

**EURO-INF**  
**FRAMEWORK STANDARDS**

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**SPECIFIC CRITERIA FOR**  
**INFORMATICS DEGREES**  
**2026**



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This document is an extract of the **Euro-Inf Framework Standards and Accreditation Criteria** as adopted by the Executive Board of the European Quality Assurance Network for Informatics Education (EQANIE) in April 2026.

This extract includes the **Subject Specific Criteria for Informatics Degrees**, which define the expected programme outcomes for First and Second Cycle degrees.

## 1. Subject Specific Criteria: Programme Outcomes for Informatics Degrees

Programme Outcomes can be described as quality standards for knowledge, skills and competences that graduates of an accredited course should have achieved as the educational base for practising their profession or for post-graduate studies. They will vary in extent and intensity in accordance with the differing objectives of First and Second Cycle degree (FCD and SCD) programmes. In the Euro-Inf Framework they are arranged into the following six categories:

- Underlying Conceptual Basis for Informatics
- Analysis
- Design and Implementation
- Economic, Legal, Social, Ethical and Environmental context
- Informatics Practice
- Other Professional Competences

A wide range of degree programmes fall within the general area of informatics but all graduates should be aware of the wider spectrum of informatics and of the underlying concepts relevant to their programmes of study.

The detailed description of these areas, and their typical instantiation at First and Second cycles, are given in the following chapters 2 & 3.

The first category “**Underlying Conceptual Basis for Informatics**” therefore identifies capabilities that are essential to satisfying the other programme outcomes, independently from the specific informatics specialisation and application context.

“**Analysis**” means explaining or classifying facts and problems based on models and theories commonly used in informatics, assessing solution methods and evaluating proposed or existing solutions.

“**Design and Implementation**” involve the creation and development of an economically viable product, process or system to meet a defined need. These involve significant technical and intellectual challenges and can be used to integrate informatics knowledge and skills to the solution of real and complex problems.

Computing activity can have impacts on individuals, on commerce, on society and on the environment. The “**Economic, legal, social, ethical and environmental context**” category identifies the skills that graduates need to manage their activities and to be aware of the various legal and ethical constraints under which they are expected to operate. It includes an understanding of the need for a high level of professional and ethical conduct in informatics and a knowledge of professional codes of conduct and a commitment on different aspects (e.g., product and services safety, sustainability, inclusion, etc.) with relevant benefits to the society.

**“Informatics practice”** identifies the practical capabilities that graduates should have demonstrated through the application of informatics skills in a variety of situations. They should have demonstrated that they have an understanding of the contexts in which informatics knowledge can be applied (e.g. development and application of hardware and software, operation and management of informatics systems, etc), and have functioned successfully in at least one of these contexts.

Transversal behavioural skills (sometimes included in the popularly known group of soft skills but also mentioned as “non-cognitive”, “socioemotional”, “key” and “core” skills) are crucial for effective action in virtually any kind of work, learning or life activity. They are “transversal” because they are not exclusively related to any particular context. These skills listed under the category **“Other Professional Competences”** include thinking skills that allow the individual to deal with abstract cognitive concepts (e.g., critical thinking, analytic thinking, etc.), self-management skills and competences linked to the ability of individuals to make use of own potential (e.g., working efficiently, adopting a proactive approach, etc.) and social and communication skills that enable the individual to interact with other people (e.g., communicate, collaborate with others in teams, lead others, etc.). The same arrangement of categories is maintained for the programme outcomes of Second Cycle Degree (SCD) programmes. They apply in addition to the competences described for graduates of FCD programmes. Although all six outcome categories are used to describe expected outcomes of both FC and SC programmes, there are important differences in the requirements at the two levels.

