponsorship;
3.3 Marketing Experience;
3.4 Quality in sports event management;
4.Regulations, Safety, and Environmental Sustainability in Sports Events:
4.1 Regulation content;
4.2 Safety in sports events;
4.4 Preserving the natural environment in event management;
5. Planning of Sports Events:
5.1 Task distribution;
5.2 Execution;
5.3 The live Sports Event: Control and Evaluation;
5.5 Report & Project Closure;
6.Case Studies of Recreational and Leisure Sports Events.

Positive psychology and mindfulness

(3 ECTS)

Learning outcomes:

1.Know the new Science of Happiness;
2.Understand happiness;
3.Build resilience in life;
4.Know how to use personal strengths to increase life satisfaction;
5.Identify positive states and their connection with success: hope, wisdom, creativity, flow, spirituality;

Contents:

1.Introduction to “Positive Psychology”: contributions to personal development and success;
2.Insights on students personal strengths, positive emotions and habit building;
3.How to increase life satisfaction in the personal and professional areas of life;
4.Basic ABC of various mindfulness exercises and reflect on the benefits the students can gain for their every day life.

Productivity management

(3 ECTS)

Learning outcomes:

1.Understand the importance of productivity management;
2.Understand the benefits of measuring productivity;
3.Plan and implement a productivity assessment model;
4.Establish productivity indicators;
5.Identify critical areas of low productivity;
6.Develop preventive and corrective measures against low productivity;
7.Establish measures to increase productivity.

Contents:

1.Productivity in companies:
1.1 Concept of productivity;
1.2 Productivity and efficiency;
1.3 Productivity and organizational performance;
1.4 The relationship between productivity and costs;
2.Productivity measures:
2.1 How to measure productivity;
2.2 Apparent productivity;
2.3 Individual productivity;
2.4 Collective productivity;
2.5 Total, average and marginal productivity;
2.6 Internal and external measures;
3.Productivity assessment system:
3.1 Establishing productivity goals;
3.2 Establishment of performance indicators for each goal;
3.3 Identification of problem areas;
3.4 Establishing preventive and corrective measures;
4.Implementation of productivity improvement measures:
4.1 Identification of areas for improvement;
4.2 Determining measures to improve productivity;
4.3 Implementing improvement measures;
4.4 Evaluation of results.

Programming of cultural and educational events

(3 ECTS)

Learning outcomes:

1.Understand Art and Culture as forms of dialogue between peoples;
2.Recognize the importance of Art and Culture in Aesthetic and Artistic Education of citizens;
3.Know cultural reality in which the programmer/manager is inserted;
4.Know national cultural and artistic reality;
5.Know different cultural spaces, characteristics, values, conditions, management models, action areas;
6.Understand the Programming meaning;
7.Understand the meaning of Cultural and Artistic Management;
8.Identify the profile of the Programmer/Cultural Managet;
9.Recognizes in the act of programming formative and educational art function; 10.Recognizes in the act of programming a contribution to the aesthetic enjoyment, well-being and citizens quality life;
11.Acquire management skills, programming, mediation of cultural and artistic projects;
12.Promote, establish, provoke dialogue between different artistic languages;
13.Acquire planning skills, programming and management of cultural and artistic projects.

Contents:

1.Art and Culture;
2.Contemporary artistic trends;
3.Dialogue between the arts;
4.The Performing Arts;
5.Programme;
6.The Programmer / Mediator / Manager;
7.Cultural facilities;
8.The public.

Promoting health and safety in the workplace

(3 ECTS)

Learning outcomes:

1.Consolidate health promotion principles and approaches:
2.Identify, assess and prevent occupational risks;
3.Promote innovation in health and safety at work;
4.Develop a sustainable safety culture;
5.Promote people's health and well-being at work.

Contents:

1.The concept of health promotion and its historical evolution;
2.Principles and strategies of health promotion;
3.Approach to health promotion throughout the life cycle;
4.Health promotion project;
5.Fundamentals of Safety and Health at Work;
6.Strategic management of health and safety at work;
7.Emerging Technologies in Health and Safety at Work;
8.Development of projects promoting safety and health in the workplace.

