DIDACTIC REGULATION

IT and Automation Engineering
Degree Class L-8

Faculty of Engineering

Index

DIDACTIC REGULATION OF THE DEGREE COURSE IN IT AND AUTOMATION ENGINEERING

Introduction and area of competence

1. The present Regulation shall regulate the didactic organization of the Degree Course in IT and Automation Engineering L-8 and, in particular, shall determine the elements required in the art. 12 of DM 270/04.
2. The present didactic Regulation of the Degree Course in IT and Automation Engineering L-8, pursuant to the Didactic Regulation of the University, shall be approved by the competent didactic structure by majority and shall be approved by the Technical-Supervisory Committee.

I: PURPOSES AND DIDACTIC RULES

Art. 1 - Premises

1. The Degree Course in IT and Automation Engineering L-8 (hereinafter referred to as DC) belongs to the Degree Class L-8 as provided for in D.M. 270/2004.
2. The administrative authorities of the DC shall be the Coordinator (hereinafter referred to as CCdL), the Council of the DC and the Commission for the Didactic Coordination (CCD):
   a. The Coordinator, a teacher appointed by decision of the Technical-Supervisory Committee and shall hold a coordinating function;
   b. The Council of the DC shall be comprised of teachers who are entitled to at least one teaching;
3. The Commission for the Didactic Coordination, with the purpose of promoting and verifying the quality and the unity of the teachings of the DC.
4. The didactic rules of the DC in IT and Automation Engineering along with its general framework of formative activities, shall be reported in the attachment forming part of the present Regulation (Attachments 1-4).
5. The present Regulation, pursuant to the academic Didactic Regulation, and to the other didactic regulations, shall regulate the didactic organization of the Degree Course on the elements which were not defined in the aforementioned Regulations.

Art. 2 - Structure of the Degree Course

1. The DC belongs to the Faculty of Engineering.

   The DC shall be shall be organized in three years, and shall provide for the acquisition of 180 CFU. Upon completion of the studies, after having acquired the 180 credits the students shall be conferred the following study title: “Doctor in IT and Automation Engineering”. The DC aims to provide to the students basic/characterizing/supplementary knowledge and competences in all the sectors and disciplines of IT and automation engineering, and to train engineers with good cultural foundations and a proper technical preparation, allowing them to operate professionally in the planning, the simulation, the realization, and the management of the information systems and automation as well as in the development and the integration of hardware and software solutions promoting Future Internet.
2. The didactic rules of the Degree Course in IT and Automation Engineering, along with its general reference framework of formative activities, the CFU assigned to each formative activity, drawn up according to a framework defined by ministerial decree and with due regard for the requirements of ANVUR, are contained in Attachment 1, which forms an integral part of the present Regulation.
3. The course of study in and Automation Engineering includes formative activities groups in the following typologies:
   a. basic formative activities;
   b. characterizing formative activities;
   c. supplementary formative activities;
   d. formative activities chosen by the students;
   e. formative activities related to the preparation of the final dissertation;
   f. formative activities for the development of further linguistic competences, for eventual formative internships, informatics, telematic and relational abilities.
4. The course profiles of each formative activities shall be available on the website of the University, at the following “search for a member of the teaching staff” https://www.uniecampus.it/en/students/search-for-a-member-of-teaching-staff/

Art. 3 - Specific formative objectives and description of the educational path

1. The main purpose of the DC in IT and Automation Engineering shall be to train professionals capable of designing, simulating, realizing and managing information and automation systems as well as developing and integrating hardware and software solutions promoting Future Internet.

2. The DC shall be organized in three curricula.
3. The present Regulation shall be completed with four documents attached annually prepared in the process of activation of the DC:
    a. In **Attachment 1** shall be indicated the general framework of the formative activities;
    b. In **Attachment 2** shall be indicated the formative activities proposed along with the list of the teachings and the study plan;
    c. In **Attachment 3** shall be indicated the regulation on internships;
    d. In **Attachment 4** shall be indicated the Supplementary Formative Activities Syllabus;
4. All the information required by the current legislation such as the formative objectives of the course of study and the activated formative activities, the list of the teachers involved in the DC, shall be published on the University website and on the Course Profile.
5. The programmes for the teachings and the other formative activities along with the calendar of the examination session and the other forms of final verification shall be published before the beginning of the academic year.
6. The formative activities, autonomously chosen by the student, provided for in Article 2 paragraph 4, letter d, shall be selected among the teachings indicated in **Attachment 2**, and shall not be submitted for the approval of the council of the Degree Course.
7. For all the matters related to their academic career and their study plans, the students shall turn to the orientation tutor assigned to them, also known as tutor on-line (TOL). The Degree Course, in fact, shall offer an ongoing orientation and tutoring service which avails itself of the assistance of tutors selected by the University and operating in conjunction with the coordinator and the Council of the Course of Study.
8. There are no planned preparatory activities with regard to the education path.
9. The Study Plan of the Degree Course in IT and Automation Engineering provides for a curricular internship for the student, with the purpose of practicing the skills acquired in the labour market, thus completing the academic training. The curricular internship shall consist in a period of practical activity exclusively aimed at the attainment of the CFU needed for the completion of the educational path. The duration of activity of curricular internship for the students of the Degree Course in IT and Automation Engineering shall be of 150 hours, equivalent to 6 CFU. The objectives and the activities of curricular internship shall be regulated by the Regulation for the Curricular Internships for the Degree Courses in Engineering (Attachment 3).