These differences in the levels of First and Second Cycle accredited informatics programmes should be considered in the interpretation of the programme outcomes by HEIs and by review teams. For instance, whereas First Cycle graduates should be able to formally specify, conceptualize, implement and roll out solutions to complex and unpredictable real-world problems using informatics, Second Cycle graduates are, in addition, expected to conduct independent professional work. They are able to develop new insights and approaches and to integrate knowledge from different disciplines, as required in research and innovation (for reference, see Appendix 4.3 regarding the e-CF levels of proficiency in competences’).

No restriction is implied or intended by this document in the design of programmes to meet the specified programme outcomes. For example, the requirements of more than one outcome could be satisfied within a single module or unit such as individual or group project work. Similarly, it is possible that some programmes are designed such that the requirements of the Other Professional Competences category are taught and assessed entirely within modules or units designed to satisfy the requirements of other outcomes, whereas in other programmes the Other Professional Competences requirements are taught and assessed in modules or units designed specifically for this purpose.

## **2. Outcomes for First Cycle Degree (FCD) Programmes**

### **Underlying Conceptual Basis for Informatics**

Graduates of a FCD programme should be able to:

- describe and explain the essential facts, concepts, theories and mathematical methods relevant to computing, computing equipment, computer communication and informatics applications as appropriate to their programme of study
- outline the characteristics of relevant state-of-the-art hardware and software and their practical application
- think algorithmically and develop larger software programs in a structured way
- outline relevant historical and current developments in informatics and show insight into possible future trends and developments
- demonstrate awareness of the fact that the creation of interdisciplinary informatics applications also requires in-depth specialist knowledge of other disciplines and to acquire and integrate this knowledge into their own specialist area(s)

### **Analysis**

Graduates of a FCD programme should be able to:

- communicate and cooperate with task owners and future system users and to quickly familiarize with new application contexts
- use a range of techniques to identify the requirements of real-world problems in their overall context, assess their complexity and evaluate the feasibility of their solution using informatics techniques
- describe a problem and its solution approach at varying levels of abstraction
- model informatics systems using suitable decomposition strategies and define interfaces in such a way that the systems are maintainable, expandable and reliable
- select and use relevant analytic, modelling and simulation methods
- investigate the extent to which an informatics system meets the criteria defined for its current use and future development

### **Design and Implementation**

Graduates of a FCD programme should be able to:

- specify and design computing/network hardware/software which meet specified requirements including time and budget constraints
- describe the phases involved in different life cycle models used for specifying, building, testing and commissioning new systems and for maintaining existing systems
- select and use appropriate process models, programming environments and data management techniques for projects involving traditional applications as well as emerging application areas
- describe and explain the design of systems and interfaces for human-computer and computer-computer interaction
- apply relevant practical and programming skills to the creation of computer programs and/or other informatics artefacts
- identify and implement appropriate solution patterns, algorithms, and data structures, and apply systematic quality assurance

- use tools, processes, and algorithms for drawing knowledge and insight from data, as well as for creating Artificial Intelligence systems performing tasks typically associated with human intelligence

### **Economic, legal, social, ethical and environmental context**

Graduates of a FCD programme should be able to:

- demonstrate awareness of the need for a high level of professional and ethical conduct in informatics and a knowledge of professional codes of conduct
- explain how commercial, industrial, economic and social contexts affect informatics practice
- identify relevant legal requirements governing informatics activities, including data protection, intellectual property rights, contracts, product safety and liability issues, personnel issues, sustainability (environmental, economic and social) and health, accessibility and safety
- explain the importance of information privacy and security issues in relation to the design, development, maintenance, monitoring and use of informatics-based systems

### **Informatics practice**

Graduates of a FCD programme should be able to:

- demonstrate an awareness of appropriate technical codes of practice and industry standards, including cybersecurity standards
- describe and explain management techniques appropriate to the design, implementation, testing, deployment and maintenance of informatics systems, including project management, configuration management, change management, etc., including relevant automated techniques
- identify technical risk issues, including security, and demonstrate risk reduction and risk management techniques
- design and conduct appropriate practical investigations (e.g. of system performance or system security), to interpret data and draw conclusions