Quality in health

(3 ECTS)

Learning outcomes:

1.Understand the terminology and concepts in the field of healthcare quality;
2.Identify the needs for quality management in healthcare, dimensions of quality, their measurement, indicators, and quality standards;
3.Recognize normative quality references in healthcare;
4.Distinguish between certification processes and accreditation processes;
5.Identify the role of auditing in healthcare services;
6.Develop critical capacity in assessing healthcare quality, linking concepts of performance and strategy.

Contents:

1.Health Quality. Promotion of Health Quality;
2.The Portuguese Quality System (Subsystems: Qualification, Metrology, Standardization);
3.Costs of quality;
4.Certification and Accreditation,
5.Quality Audits;
6.Quality control in laboratories and pharmacies;
7.Food safety management systems;
8.International Hospital Accreditation Program;
9.National Strategy for Health Quality / European Union Health Program.

Risk management and compliance

(3 ECTS)

Learning outcomes:

1.Identify the various sources of risk for the organization;
2.Know the methods for mitigating and managing risks;
3.Know Portuguese and European anti-corruption and fraud legislation;
4.Apply appropriate principles of responsible business practices to resolve issues related to individual responsibility, corporate social responsibility (CSR), leadership responsibility (corporate governance), environmental responsibility and cultural responsibility;
5.Know the mechanisms for preventing and detecting corruption;
6.Have practical knowledge of how to monitor infringements obtained through risk management and compliance processes;
7.Develop conduct and ethics manuals;
8.Define and design risk management and compliance processes.

Contents:

1.Risk typologies;
2.The risk management process;
3.Individual responsibility, ethics and organizational social responsibility;
4.Governance, risk management and compliance – fundamental principles;
5.Anti-corruption and fraud legislation and corporate and financial sector compliance;
6.Compliance and ethical conduct manuals:
6.1 Regulatory compliance: Recognition of wrongdoing, investigation and enforcement, program evaluation;
6.2 Product regulatory compliance and trade regulation compliance;
6.3 IT governance, risk management and compliance: Understanding software license agreements;
6.4 Designing compliance processes;
6.5 Drawing up ethical conduct manuals;
7.Future challenges in risk management and compliance.

Scientific communication and fake news

(3 ECTS)

Learning outcomes:

1.Develop scientific critical thinking skills;
2.Become aware of the problem of fake news;
3.Learn how to treat a topical issue with scientific rigor;
4.Learn scientific communication methods.

Contents:

1.Presentation of the UEL and its final objective. Presentation of the general context of scientific communication;
2.Presentation of the problem and how to differentiate between true and false scientific information. Students choose the topic they wish to address;
3.Communication and mediation. Examples of communication and popularization, and meetings with mediators;
4.Writing a popularized text with accompaniment.

Secularism

(2 ECTS)

Learning outcomes:

1.Understand the principle of secularism from a historical and legal perspective;
2.Develop a methodology for analyzing situations;
3.Acquire professional skills in secularism, an essential principle in education, administrations, associations and companies;
4.Acquire knowledge on a fundamental issue for our society and citizenship, so as to be able to grasp current debates.

Contents:

1.Introduction to the historical origins of the principle of secularism. The aim is to study the context in which this principle emerged in France, its history and the debates and questioning surrounding representations of laïcité;
2.Presentation of the textual foundations of the principle of laïcité and the rights and obligations that flow from it, using specific examples;
3.Development of a methodology for dealing with situations involving respect for the principle of secularism in socio-educational structures.

Skills for change

(3 ECTS)

Learning outcomes:

1.Understand the organization as a vehicle for change;
2.Identify various dimensions associated with organizational change;
3.Identify the challenges and opportunities associated with organizational change;
Identify the need for a shared vision, leadership and a willingness to innovate in order to build change;
4.Understand the importance of personal, professional and organizational commitment to the change process;
5.Identify and understand the relational and ethical aspects associated with organizational change;
6.Understand the importance of teams in the process of organizational change;
7.Identify aspects related to multiple intelligences as indicators of organizational change;
8.Understand the importance of preparing teams for organizational change;
9.Identify factors such as proactivity and intrapreneurship as facilitators of change.

