DESCRIPTION OF THE CURRICULUM
(TEACHING REGULATIONS OF THE COURSE)

BACHELOR'S DEGREE COURSE IN
ENGINEERING FOR WORK AND ENVIRONMENTAL SAFETY
(L-7R)

academic year 2025/26

Outline

Art. 1 - General characteristics and organization

The Bachelor's Degree Course in Engineering for Work and Environmental Safety, class L-7R is activated according to the educational regulations of the academic year 2025/2026.

The course in brief

The course is designed to meet the needs of industries and companies requiring qualified staff and consultants in the environmental and/or safety fields. The aim of the course is therefore to provide interdisciplinary training that enables the development of design and management skills, not only for worker safety services in the civil and industrial sectors, but also for activities related to environmental protection, such as water and waste treatment, site remediation, landscape planning, and environmental impact assessment. Moreover the course combines the basic civil and plant engineering courses required for further studies (masters and master's degree).

The three-year program includes core courses in mathematics, physics, and chemistry, followed by courses with a specific professional focus on the environmental field, such as environmental engineering, hydraulics, contaminated site remediation, and legal procedures related to environmental issues. It includes disciplines typical of civil engineering, such as construction science and technology and technical physics, as well as subjects related to safety, such as construction site management, major accidents, workplace hygiene, process safety, and emergency management. Some courses are supported by fieldwork and computer labs. Practical and operational aspects are enhanced by the opportunity for internships and placements in companies, creating an initial connection between students and the job market. Complementary learning activities are also offered, aimed at gaining international experience, made possible through a series of Erasmus agreements with several European academic institutions.

The ISLA degree provides access to master's degrees and, in particular, allows to continue in the master's degree program in Environmental Engineering and Workplace Sustainability (LM-35 - Environmental and Land Engineering) available at the Insubria University.

The law also allows, upon passing the state exam, the registration in Section B of the Provincial Register of Engineers, with the qualification of Junior Engineer.

The structure responsible for the course is the Department of Theoretical and Applied Sciences. The Program Coordinator is Prof. Bruno Dal Lago.

The Didactic Secretariat receives by appointment via the Microsoft Teams platform and responds to emails received via Infostudenti. More information about this can be found at the following link: INFOSTUDENTI.

Art. 2 - Teaching calendar of the course

Educational activities take place in Varese. The internet address of the course is the following: https://www.uninsubria.it/formazione/offerta-formativa/corsi-di-laurea/ingegneria-la-sicurezza-del-lavoro-e-dellambiente

The lesson calendar is published under the page **LESSON TIMETABLE:**
https://www.uninsubria.it/formazione/offerta-formativa/corsi-di-laurea/ingegneria-la-sicurezza-del-

lavoro-e-dellambiente

The teaching calendar is divided into semesters:
I semester from **22 September 2025 to 19 Decembre 2025**
II semester from **23 February 2026 to 29 May 2026**

Exams

There are at least 6 sessions for each course during the period of lessons suspension. The calendar of the exams is published on the page https://uninsubria.esse3.cineca.it/ListaAppelliOfferta.do

Art. 3 - Education goals, expected learning outcomes and career opportunities

The program aims to provide students with the knowledge, skills, and competencies necessary to train professionals in the fields of occupational safety, environmental control, air, water, and waste treatment, and environmental remediation.

In line with the educational goals of the program, the program aims at:

1. providing the scientific foundations (mathematics, physics, and chemistry) necessary for the schematization and solution of the engineering problems developed during the course of study;
2. providing the basic tools of civil and plant engineering, which provide essential support both for the application developments proposed by the program and for any more advanced training (masters and master's degrees);
3. providing the basic tools as well as specific professional content related to environmental engineering and occupational safety;
4. providing adequate preparation for the analysis and solution of problems requiring the application of standard and consolidated methodologies, sufficient to address the issues most frequently encountered in professional practice in the sector.

The course is structured into four main learning areas:

- basic science subjects;
- basic engineering subjects;
- environment;
- safety.

BASIC SCIENTIFIC SUBJECTS AREA

Knowledge and understanding

Upon completion of the program, graduates must have acquired basic knowledge in the areas of Mathematics, Physics, and Chemistry (Inorganic and Organic), Statistics, and Computer Science, with the aim of consolidating their scientific research method in approaching the theoretical and applied problems that will be developed later in the academic program.

Ability to apply knowledge and understanding

Graduates will be able to approach basic physics and chemistry problems, linking them to those analyzed and solving them using standard mathematical tools, including the basics of differential and integral calculus.

They will also be able to perform data analysis, including providing effective graphical representations and identifying the most relevant statistical parameters, using basic computer tools

BASIC ENGINEERING SUBJECTS AREA

Knowledge and understanding

At the end of the training course, graduates should have acquired essential knowledge of the quantities of interest, the schematization procedures, and the resolution techniques typical of basic civil/environmental engineering disciplines.

Ability to apply knowledge and understanding

Graduates must be able to apply the technical/scientific knowledge and calculation methodologies acquired to solve basic verification and sizing problems relating to generally simplified schemes, but still on a scale with those of practical interest.

ENVIRONMENT AREA

Knowledge and understanding

Upon completion of the training program, graduates should have acquired a thorough understanding of the most common parameters describing environmental quality, the various pollution phenomena, and the management practices and technologies that can be used to combat the depletion of environmental resources, also taking into account the current regulatory framework and the main related economic aspects.

Ability to apply knowledge and understanding

Graduates will be able to develop preliminary designs for interventions aimed at improving and preserving the quality of various matrices (pollution prevention and control). They will also be able to critically approach the evaluation process of a plan or project in relation to potential environmental issues.