### **Other Professional Skills and Competences**

Graduates of a FCD programme should be able to:

- adopt self-learning and develop personal potential as a foundation for professional development
- organise their own work independently, demonstrate initiative and exercise personal responsibility
- communicate effectively both verbally and using a variety of communications media to a variety of different audiences
- identify different ways of organising teams and the various roles within a team
- participate effectively in informatics teamworking and networking
- undertake literature searches and reviews using databases and other sources of information

### **3. Outcomes for Second Cycle Degree (SCD) Programmes**

#### **Underlying Conceptual Basis for Informatics**

Graduates of a SCD programme should be able to:

- demonstrate either deepened knowledge of a chosen specialisation or broadened knowledge of informatics in general
- explain in depth relevant concepts and scientific principles appropriate to their programme of study, some of which may be from outside informatics
- demonstrate awareness of topics at the forefront of their specialisation and evaluate their significance

#### **Analysis**

Graduates of a SCD programme should be able to:

- transfer, adapt or acquire suitable analysis methods in order to assess informatics solutions for complex, unpredictable problems at the interface between different specialist areas or disciplines
- use fundamental knowledge to investigate new and emerging technologies and methodologies

#### **Design and Implementation**

Graduates of a SCD programme should be able to:

- describe and explain design processes and methodologies relevant to their subject area and be able to apply and adapt them in unfamiliar situations
- specify and complete informatics tasks that are complex, incompletely defined or unfamiliar ensuring a proper quality assurance
- apply state-of-the-art or innovative methods in problem solving, possibly involving the use of other disciplines
- demonstrate that they can think creatively to develop new and original designs, approaches, methods, etc

#### **Economic, legal, social, ethical and environmental context**

Graduates of a SCD programme should be able to:

- demonstrate awareness of the need for a high level of professional and ethical and principled conduct in informatics
- identify relevant legal, commercial, industrial, economic and/or social contexts appropriate to their area of study and practice and explain their relevance and consequences in practical terms for adaptation and compliance in professional activities
- evaluate risk and information security and privacy issues relevant to their area of study to adopt appropriate measures

#### **Informatics practice**

Graduates of a SCD programme should be able to:

- describe and explain applicable techniques, including AI-based techniques, and methods for their particular area of study and identify their limitations, including in the area of cybersecurity

- apply informatics techniques to new application areas, considering relevant commercial, industrial, social, and sustainability constraints
- contribute to the further development of informatics

### **Other Professional Competences**

Graduates of a SCD programme should be able to

- plan self-learning and improve personal performance as a foundation for lifelong learning and ongoing professional development
- organise their own work independently and with efficiency, demonstrating initiative and exercising personal responsibility
- communicate effectively both verbally and using a variety of communications media to a variety of different audiences and preferably also in a second language
- identify and develop the skills required to work with and lead a team that may be composed of people from different disciplines and different levels of qualification
- conduct comprehensive and critically informed literature reviews using advanced information and analytical methods

## 4. Appendix

### 1. Terminology

- **Informatics** is the systematic study of algorithmic processes - their theory, analysis, design, efficiency, implementation, and application - that describe and transform information (ACM, 1989).
- **Awareness:** for some of the topics included in these outcomes, graduates need to have some familiarity with the topic and to know why it is important within the general context of informatics, but not necessarily in-depth knowledge of that topic.
- **Complex:** problems, artefacts or systems that are complex involve dealing simultaneously with a sizeable number of factors that interact and require deep understanding, in relation both to their analysis and to their design and implementation.
- **Quality Assurance:** A structured and systematic process encompassing testing, evaluation, and review activities to verify that software or systems conform to specified functional and non-functional requirements—including performance, usability, and security. It ensures that systems operate reliably under defined conditions and meet the expectations of users and stakeholders. Quality assurance supports continuous improvement and accountability in the development lifecycle, contributing to the delivery of robust, maintainable, and high-quality informatics solutions.