Contents:

1.The organization:
1.1 The organization as a vehicle for change;
1.2 The dimensions of organizational change;
1.3 The process of organizational change;
1.4 Challenges and opportunities associated with organizational change.
2.Building organizational change:
2.1 Shared vision, leadership and willingness to innovate;
2.2 The importance of leadership in driving change;
2.3 Preparing the organizational structure for change;
2.4 Commitment to change;
2.5 Personal, professional and organizational commitment to change;
3.Communication and ethical aspects associated with change:
3.1 Relational aspects associated with change;
3.2 Organizational change and ethics;
3.3 Ethical principles associated with organizational change;
4.Teams and organizational change:
4.1 Rational and emotional intelligence as indicators of organizational change;
4.2 Preparing teams for organizational change;
4.3 Proactivity and intrapreneurship as factors facilitating change;

Social cognition

(3 ECTS)

Learning outcomes:

1.Apply critical thinking to question and reflect on the influence of social cognitive processes on individual and group behaviors;
2.Use social cognition theories and concepts to understand social phenomena in various contexts, such as health, education, technology, and organizations;
3.Develop skills in quantitative and qualitative research methods relevant to social cognition;
4.Learn to design experimental and non-experimental studies, analyze data, and interpret results in the context of social cognition;
5.Cultivate an understanding of the cultural dimensions of social cognition and how these influence perception, attitudes, and behaviors;
6.Recognize ethical issues in research and practice of social cognition and adopt responsible approaches when dealing with diverse populations;
7.Enhance communication skills to present ideas, theories, and research findings clearly and effectively, both orally and in writing.

Contents:

1.Social Cognition: Theories, Models;
2.Theories of Attitude Formation and Change;
3.Social Identity and Social Influence;
4.Group Dynamics, Decision Making;
5.Emotions and Social Cognition;
6.Cognitive Processes in Social Contexts;
7.Applications of Social Cognition;
8.Research in Social Cognition.

Social intervention with risk groups

(3 ECTS)

Learning outcomes:

1.Identify and analyze risk factors as well as the notion of environmental risk and biological risk, protective factors and resilience;
2.Understand specific situations of vulnerability related to certain age groups or personal/social events;
3.Understand the notion of developmental risk;
4.Know the regulatory legislation in this area and the community institutions responsible for social intervention with specific audiences;
5.Apply methodologies and programs to prevent, support and refer people at risk; 6.Integrate interventions aimed at different social groups from a socio-educational perspective;

Contents:

1.Conceptualizing risk: from social problems to populations at risk:
1.1 Concepts of risk, risk groups, risk behavior, developmental risk, protective factors and resilience;
2.Social intervention in risk contexts:
2.1 Social intervention process(es) and strategies: case management; social monitoring; community intervention programs; help groups; peer education; social reintegration, harm reduction and harm minimization programs;
3.Legal framework and mapping of social/institutional responses in the areas of Justice, Health and Education;
4.Application in some professional contexts:
4.1 Social intervention with victims of crime;
4.2 Social intervention with children and young people at risk;
4.3 Social intervention in emerging themes/areas (immigrants, LGBTI, homeless).

Social legislation

(3 ECTS)

Learning outcomes:

1.Understand Constitutional Law and the constitutionalizing of social rights;
2.Debate the social policy framework for the right to health;
3.Discuss the national and international framework of the right to health;
4.Debate core aspects of ethics in the right to health.

Contents:

1.The Constitution of the Portuguese Republic and social rights:
1.1 Law and Social State;
1.2 Fundamental rights and economic, social and cultural rights;
1.3 Personality rights;
2.Social policies and the right to health:
2.1 The Health policies in the democratic regime;
2.2 The role of the welfare state;
2.3 The public health model and the private health model;
3.The legal framework of the right to health:
3.1 The guidelines of international treaties;
3.2 The Basic Health Law;
3.3 The rights and duties of users;
4.Law, health and ethics:
4.1 The National Ethics Council;
4.2 Information/consent and health;
4.3 Civil and criminal liability.

Social mediation

(3 ECTS)

Learning outcomes:

1.Acquire legal and foundational knowledge about Mediation;
2.Learn about mediation models, perspectives, and theories, analyzing their impact on mediation practices, especially social mediation;
3.Analyse the practical differences and similarities between the various types and models of mediation;
4.Know the stages of the mediation process, its techniques, and resources;
5.Develop professional competences specific to the social mediator.