Art. 4 - Learning Results

1. The graduates of the Course of Study shall demonstrate the following knowledge and competences:

Knowledge and comprehension

The degree course in IT and Automation Engineering aims at providing comprehensive basic knowledge in the field of mathematics and and information disciplins such as IT, automation, telecommunications and electronics, in order to enable the students to understand and promote the operating principles of the processing and control systems, both form a hardware (system architecture) and a software point of view. The area of telecommunications aims at understanding the the principles of processing and transmission of information as well as the of principles of planning and managing web infrastructures.

Applying knowledge and comprehension

The graduates in IT and Automation Engineering shall be capable of applying knowledge and comprehension of the phenomena subject of study, in order to contribute to the technological development and to the resolution of the problems connected to the rapid evolving of the needs of the society.

The students shall attain the aforementioned ability to apply their knowledge, combining their theoretical formation with examples, applications, individual and group exercises such as projects and verifications, in order to promote their active participation, their propositional attitude, their ability to elaborate autonomously and to comunicate the results of their own work.

Making judgements

The graduates in IT and Automation Engineering shall develop critical thinking and an autonomous judgement on various aspects of the subjects study, based on theoretic and practical consolidated knowledge.

The formative activities as well as the internship and the final dissertation, promote adequate levels of autonomy, enabling the graduates to work responsibly and effectively in a team environment, in various social and professional contexts. At the end of the formative path, the students shall be able to assume their responsibility in the professional profiles provided for by the degree course, and to evaluate the relevance and the ethic implications of their duties and obligations.

Communication Skills

For the graduates in IT and Automation Engineering is important the acquisition of communication abilities, since in the exercise of their profission they are being called upon to interact with other professional figures, in order to report in written form or orally their projects and proposals. The communicative abilities, learning subjects of each teaching, shall be trained and verified with the examinations and the final dissertation.

Learning skills

The Course shall develop the ability to reflect on the subject of their studies and on the meta-cognition of their abilities and on their learning processes. The acquisition of learning knowledge is a fundamental requirement for the students who wish to continue their studies having access to a master's degree course, but also for those who wish to pursue a professional activity in the area of interest of IT and Automation, as these sectors are characterized by sudden and radical changes, requiring continuous updates.

Art. 5 - Professional profiles, sources of employment and education prospects

1. Employment prospects for the graduates: the Degree Course in IT and Automation Engineering allows the continuation of the studies on a second level of formation offered by the Master's Degree Courses of the LM-32 class.
2. Professional profiles and sources of employment: the graduates in IT and Automation Engineering may register in section B of the professional register of the engineers, subject to the successful completion of the state examination. The graduates will possess knowledge suitable for the implementation of professional activities in various areas of interest, contributing to activities such as planning, production, management and organization, assistance to technical-commercial structures, risk analysis, safety management and emergency prevention, both in private practice and in manufacturing companies or services in the public administrations.

Art. 6 – Admission and enrolment

1. The students who intend to enrol in the DC shall be in possession of a secondary school certificate or another qualification attained abroad and recognized as suitable pursuant to the current legislation

2. Subject to the admission requirements, the DC shall provide for an initial evaluation of proficiency at Italian (morphology, syntax and lexicon) and of the basic knowledge of mathematics and physics. The possession of the aforementioned knowledge and competences evaluated with the modalities provided for in the following paragraph.
3. The knowledge and the competences provided for in the previous paragraph, shall be verified through non-selective tests. An eventual negative result of the non-selective tests on mathematics and physics shall not compromise the matriculation, the attendance to the courses and the satisfactory completion of the related examinations, without prejudice to what is provided for in paragraph 6 of the present article.
4. An eventual negative result shall not compromise the matriculation, yet it shall imply the attribution of additional training requirements (OFA). The OFA shall be considered absolved for the students coming from other University, to whom has been recognized CFU by virtue of their previous academic career: if the students are recognized already acquired CFU related to the Area 01 – Mathematical and Information Science, from and including MAT/01 to and including MAT/09, the competences related to mathematics shall be considered appropriate. In addition, the recognition of the CFU related to the Area 02 – Physical Sciences, in particular from FIS/01 to FIS/05, implies the possession of knowledge and competences related to Physics.
5. The test referred to in the previous paragraph shall be carried out with the procedures provided for by the Virtual Learning Environment (VLE) of the University.
6. The (OFA) assigned to the students who failed the non-selective test provided for in the previous paragraph, shall consist in the telematic attendance to the remedial courses provided in the VLE of the University.
7. The OFA, which shall be fulfilled within the first year of the course, provide for the successful completion of a test for each remedial course.
8. The successful completion of the remedial courses shall not imply the attribution of any formative credit.
9. There shall not be any limits to the possibility of enrolment as ‘studente fuori corso’, nor a maximum number of repeatable years.