### 2. Selection of some titles of Informatics-related degree programmes

Although Informatics degree programmes all educate the same typical skills at their core, they vary in terms of their programme titles, module combinations in their curricula, or different divisions of the curriculum between Informatics content and application knowledge.

This results in a wide variety of Informatics degree programmes on offer, which is reflected in the different titles of the programmes, even if the titles only allow rough conclusions about the programme content.

According to the ASIIN Subject-Specific Supplementary Guidelines<sup>1</sup> and the GI recommendations<sup>2</sup> of 2000-2016, three groups of Informatics-related degree programmes can be distinguished:

- Type 1: degree programmes with a clear focus on Informatics
- Type 2: degree programmes which are mainly Informatics programmes but are focusing on a specific area of application
- Type 3: Interdisciplinary degree programmes with a proportion of Informatics that is equal to the proportion of the other disciplines involved.

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<sup>1</sup> [https://www.asiin.de/files/content/kriterien/ASIIN\\_FEH\\_04\\_Informatik\\_2018-03-29.pdf](https://www.asiin.de/files/content/kriterien/ASIIN_FEH_04_Informatik_2018-03-29.pdf)

<sup>2</sup> <https://gi.de/fileadmin/GI/Hauptseite/Service/Publikationen/Empfehlungen/akkreditierung.pdf>; confirmed in <https://dl.gi.de/items/0986c100-a3b9-47c8-8173-54c16d16c24e> (2016-07-01)

Table 1 lists a selection of customary titles of Informatics-related degree programmes for which the criteria mentioned in this document can be applied with varying degrees of emphasis. For Type 3-degree programmes, special attention must be paid to ensuring that the Informatics content is not too short in order to be able to certify the degree programme as Informatics-related.

Type	Degree Programme title	
1	Informatics,	Computer Science
	Computer Engineering,	Digital Engineering
	Software Engineering, Software Design, Software Technology	Software Systems, Mobile and Distributed Computing,
2	Artificial Intelligence, Machine Learning, Cognitive Systems, Applied Statistics	Data Science, Cognitive Computing, Applied Mathematics,
	Cyber Security, Information Security,	IT Security, Digital Forensics
	Web Development,	Web Engineering
	Media Informatics, Human-Computer Interaction, User Experience Design,	Digital Media, Interactive Media Design, Usability Engineering
	Visual Computing	
	Games Engineering, Game Technologies	Virtual Reality & Game Development,
3	Business Informatics, Administrative Informatics	Business Information Systems,
	Medical Informatics, Healthcare Information Systems Biomedical Informatics, Ecoinformatics, Life Science Informatics,	Health Informatics, Clinical Informatics, Bioinformatics, Computational Life Sciences, Nursing Informatics
	Neuroinformatics	
	Computational Engineering	Engineering Informatics
	Automotive Informatics, Aircraft and Vehicle Informatics, Autonomous Systems, Robotics,	Automotive Software Engineering, Aerospace informatics, Smart Mobility Systems, Embedded Systems
	Production Informatics,	Industrial Informatics
	Construction Informatics	
	Geoinformatics	
	Agricultural Informatics,	Food Informatics
	Environmental Informatics	
	Social Informatics,	Socioinformatics
	Legal Informatics,	Digital Law
	Music Informatics	
	Digital Humanities,	Computational Linguistics

**Table 1:** Overview of some customary Informatics-related degree programme titles

### **3. e-CF levels of proficiency in competences**

The structure of levels used by the standard EN16234:2019 (e-CF, e-Competence Framework, Annex A) could serve as a good and detailed reference for the competences to be developed in higher education programme in informatics. This scale can provide an orientation on the type of competences established as target in the different educational levels applicable to EQANIE. As a general orientation, the following could be a guiding scheme related to professional e-competences.