Contents:

1.Fundamentals and concepts of Mediation:
1.1 Concepts of conflict, mediation, and alternative means of resolution;
1.2 Perspectives, theories, models, and types of mediation;
1.3 Legal framework for mediation;
2.The mediation process:
2.1 Stages of the mediation process;
2.2 Fundamental conditions of mediation;
3.Mediation techniques and resources:
3.1 The mediator's profile;
3.2 Specific mediation techniques.

Spanish language

(3 ECTS)

Learning outcomes:

1.Level 1: Introduce yourself; Ask questions; Request personal information; Talk about your skills and plans; Situate yourself in space; Describe places where you live; Talk about the climate;
2.Level 2: Talk about the objects around us, express our needs, make purchases and learn to ask the price, size and color of clothes/accessories and express our preferences; Describe the place where you live (house/apartment) and situate it in your environment (neighborhood/city/country), ask for directions and know how to point someone in the right direction; Talk about other people (their appearance and character), express tastes and interests, qualify them, talk about habits, frequency and express the time of day.
3.Level 3: Talk about habits and difficulties, express duration, give advice, describe feelings. Recount past events and organize a narrative, using the correct tenses; Talk about your environment, situate in space and compare. Handle codes in communication situations (introductions, invitations, etc.), decipher different types of messages; Talk about hobbies and projects; Argue and debate about past and present events; Recount past anecdotes, organize them and express emotions.

Contents:

1.Level 1: Learn Spanish quickly in real-life situations; A textbook will be required to complement the course material (audio, support materials, grammar and exercises); Cultural notions from Spain and Latin America will be added to the lessons;
2.Level 2: A textbook will be required to complement the course material (audio, support materials, grammar and exercises); Cultural notions from Spain and Latin America will be added to the lessons;
3.Level 3: A textbook will be required to complement the course material (audio, support material, grammar and exercises); Cultural notions from Spain and Latin America will be added to the lessons.

Theatrical improvisation

(3 ECTS)

Learning outcomes:

1.Develop communication skills through oral expression and awareness of the body and movements.
2.Improve listening, observation and cooperation skills
3.Learn to consider mistakes and risk-taking as a source of learning and creativity.

Contents:

1.Acceptance, with the implementation of the "Yes and" golden rule of theatrical improvisation;
2.Storytelling, with the particularity of theatrical improvisation, where the creative process is both collective and spontaneous;
3.Using the body as a means of expression, with basic mime techniques;
4.Exploration of the concept of "status" developed by Keith Johnstone. Status" can be defined as a state of being that we all experience in our social interactions;
5.The realization that mistakes and risk-taking are an opportunity for progress and a source of creativity in improvisation as in many other fields;
6.Interpretation through sincerity and emotional work.

Time management

(3 ECTS)

Learning outcomes:

1.Understand time as a personal and organizational resource;
2.Understand the implications of time management in the organization of work;
3.Understand the importance of proper time management in work teams;
4.Distinguish the individual, personal, collective and organizational view of time;
5.Identify procrastination as an obstacle to productivity;
6.Understand the importance of proper time management in stress management;
7.Identify the various laws and principles of time management;
8.Understand the importance of checklists and the importance of prioritizing tasks;
9.Understand and apply the GUT matrix;
10.Understand the need to introduce SMART objectives;
11.Understand the importance of delegating tasks;
12.Develop a personal/professional time management plan;
13.Define objective indicators and targets for the personal, professional and organizational time management plan.

Contents:

1.The importance of time management: Time as a personal, collective and organizational resource; The implications of time management for work organization; Time management and work teams;
2.Challenges in time management: The individual, personal, collective and organizational view of time; The chronotype and time management; Procrastination as an obstacle to productivity; Multitasking and productivity; Time management and stress management;
3.Principles of time management: Parkinson's law; Pareto's Law (80|20); Law of homogeneous work sequences; Law of counter productivity of time; Law of alternation; Principle of opportunity; Law of the subjective dimension of time;
4.Time management strategies and tools: Use of checklists; GUT matrix; Grouping and automating tasks; SMART objectives; Delegation of tasks;
5.Time management plan: Personal, professional and organizational time management plan; Definition of indicators, objectives and targets.