10.

11. The recognition of the CFU of the incoming students as well as the quantification of the minimum number of CFU that the students shall attain in an academic year in order to continue the course of study to another academic year, shall be established in the related Academic Regulations. The Committee for the Study Plans, appointed by the Council of the Degree Course, shall provide for the assessment of the applications for recognition of the previous

academic career or of the individual courses equivalent to the teachings, which are part of the training offer of the Degree Course.

Art. 7 - Examinations and tests

1. For each formative activity shall be provided an examination, upon completion of the didactic activities represented by the learning objects present in the VLE.
2. The students shall acquire the CFU attributed to a particular formative activity only passing the examination.
3. The maximum number of examinations and final evaluations needed for the attainment of the title shall be 19. For the purpose of the aforementioned calculation shall be considered the following formative activities:
    a. basic;
    b. characterizing;
    c. supplementary;

    In addition to the aforementioned activities, shall be required the following formative activities:
    d. optional exams
    e. activities related to the final dissertation;
    f. further linguistic knowledge, eventual formative internships, IT, telematic and relational abilities.
4. The examinations shall consist in a test structured in conformity with what is provided for in the “Regulation for the implementation of the examination” and with due regard for the following rules:
    a. The examination shall be organized so as to evaluate the knowledge, the comprehension, and the application of the examination subjects, demonstrating the proficiency of the student in the didactic units/thematic units of the related teaching.
    b. The final evaluation shall take into account the results of the partial examinations, carried out with due regard for the Academic Regulations, in which case the teacher shall specify in the “course profile” the kind of activity, the modalities and the criteria of evaluation.
5. The professor in charge of the teaching, before the beginning of each academic year, and with due regard for the general regulation of the University, shall communicate the modalities for the examination, the assessment criteria and the possibility to carry out partial examinations.

The manner in which the examination shall be carried out shall be the same for all the students with due regard for what has been established at the beginning of the academic year.

6. The eventual partial verifications shall not replace the final examination.

7. With regard to the implementation of the examinations shall be applicable the rules provided for by the Academic Regulation.

Art 8 - Duration

1. Shall be applicable the rules provided for by the Academic Regulation.

Art 9 - Mobility and studying abroad

1. The Degree Course in IT and Automation Engineering, in line with the provisions of the University shall promote the exchange of teachers and students through international cooperation and bilateral agreements. In this regard see the indications published on the website of the University on the International Cooperation and the Erasmus Policy at the following link:
   https://www.uniecampus.it/ateneo/cooperazione-internazionale/index.html.

Art. 10 - Final Dissertation

1. The final dissertation shall be written by the student with the supervision of a teacher of the Degree Course in IT and Automation Engineering L-8 or of an external teacher entitled to one of the teachings provided for the Degree Course in IT and Automation Engineering LM-32, and eventually a co-supervisor. The elaboration of the final dissertation, shall begin at least six months before the date estimated for the discussion, in order to guarantee its accuracy. The discussion of the final dissertation shall consist in the presentation of a written dissertation realized by the student under the guidance of a supervisor with due regard for and with the procedures provided for in the related Academic Regulations.
2. The final dissertation shall focus on any subject related to one or more formative activities of the following typology:
   a. basic;
   b. characterizing;
   c. supplementary;
   d. optional;

   provided for in art 2 paragraph 4, among those activated in the DC and registered in the student's study plan. The content of the final dissertation, elaborated under the guidance of a

supervisor, shall confirm the student's ability to examine in depth a specific subject matter related to a specific teaching or to another didactic activity, through the following modalities:

a. a critical analysis of a particular research article or of a theoretical contribution;
b. an in-depht theoretic and/or empirical analysis of a subject related to a particular teaching or to another didactic activity;
c. a report on a practical experience (corroborated by theoretical and critical references).

3. The final dissertation may be written in a foreign language, agreed upon in advance with the supervising teacher and with the Coordinator of the DC. In this case, the student shall draft a detailed summary of the dissertation in Italian.
4. The final dissertation, evaluated on the basis of well-defined parameters (such as difficulty, competence in the bibliographic research, autonomy, quality of the dissertation) shall be assigned a maximum of 6 points.