- EQF5 (out of EQANIE scope): main target e-CF level is 1
- EQF6: main target levels are 2 and 3
- EQF7: main target levels are 4 and 5

It is relevant to note that this guide is not determining that all learning outcomes in an educational EQF level should belong to the corresponding e-CF level (as each level has many courses and partial learning objectives that may refer to other e-CF levels) but the typical final e-competences acquired will be associated to the levels mentioned above. It is also important to note that while first cycle students (EQF 6) will mostly use standard design and implementation methods to solve problems that are already well known and clearly defined, students in the Second Cycle (EQF 7-8), must be placed in situations where they need to investigate the problem, justify and adapt their methodological choices, and propose creative solutions, coping as much as possible with real contexts. This is consistent to the concepts of highest levels in e-CF 8 (e.g., 4 and 5): they usually require solving problems in contexts similar to real situations (or directly in real situations) as only traditional learning would not be enough to reach such levels for competences.

e-CF level	Level description	Influence	Complexity	Autonomy	Behaviour
e-5	Overall accountability and responsibility; recognised inside and outside the organisation for innovative solutions and for shaping the future using outstanding leading edge thinking and knowledge.	Determines strategy	Unpredictable - unstructured	Demonstrates substantial leadership and independence in contexts which are novel requiring the solving of issues that involve many interacting factors.	Conceiving, transforming, innovating, finding creative solutions by application of a wide range of technical and/or management principles.
e-4	Extensive scope of responsibilities deploying specialised integration capability in complex environments; full responsibility for strategic development of staff working in unfamiliar and unpredictable situations.	Provides executive leadership		Demonstrates leadership and innovation in unfamiliar, complex and unpredictable environments. Addresses issues involving many interacting factors.	
e-3	Respected for innovative methods and use of initiative in specific technical or business areas; providing leadership and taking responsibility for team performances and development in unpredictable environments.	Consults	Structured – unpredictable	Works independently to resolve interactive problems and addresses complex issues. Has a positive effect on team performance.	Planning, making decisions, supervising, building teams, forming people, reviewing performances, finding creative solutions by application of specific technical or business knowledge / skills.
e-2	Operates with capability and independence in specified boundaries and may supervise others in this environment; conceptual and abstract model building using creative thinking; uses theoretical knowledge and practical skills to solve complex problems within a predictable and sometimes unpredictable context.	Applies and adapts	Structured – predictable	Works under general guidance in an environment where unpredictable change occurs. Independently resolves interactive issues which arise from project activities.	Designing, managing, surveying, monitoring, evaluating, improving, finding non-standard solutions. Scheduling, organising, integrating, finding standard solutions, interacting, communicating, working in team.
e-1	Able to apply knowledge and skills to solve straight forward problems; responsible for own actions; operating in a stable environment.	Implements instructions		Demonstrates limited independence where contexts are generally stable with few variable factors	Applying, adapting, developing, deploying, maintaining, repairing, finding basic-simple solutions.

#### 4. Illustrative examples of modules for each category

The subject topics listed here represent typical topics that can support the acquisition of the skills mentioned in the main document. They are not mandatory, and the list will not be used by evaluators to find a significant or even complete match. The expected skills can also be acquired through other topics.

##### Underlying Conceptual Basis for Informatics

Typical modules that can be used to develop these skills within **FCD programmes** include, e.g.:

- Mathematics and Stochastics
- Formal fundamentals, Logic and Algorithm theory
- Programming languages, Data types, Data structures and Objects
- Automata, machine models, and Computer architectures
- Operating systems
- Computer and communication networks
- Basics of the specialisation or the second discipline (e.g. Business management, Biological and medical basics, Design psychology, Game design, Basics of automotive technology, ...),
- ...

In **SCD programmes**, typical modules focus on the conceptual foundations of the programme's specialisation or on additional fundamentals of informatics that were not covered in the preceding FCD programmes.