Tourism consumer and market segmentation

(3 ECTS)

Learning outcomes:

1.Identify conceptual framing and theoretically tourist consumer behavior;
2.Identify and characterize the internal determining factors of the tourist consumer;
3.Identify and characterize the external determining factors of the tourist consumer;
4.Identify and analyze the various stages of the tourist consumer buying process;
5.Identify the criteria for segmenting the tourist market;
6.Identify and characterize the various types of tourist consumer.

Contents:

1.Studying consumer behavior:
1.1 Importance of studying consumer behavior;
1.2 Internal factors determining the tourist consumer;
1.3 External factors determining the tourist consumer;
1.4 The tourist consumer's purchasing decision process;
2.Tourism market segmentation:
2.1 Segmentation criteria;
2.2 Segmentation, targeting and positioning;
2.3 Types of tourist consumer.

Tourism internationalization

(3 ECTS)

Learning outcomes:

1.Understand the dynamics of international tourist flows;
2.Identify and understand emerging and attractive tourism markets in the scope of internationalization in tourism;
3.Understand the importance of inbound tourism for low density territories.

Contents:

1.International tourism:
1.1 Concept and determinants of international tourist flows;
1.2 The importance of inbound tourism for low-density territories;
2.International business in tourism:
2.1 Forms of international expansion;
2.2 The importance of brands;
2.3 Risk in international business;
2.4 The competitiveness of the international market.

Tourism legislation

(3 ECTS)

Learning outcomes:

1.Understand the Law in its practical aspect, understanding its application, interpretation and organization in tourist developments;
2.Know the legislation that regulates the bases of Tourism Law, as well as the specific legislation relating to economic activities related to Tourism;
3.Interpret practical situations of legislation that regulate the various aspects of Tourism Law;
4.Understand tourism and leisure as activities with territorial, economic and social incidence and impact;
5.Recognize legal planning as a tool to preserve tourist resources, minimize negative effects and optimize the benefits of tourism;
6.Recognize the importance of studying conflict resolution relating to economic activities related to Tourism.

Contents:

1.Legal regulation in Tourist Enterprises:
1.1 Hotel establishments, tourist villages and tourist apartments;
1.2 Housing tourism enterprises and tourism enterprises in rural areas;
1.3 Parks and Camping and Caravaning;
1.4 Leaderboards;
1.5 Requirements for equipment for common use in tourist resorts;
1.6 Fees to be charged for audits by Turismo de Portugal;
2.Recognition of nature tourism activities:
2.1 Conditions for access and exercise of activity by tourist entertainment companies and maritime-tourist operators;
2.2 Tourist entertainment activities developed in areas integrated into the National System of Classified Areas (SNAC);
2.3 Nature tourism activities in Protected Areas;
3.Complaints and means of conflict resolution:
3.1 The complaint process;
3.2 Alternative dispute resolution.

Trails and routes in nature

(3 ECTS)

Learning outcomes:

1.Know the procedures and alternatives for planning, construction, maintenance and route approval;
2.Plan the implementation of a pedestrian route, carry out or guide construction and maintenance activities;
3.Plan and implement actions that evaluate parameters relevant to the quality of the infrastructure and its use;
4.Know the requirements and regulations applicable to multi-use trails and competition or touring activities in motorized vehicles;
5.Know how to consider the advantages and disadvantages of this type of interventions and activities for Tourism and Nature;
6.Know the reasons for interest in nature trails, their impacts and examples of implementation in Portugal and around the world.

Contents:

1.Pedestrianism:
1.1 Choosing walking routes;
1.2 Classification of walking routes;
1.3 Signage;
2.MTB Centers:
2.1. General and specific conditions for the approval of mountain biking centers;
2.2. Promoting entities;
2.3. Phases of the approval process;
3.Planning a route:
3.1. Assessment of tourist potential, definition of objectives, selection of routes, gathering information on resources and limitations;
3.2. Point selection;
3.3. Interpretation of the terrain in maps and photographs;
3.4. Layout of routes and altitudinal profiles;
3.5. Field marking activities based on charts and GPS;
3.6. Analysis of sustainability, usability and accessibility;
3.7. Sizing of activities.