Art. 11 - Attainment of the Degree

5. The student shall be attain the Degree with at least 180 CFU and upon completion and discussion of the final examination (final dissertation).
6. With regard to the conditions for the admission to the final dissertation, the degree examination board, the implementation of the examination and the final grade see the Academic Regulation for the final dissertation.
7. The secretariat upon request, shall provide the graduate students with the Diploma Supplement, which shall describe the category, the level, the context, the content and the status of the studies carried out in accordance with the standard eight-point plan developed on the initiative of the European Commission, the European Council and of the UNESCO.

II - OPERATIVE RULES

Art. 12 - Obligations related to frequency

1. The student shall be admitted to the examination related to a determined teaching only after having implemented all the online learning objects making up the course, except for expressed and motivated waivers provided for by the teachers, who shall clarify them in their teacher's profile.
2. The DC provides for the enrolment as part-time student, for all the qualified students, pursuant to what is regulated in the Academic Regulations.

Art. 13 - Enrolment to the following years, transfer and withdrawal from the studies

1. See the rules provided for in the Academic Regulations.

Art. 14 - Recognition of incoming CFU

1. See the general regulations provided for by the University; along with the opinion of the DC if the aforementioned regulation shall require so.

Art. 15 - Dispositions for the students

1. The DC shall apply the rules provided for by the University regulating the frequency to the formative activities, the number of the credits to be acquired for the enrolment to the following course year; the requirements for the implementation of outsourcing education, and all the actions aimed at an effective learning. In this regard see the Student Regulation, the website page on the LDs and the Erasmus Policy of the University.

Art. 16 - Assessment of the Didactic Activity

1. The DC shall implement forms of assessment of the quality of the didactic activities provided for by the current legislation with the modalities and the deadlines provided for by the University's Quality Assurance Committee.

Art. 17 - Flexibility of the learning pathway

1. The Degree Course in Civil and Environmental Engineering, with the collaboration of the online tutors (OT) proposes orientation and tutoring activities in relation to the individual study plan, of the optional formative activities and with regard to the implementation of the curricular internship, promoting a student-centred approach to learning focused on encouraging the assumption of an active role in the definition and in the time frame of the learning pathway. The DC shall promote a collaboration with the disciplinary tutors whom, coordinating with the teachers in charge of the course, shall have the task of supporting the preparation of the didactic materials and of the partial examinations, guaranteeing the possibiliy to implement flexible learning pathways. Finally, the student shall have the possibility to enrol in the DC and to take advantage of the formative offer at any time of the academic year and to carry out the examinations during the seven examination sessions, provided for in the academic calendar.

III - FINAL AND TRANSITIONAL REGULATIONS

Art. 18 - Amendments to the Regulation

1. Any amendment to the present Regulation shall be proposed by the Coordinator of the DC or by at least one third of the members of the Council of the DC or at least one third of the members of the Council of the DC and shall be approved by absolute majority and, successively, by the Technical Supervisory Committee.
2. In case of failure to approve the amendment, the proponent shall send a response, along with a report describing its motivations directly to the Technical Supervisory Committee.
3. The modifications to the present regulation, subject to the verification of their conformity to the Academic Regulations shall be issued by Decree of the President of the Technical Supervisory Committee.
4. Eventual legislative acts compatible with the Academic Regulation and incompatible with what is stated in the present regulation shall be applicable even in the absence of an expressed modification, but shall determine the immediate beginning of the procedure provided for in the first paragraph of the present article.
5. Eventual interpretive or applicative problems resulting from the succession of the Regulations in the course of time shall be the subject of a specific assessment on the part of the DC.

Art. 19 - Transitional regulations

1. The present regualtion shall be applicable from the academic year 2018/2019.

Attachment 1

General framework of the formative activities

Basic Activities		
Subject Area	**Sector / Teachings**	**min CFU**
Mathematic, IT and Statistics	INF/01 Basics of IT – 12 MAT/05 Mathematical Analysis - 12 MAT/08 Numerical Analysis - 6 MAT/03 Supplementary Mathematics - 6 MAT/09 Operational Research - 6	30
Physics and Chemistry	FIS/01 Physics - 12	12
Minimum of credits reserved by the University:		42
Total Basic Activities		42

Characterizing Activities		
Subject Area	**Sector / Teachings**	**min CFU**
Automation Engineering	ING-Ind/13 Mechanics Applied to Machines ING-INF/04 Automation	15
IT Engineering	ING-INF/05 Information Elaboration Systems ING-INF/02 Electromagnetic Fields	30
Telecommunications Engineering	ING-INF/03 Telecommunications	6
Minimum of credits reserved by the university		**51**
Total Basic Activities		51

Supplementary Activities		
Subject Area	**Sector / Teachings**	**min CFU**
A11	ING-IND/3 Electrotechnics SECS-P/07 BusinessManagement ICAR/06 Geomatics ING-IND/10 Industrial Technical Physics	9