##### Analysis

Regarding **FCD programmes**, typical modules that can be used to develop these skills are, e.g.:

- Software engineering and System architectures
- Modelling and Simulation
- Systems theory
- Data Analytics
- Computer and Communication networks
- Machine Learning
- Information security
- ...

In **SCD programmes**, typical modules include analytical methods from the special focus of the Master's programme.

## Design and Implementation

Typical courses of a FCD programme contributing to the learning outcome "specify and design computing/network hardware/software which meet specified requirements including time and budget constraints" include, e.g.:

- Computer Architecture and Organization
- Digital Systems Design
- Embedded Systems
- Network Design and Management
- Systems Engineering
- Software Engineering Fundamentals

Typical Courses contributing to the learning outcome "describe the phases involved in different life cycle models used for specifying, building, testing and commissioning new systems and for maintaining existing systems" include e.g.:

- Software Engineering
- Systems Analysis and Design
- Software Project Management
- IT Service Management
- Agile and DevOps Practices

Typical Courses contributing to the learning outcome "select and use appropriate process models, programming environments and data management techniques for projects involving traditional applications as well as emerging application areas" include e.g.:

- Software Development Methodologies
- Programming Paradigms
- Database System
- Cloud Computing
- Web and Mobile Application Development

Typical Courses contributing to the learning outcome "describe and explain the design of systems and interfaces for human-computer and computer-computer interaction" include e.g.:

- Human-Computer Interaction (HCI)
- User Interface Design
- Computer Networks
- Distributed Systems
- Internet of Things (IoT)

Typical Courses contributing to the learning outcome "apply relevant practical and programming skills to the creation of computer programs and/or other informatics artefacts" include e.g.:

- Introduction to Programming (e.g., Python, Java, C++)
- Object-Oriented Programming
- Software Development Lab
- Capstone Project
- Mobile App Development
- Web Programming

Typical Courses contributing to the learning outcome "identify and implement appropriate solution patterns, algorithms, and data structures, and apply systematic quality assurance" include e.g.:

- Data Structures and Algorithms
- Software Design and Architecture
- Software Testing and Quality Assurance
- Object-Oriented Programming
- Software Engineering
- Capstone Project / Software Development Lab

Typical Courses contributing to the learning outcome "use tools, processes, and algorithms for drawing knowledge and insight from data, as well as for creating Artificial Intelligence systems performing tasks typically associated with human intelligence" include e.g.:

- Data Science Fundamentals
- Machine Learning
- Artificial Intelligence
- Data Mining
- Neural Networks and Deep Learning
- Natural Language Processing

While First Cycle students typically use standard design and implementation methods to solve problems that are already well known and clearly defined, students in the **Second Cycle**, on the other hand, must be placed in situations where they need to investigate problems, justify and adapt their methodological choices, and propose creative solutions.

### **Economic, legal, social, ethical and environmental context**

Although many aspects of this category have a transversal nature that make them relevant or recommendable in other categories as well, it is recommended that they be addressed in a specific module in each cycle, preferably at its beginning, so that other modules could assume the students have already acquired some basic concepts and skills, which allows to address more specific aspects:

For Graduates of a **First Cycle degree programme** this includes, e.g.:

- Awareness of recommended professional and ethical conduct and a knowledge of possible professional codes including applicable legal regulations
- Awareness of legal and compliance requirements in informatics including data protection, intellectual property rights, contracts, product safety and liability issues, personnel issues, sustainability (environmental, economic and social) and health, digital accessibility and safety
- Awareness on the need of adaptation of informatics practice to commercial, industrial, economic and social contexts
- Methods to embed compliance requisites (such as information privacy, security, accessibility, etc.) in the whole life cycle of informatics-based systems

Contents recommended for Graduates of a **Second Cycle degree** programme assuming they are already competent in first cycle contents, includes e.g.:

- Awareness and methods to promote a high level of professional and ethical and principled conduct in informatics teams
- Identification and analysis and explanation of impact of relevant legal, commercial, industrial, economic and/or social contexts related to a specific area of study and practice to lead adaptation of activities
- Identification, evaluation and management of the most relevant risks in any compliance aspect in a specific context or area of study

### **Informatics practice**

An understanding of informatics practice can be achieved in a variety of ways, depending on both the student's and the department's situation. The key outcome is that the student (generally but not always as part of a team) is involved (not just as a spectator, or doing small tasks without understanding the bigger picture) in the informatics aspects of the production of an informatics artefact, which may be the informatics part of a larger whole.

"The informatics aspects" means that contributions consisting mainly of market surveys, literature reviews or product documentation are ruled out, however essential these may be. If Informatics Practice is done and assessed as group work, care must be taken to ensure that all students participate in the informatics aspects, and do not just work as, for example, "the documentation expert".

In **First Cycle degree programmes**, practical work typically first takes place in the department's laboratories. In lab courses, students practise, apply, and deepen their understanding of the contents they have learned in their lectures. Later in the curriculum, students participate in project work, in which larger groups of students typically tackle more comprehensive informatics tasks that require the integration of several different informatics skills. These tasks may already reflect real-world professional practice, such as the tasks of a virtual software organization producing products for customers (which may well be internal to the university).

In application-oriented programmes, a practical phase lasting several weeks or an entire practical semester is typically integrated, during which students gain insight into everyday professional practice in an industrial, governmental, charitable or other organisation that is mainly working on informatics tasks.

At the completion of their studies and as an integrative practical experience, graduating students will carry out a capstone project or perform some other major exercise (e.g. author a thesis) which provides an equivalent demonstration of Informatics Practice.

In **Second Cycle degree programmes**, lab courses primarily serve to practise and apply the skills that were newly acquired as part of the programme's specialization. In an individual project, which should generally account for at least 25% of an academic year, students are required to develop an informatics artefact to an agreed specification.

Projects and theses can be increasingly focused on research aspects, provided that the First Cycle pre-requisites have covered Informatics Practice adequately. Second Cycle programmes which take student from non-computing First Cycle programmes will need to include adequate Informatics Practice in the style of First Cycle computing and programming modules.

### **Other Professional Competences**

The development of this type of competences is not always allocated to specific modules and courses, as they are inherently cross-disciplinary; therefore, it is not always possible or recommendable to rely solely on specific modules. However, it should be noted that relying on the transversal embedding in other modules (e.g., communication skills through presentations in a module on Software Project Management or in module on Mobile App Development) could imply several risks, including inconsistencies in the recommendations or the methodology for competency development, as well as reduced emphasis by instructors who focus more on technical aspects, etc. Therefore, this could require a really sophisticated coordination and specific training for instructors. One possible solution could be an introductory module at each cycle that addresses some of the most important behavioural skills necessary for succeeding in other modules and courses as in professional practice.

Typical contents for behavioural related to academic success in the **First Cycle** and for the targeted professional profile include, e.g.:

- Self-organisation and time management for autonomous learning and work
- Written communication for different types of audiences and contexts (plans, reports, documents, etc.)
- Oral communication, including effective presentations, for different types of audiences and context
- Awareness and methods for effective teamwork and collaboration in diverse teams and settings
- Information search and management with appropriate capacity of analysis and critical thinking

Contents recommended for Graduates of a **Second Cycle degree** programme, provided they are already competent in First Cycles contents, include, e.g.:

- Awareness and methods for continuous quality and learning improvement
- Methods for self-organisation for efficiency, initiative and exercising personal accountability
- Effective communication skills through diverse channels and media for a variety of audiences and preferably also in a second language
- Methods for leadership and management of teams composed of people from different disciplines and different levels of qualification
- Advanced information and analytical methods for comprehensive, critical and informed reviews of the state of the art in specific topics