A12	ING-IND/12 Mechanical and Thermal measurements ING-IND/15 Design and methods of Industrial Engineering	6
Minimum of credits reserved by the University:		18
Total Supplementary Activities		21

Other Activities		
Subject Area	**Sector / Teachings**	**min CFU**
Optional		18
For the final dissertation and knowledge of a second language (art. 10, paragraph 5, letter c)	Final Dissertation For the knowledge of at least one foreign language	6 3
Minimum of credits reserved by the University for the activities provided for in art. 10, paragraph 5 lett. C	Further linguistic knowledge	-
Further Formative Activities (art. 10, paragraph 5, letter d	Other knowledges helpful for the insertion into the labour market Formative Internships	- 6
Minimum of credits reserved by the University for the activities provided for in art. 10, paragraph 5 lett. d		
Minimum of credits reserved by the University		33
Total Other Activities		33

Attachment 2

List of the provided formative activities and list of the teachings (study plan)

IT AND AUTOMATION ENGINEERING L-8
Curriculum: Elaboration and Control Systems

SSD	Activity	Exam	CFU
1st Course Year			
FIS/01	A	PHYSICS	12
ING-INF/05	A	BASICS OF IT	12
MAT/03	A	SUPPLEMENTARY MATHEMATICS	6
MAT/05	A	MATHEMATICAL ANALYSIS	12
MAT/05	A	NUMERICAL ANALYSIS	6
ING-IND/31	C	ELECTROTECHNICS	9
L-LIN/12	art.10, par. 5, letter c	FOREIGN LANGUAGE: ENGLISH	3
2nd Course Year			
ING-INF/04	B	MODELING AND SIMULATION	9
ING-INF/04	B	BASICS OF AUTOMATION	9
ING-INF/05	B	ELECTRONIC CALCULATORS AND OPERATING SYSTEMS	12
ING-INF/05	B	ALGORYTHMS AND DATA STRUCTURES	6
ING-INF/03	B	SIGNALS AND SYSTEMS	9
ING-INF/05	B	DATABASES	6
ING-INF/01	C	DIGITAL SYSTEM ELECTRONICS	9
3rd Course Year			
ING-INF/04	B	INDUSTRIAL AUTOMATION (substituted on L9)	6
ING-INF/03	B	TELECOMMUNICATION NETWORKS	6
MAT/09	A	OPERATIONS RESEARCH	6
ING-INF/05	B	SOFTWARE ENGINEERING	6
ING-IND/12	C	MECHANICAL AND THERMAL MEASUREMENTS	6
		OPTIONAL EXAMINATION	18
Other activities	art.10, par. 5, letter d	Internship	6
Final Dissertation	art.10, par. 5, letter c	Final Dissertation	6
Optional (3rd year)			
ING-IND/15		COMPUTER AIDED DESIGN (substituted from L9)	9
ING-INF/05		EXPERT SYSTEMS AND SOFT COMPUTING	9
ING-INF/01		ELECTRONIC SYSTEMS AND MEASUREMENTS	9
ING-IND/10		TECHNICAL PHYSICS	9
SECS-P/07		BUSINESS MANAGEMENT	9

IT AND AUTOMATION ENGINEERING L-8
Curriculum App Engineering

SSD	Activity	Exam	CFU
1st Course Year			
FIS/01	A	PHYSICS	12
ING-INF/05	A	BASICS OF IT	12
MAT/03	A	SUPPLEMENTARY MATHEMATICS	6
MAT/05	A	MATHEMATICAL ANALYSIS	12
MAT/05	A	NUMERICAL ANALYSIS	6
ING-IND/31	C	ELECTROTECHNICS	9
L-LIN/12	art.10, par. 5, letter c	FOREIGN LANGUAGE: ENGLISH	3
2nd Course Year			
ING-INF/01	C	ELECTRONICS OF DIGITAL SYSTEMS	9
ING-INF/04	B	BASICS OF AUTOMATION	9
ING-INF/05	B	ELECTRONIC CALCULATORS AND OPERATING SYSTEMS	12
ING-INF/05	B	ALGORYTHMS AND DATA STRUCTURES	6
ING-INF/05	B	USER INTERFACE and APPS	9
ING-INF/05	B	APP PROGRAMMING 1	6
ING-INF/05	B	INTERNET OF THINGS	9
3rd Course Year			
ING-INF/04	B	IDUSTRIAL AUTOMATION (substituted on L9)	6
ING-INF/02	B	ELECTROMAGNETIC COMPATIBILITY OF MOBILE DEVICES	6
MAT/09	A	OPERATIONAL RESEARCH	6
ING-INF/05	B	APP PROGRAMMING 2	6
ING-IND/12	C	MECHANICAL AND THERMAL MEASUREMENTS	6
		OPTIONAL EXAMINATION	18
Other activities	art.10, par. 5, letter d	Internship	6
Final Dissertation	art.10, par. 5, letter c	Final Dissertation	6
Optional (3rd year)			
ING-IND/15		COMPUTER AIDED DESIGN (substituted from L9)	9
ING-INF/05		EXPERT SYSTEMS AND SOFT COMPUTING	9
ING-INF/01		ELECTRONIC SYSTEMS AND MEASUREMENTS	9
ING-IND/10		TECHNICAL PHYSICS	9
SECS-P/07		BUSINESS MANAGEMENT	9

IT AND AUTOMATION ENGINEERING L-8
Curriculum Drone Engineering

SSD	Activity	Exam	CFU
1st Course Year			
FIS/01	A	PHYSICS	12
ING-INF/05	A	BASICS OF IT	12
MAT/03	A	SUPPLEMENTARY MATHEMATICS	6
MAT/05	A	MATHEMATICAL ANALYSIS	12
MAT/05	A	NUMERICAL ANALYSIS	6
ICAR/06	C	DETECTION FROM DRONES	9
L-LIN/12	art.10, par. 5, letter c	FOREIGN LANGUAGE: ENGLISH	3
2nd Course Year			
ING-IND/15	C	UAV DESIGN TOOLS	6
ING-INF/04	B	BASICS OF AUTOMATION	9
ING-INF/05	B	ELECTRONIC CALCULATORS AND OPERATING SYSTEMS	12
ING-INF/05	B	ALGORYTHMS AND DATA STRUCTURES	6
ING-INF/05	B	SIGNALS AND SYSTEMS	9
ING-INF/05	B	MODELING AND SIMULATION	9
ING-INF/05	B	INTERNET OF THINGS	9
3rd Course Year			
ING-INF/04	B	INDUSTRIAL AUTOMATION (substituted on L9)	6
ING-INF/02	B	ELECTROMAGNETIC COMPATIBILITY OF MOBILE DEVICES	6
MAT/09	A	OPERATIONS RESEARCH	6
ING-INF/05	B	CONTROL AND PROGRAMMING OF PILOTED AIRCRAFT SYSTEMS	6
ING-IND/12	C	MECHANICAL AND THERMAL MEASUREMENTS	6
		OPTIONAL EXAMS	18
ulteriori attività	art.10, par. 5, letter d	Internships	6
prova finale	art.10, par. 5, letter c	Final Dissertation	6
Optional (3rd year)			
ING-IND/15		COMPUTER AIDED DESIGN (mutua da L9)	9
ING-INF/05		EXPERT SYSTEMS AND SOFT COMPUTING	9
ING-INF/01		ELECTRONIC SYSTEMS AND MEASUREMENTS	9
ING-IND/10		TECHNICAL PHYSICS	9
SECS-P/07		BUSINESS MANAGEMENT	9
ING-IND/31		ELECTROTECHNICS	9
ING-IND/12		UAV SENSORS	9

REGULATION ON CURRICULAR INTERNSHIP

BACHELOR'S DEGREE COURSES AND

MASTER'S DEGREE COURSES IN:

CIVIL AND ENVIRONMENTAL ENGINEERING (D.M. 270/04)

INDUSTRIAL ENGINEERING (D.M. 270/04)

IT AND AUTOMATION ENGINEERING (D.M. 270/04)

The Study Plan of the Bachelor's Degree Courses in Civil and Environmental Engineering (L7), Industrial Engineering (L9), IT and Automation Engineering (L8) and of the Master's Degree Courses in Civil and Environmental Engineering (LM23), Industrial Engineering (LM33), IT and Automation Engineering (LM32) of Telematic University eCampus shall give special priority to the curricular internship, with the aim to have the students experiment their skills in the labour market as an addition to their academic education. The curricular internship shall consist in a period of practical activity aimed exclusively at the attainment of the CFU needed for the successful completion of the formative path of the degree courses and shall not constitute a professionalizing internship for the purpose of the state examinations for the registration to the professional registers (Register of the Engineers).

The internship shall be carried out at public or private structures affilated to the University, at eCampus University, at research centres of eCampus University or at other italian or foreign

Departments and Institutes of engineering disciplines, with the supervision of a didactic tutor (a member of the Internship Committee of the Faculty of Engineering of eCampus University) and of a company tutor (or a Teacher of the University) who shall guide the students during their intership period.

Art. 1 – PURPOSES AND ACTIVITIES OF THE INTERNSHIP

The curricular internship, aimed at the attainment of the academic title, is intended to promote the attainment of the following formative objectives:

a) the comprehension of the links between theory and professional practice and the integration between theoretical knowledge, acquired in the Bachelor's Degree Courses in Civil and Environmental Engineering (L7), Industrial Engineering (L9), IT an Automation Engineering (L8) and the Master's Degree in Civil and Environmental Engineering (LM23), Industrial Engineering (LM33), IT and Automation Engineering (LM32), and the concrete applications of professional practice;
b) learning the procedures and the methodologies typical of the profession of engineer;
c) the progressive acquisition, under the close supervision of the tutor, of competences related to the professional role, in relation to the different labour contexts in which the engineers operate.

The internship activity shall amount to 25 hours per formative credit, in accordance with the requirement of the didactic offer.

In particular:

- Bachelor's Degree Course in Civil and Environmental Engineering (L7): n° 6 CFU amounting to 150 hours.
- Bachelor's Degree Course in Industrial Engineering (L9): n° 9 CFU amounting to 225 hours.
- Bachelor's Degree Course in IT and Automation Engineering (L8): n° 6 CFU amounting to 150 hours.
- Master's Degree Course in Civil and Environmental Engineering (LM23): n° 6 CFU amounting to 150 hours.
- Master's Degree Course in Industrial Engineering (LM33): n° 3 CFU amounting to 75 hours.
- Master's Degree Course in IT and Automation Engineering (LM32): n° 3 CFU amounting to 75 hours.

In order to allow a certain variety of experiences, the interns shall carry out their practical activity:

a) At various public or private organizations – Companies, Authorities, Associations, Institutions, Academies, Research Centres – where the following activities are performed:
   - Planning, production, implementation, design, measures and controls, diagnostics in the industrial, civil and environmental, industrial, IT fields of expertise;
   - Research activity in the industrial, civil and environmental, industrial, IT fields of expertise
b) Within the various Courses of Study provided by the Faculties and the Research Centres of eCampus University, or by another University. In such case, the theoretical or technical-methodological internship activities shall be mainly oriented at the involvement of the interns in study and research activies, under the direct supervision of a Teacher of the Engineering Faculty.

The intership shall be programmed and follow an individual project, planned on the basis of a "training project" between intern and tutor specifying the mutual responsibilities and the respective tasks in the implementation of the project. Said individual project shall be viewed by the Internship Committe of the Faculty of Engineering of eCampus University.

For the purpose of the report of the completed internship activity, only the hours of effective implementation of the practical and didactic exercises shall be considered, not the hours of presence within the structure (shall be excluded for example the hours of stay in the accomodations, the breaks or the hours of stay in the in the structure before and after the practical activity).

The formative internship shall not be considered as an employment relationship.

The maximum overall duration of the period of internship shall be of 6 months. In the calculation of the aforementioned limit shall not be taken into account the periods of abstension or suspension of the internship. The maximum duration shall be 6 months included any potential waivers.

Art. 2 – ACCESS TO THE INTERNSHIP

In order to begin the internship the student shall:

- Make mandatory and preventive contact with the Internship Office by email to the following address: tirocinio.lettere@uniecampus.it;
- Having attained at least 100 CFU out of 180, if the intern is enroled to I level Degree Course; or having attained at least 60 CFU out of 120, if the student is enroled to a II level Degree Course;
- If the student wishes to carry out the internship at an external authority, please note that the relationship between the University and the host structure shall be regulated by a specific agreement. In case the structure where the student wishes to carry out the internship does not have an agreement with the University, it is mandatory to stipulate it before the beginning of the internship. The students shall signal eventual structures on the basis of their formative interests, after having verified the availability; the Intership Commission reserves the right to evaluate the eventual structures proposed by the students, while it is the responsibility of the Internship Office to directly contact the host subject in order to stipulate the Agreement;
- If the students wish to carry out their internship at an eCampus research centre or at other departments and/or research centres of other Universities, in the first case they shall identify a teacher within their Degree Course and verify their willingness to follow them as a tutor; in the second case they shall identify a teacher within the Degree Course equivalent to the course attended by the student at eCampus University.

Art. 3 – PLACE OF INTERNSHIP

Shall be regarded as places of internship:

- **Public and private authorities, private companies, institutions, other university departments (both italian and foreign) who shall stipulate an agreement with eCampus University.**

For the purpose of the stipulation of an agreement with the University, said authorities shall submit to the Internship Office:

1) **Indications inherent to the purposes and the organizational structure of the Authority (if the Authority is private, the statute of the Authority);**
2) **Detailed indications on the operational activity and/or of research at the structure and specific indications on the formative activities performed by the interns;**
3) **CV of the tutor.**

- **eCampus University or one of its research centres.**
- **In case the internship is carried out at one of the Faculties and Research Centres of eCampus University, the student shall have the possibility to carry out the related activities in "At Home) modality. In this modality, the activities shall be carried out also outside of the actual physical structure of eCampus University (for example at home, in public libraries, etc..), nevertheless the students required to declare in the attendance register the activities and the place where they are implemented. The aforementioned register shall be countersigned by the internal tutor who shall verify, as far as possible, the veracity of what has been declared.**

Art. 4 – PURPOSES AND CHARACTERISTICS OF THE TUTORS

The tutor shall follow the student during the internship period, agreeing on the practical modalities of its implementation, making sure that the internship is carried out appropriately and participating to the evaluation of the internship.

In the public/private entities the function of tutor shall be carried out by the personnel related to the occupational activities provided for in Art. 1, with an appropriate professional experience and capable of guaranteeing a stable relationship with the structure throughout the duration of the internship.

Within the University, shall carry out the function of tutor the teachers of the Bachelor's Degrees and the Master's Degrees and/or of the research centres.

Art. 5 – RULES OF CONDUCT FOR THE INTERN

The intern shall comply with what was agreed in the agreement between the University and the host, shall respect the disciplinary regulations, the organizational/safety/hygiene rules. During and after the internship the intern shall mantain the strictest confidence on the information acquired during the implementation of the internship. If the host adopts a code of conduct or an internal rule, the intern shall comply with it.

Art. 6 – INSURANCE POLICIES

The RC and INAIL insurance policies, necessary for the implementation of the internship, shall be at the expense of eCampus University.

Art. 7 – TRAINING PROJECT

The Training Project shall be a an actual contract between the intern and the host. The Formative Project shall contain personal information on the intern, the time and the place of the internship, information on the insurance policy, the name of the tutor/tutors.

In the Training Project shall be indicated the purpose of the internship and the modalities necessary in order to reach the target set (namely the competences that the intern wishes to attain at the end of the internship and how to achieve them).

The duration of the internship and the modalities of access to the facilities of the company shall be described in the Training Project, duly filled in before the beginning of each internship period.

The Internship Project shall be activated **only once the Agreement has been stipulated and only once the student has communicated** all the necessary information, personal and of the authority, for the implementation of the internship.

Once the aforementioned form has been filled in, the Internship Office shall send back to the student the Training Project countersigned by the functionary of the Office, along with the documents necessary for the implementation of the internship:

- **Register of the attendances ;**
- **Report on the internship period** (which shall be carried out by the intern upon the completion of the internship activities);
- **Evaluation report** (which shall be carried out by the company/university tutor at the end of the internship).

Once the internship has ended, all the documents shall be emailed to the Internship Office. The original forms shall be delivered to the Student Secretariat, along with the graduation application form.

Attachment 4

Syllabus of the Supplementary Formative Activities.

OFA SYLLABUS – MATHEMATICS

Sets

Sets, subsets, intersection, union, number sets (natural numbers, whole numbers, rational numbers, real numbers, complex numbers), Cartesian product.

Logic

Propositions, quantifiers, implications, negation, statements, formal proofs.

Algebra

Algebraic expressions, summations, product of a sequence, equations, equivalent equations, systems of equations, equivalent systems of equations, algebraic inequalities, equations and inequalities, absolute value equations and inequalities, irrational equations, irrational inequalities.

Polynomials

Monomials, polynomials, sum, product, degree, division of polynomials with one variable, Polynomial remainder theorem, zeros of polynomials in one variable, Ruffini's rule, multiplicity of zeros of a polynomial in one variable, rational zeros of polynomials with whole numbers coefficient, fundamental theorems of algebra, polynomial equations with one variable.

Functions and equivalence classes

Functions, image, counter image, injective functions, surjective functions, bijection, composition, inverse function, equivalence relation, equivalence class.

Lines and planes

Points, lines, plans, mutual position of two lines in a plane, mutual position of two planes in space, mutual position of two lines in space, position of a line with respect to a plan, sheaf of lines, sheaf of planes, cartesian coordinate system, implicit formula of a line in the plane, distance between two points, area, volume, circumference, ellipsis, hyperbola, parabola.

Exponentials and logarithms

Exponentials, logarithms, exponential equations, exponential inequalities, logarithmic equations, logarithmic inequalities.

Goniometry

Goniometric functions, goniometric formulas, inverse goniometric functions, goniometric equations, goniometric inequalities.

OFA SYLLABUS - PHYSICS

Introduction

the international system of units

Kinematics and dynamics of a material point

Velocity and acceleration. Linear motion. Curvilinear motion. Newton's laws of motion. Impulse and momentum. Work. Power. Kinetic energy. Conservative force. Potential energy. Conservative principles. Elastic and inelastic collisions.

Kinetic theory of gases and Thermodynamics

Perfect gases. Perfect gas law. Pressure and internal energy of gases. Temperature. Heat. Change of state. Latent heat. First law of thermodynamics. Thermodynamic transformations of perfect gas. Second law of thermodynamics. Entropy.

Electrostatics and electric current

Electrical charge. Coulomb's law. Elñectric dipoles. Electrical field. Motion of point charges. Electrical conductor. conductors in electrostatic equilibrium. Electromagnetic induction. Electrostatic potential. Potential difference. Potential energy. Capacity of a condenser. Series and parallel capacitors. Electric current and motion of a charged particle. Ohm's Law and electrical resi stance. Electromotive force and sources of electromotive force. Joule effect. Series and parallel circuits.