SECURITY AREA

Knowledge and understanding

Upon completion of the training program, graduates will have acquired basic safety knowledge in a wide variety of work environments and mobile construction sites, also considering all aspects (causes and consequences) related to potential accidents that arise from androgenic and natural causes.

Ability to apply knowledge and understanding

Graduates will be able to:

- identify the hazards associated with a given technology or process for the production of goods and services;
- simulate the consequences of accidents and estimate their expected impact on the affected population and the environment;
- obtain the chemical/physical/biological information necessary to critically assess the magnitude of an accident;
- intervene in the management of health and toxicological emergencies.

JOB OPPORTUNITIES

The graduate's professional profile corresponds to the following roles: occupational safety technician, environmental control technician, waste collection and treatment technician, and environmental remediation technician.

Workplace safety technician

He/she performs:

- Risk analysis and assessment;
- Assistance to the employer in managing safety;
- Coordination on the construction site.

He/she can work in any company or organization, with different tasks depending on its size and goal/application, in professional firms and freelancers.

Environmental Control Technician

He/she can intervene in various phases:

- Management and sustainable use of resources;
- Environmental protection and conservation;
- Improving the environmental status of various environmental matrices
- Eliminating various sources of pollution;
- Collaboration with the institutions and public bodies responsible for territorial governance.

He/she can work in service companies and infrastructures, environmental management or design companies, public bodies and as freelance professional.

Waste collection and treatment and environmental remediation technician

He/she can intervene in various phases:

- Analysis and monitoring of waste management and assessment of potential site contamination;
- Planning of material and/or energy recovery interventions and design/testing of safety or remediation interventions;
- Post-construction monitoring of environmental remediation interventions;
- Discussion and collaboration with local government institutions and bodies.

He/she can work in service companies and infrastructures, environmental management or design companies, public bodies, as freelance professional and for environmental consultancy.

Art. 4 - Admission to the course

The admission to the degree program requires a high school diploma or other equivalent qualification obtained abroad. The enrollment in the degree program is open.

Initial preparation verification methods

Enrolled students must take the TOLC-S initial preparation test (TOLC@CASA mode), administered by CISIA, composed as follows:

• Basic Mathematics: 20 questions in 50 minutes

• Reasoning, Problem Solving, and Reading Comprehension: 15 questions in 30 minutes

• Basic Sciences: 20 questions in 40 minutes (5 questions in 10 minutes for Biology, Chemistry, Physics, and Earth Sciences)

The following points are awarded: 1 point for each correct answer, 0 points for each unanswered question, and a penalty of -0.25 points for each incorrect answer.

The test may be taken at any of the locations that have adopted this assessment method, even multiple times, but no later than November 30th. The test is considered passed if the student obtains a "section score" of at least 8 in the "Basic Mathematics" module and a "section score" of at least 5 in the "Reasoning, Problems, and Text Comprehension" module. There are no thresholds for the Basic Sciences.

Students are required to submit the CISIA certificate by November 30th, even if they fail, following the instructions provided on the program website.

Students who fail the TOLC-S by November 30th will have their academic career suspended (and therefore will not be able to take exams) and will be assigned an additional learning obligation (OFA), which consists of a mandatory course, followed by an additional test to be passed by the end of the first semester. The OFA is considered fulfilled if, by September 30 of the calendar year following enrollment, one of the following conditions is met:

- passing a new initial assessment test using the CISIA TOLC-S;
- passing the Mathematical Analysis A exam (a course scheduled for the first semester of the first year of the program).

Regular enrollment in the second year of the program is, in any case, conditional upon completion of the OFAs by September 30 of the calendar year following the year of enrollment.

In the event of late enrollment, the Degree Course may decide to offer special test dates and dedicated office hours to support students assigned to OFAs.

Students who fail to take the initial knowledge test or who fail to submit the certificate issued by CISIA are subject to a career stop and therefore cannot take exams.

The following studentes are exonerated from the test:

- Students transferring from another degree program at the University of Insubria (internal transfer), provided they have taken an initial knowledge assessment test similar to that required for this degree program;
- Students transferring from another university where they have already taken an initial knowledge assessment test similar to that required for this degree program;
- Students enrolling with a bachelor's degree.

Students interested in obtaining an exemption must submit to the Student Secretariat a certificate or self-certification of their previous academic achievements.

Preparatory training activities for the verification of the initial preparation

As preparation tools for the initial knowledge assessment test, students can use the CISIA platforms and in particular the CISIA Basic Mathematics MOOC (after registering at the linkhttps://lms.federica.eu/enrol/index.php?id=568). It is also recommended to consult the CISIA FAQs in the "prepare" section: https://www.cisiaonline.it/faq-cisia-archivio-tolc/

Furthermore, it is possible to attend the preparatory courses for the entrance exams organised by the

University in the period from the end of August to the beginning of September: www.uninsubria.it/precorsi
Link: https://www.uninsubria.it/servizi/vivere-insubria/immatricolarsi-e-iscriversi/immatricolazioni/verifica-della-preparazione-7

Art. 5 - Education Path

The program does not include curricula; the program includes six mandatory courses in the first year, in addition to the English language course, nine mandatory courses in the second year, and two in the third year. Two elective courses are available in the third year, where students can choose one of two courses in the first block and one of three courses in the second block. Additionally, 12 free-choice credits are available in the third year, nine credits for internships, and three credits for the final exam.

The 3 credits in "English" can be recognized through one of the following methods:

1. By submitting to the Student Secretariat a certificate proving completion of a test at a level ≥ B1. This certificate must not have been obtained more than 5 years ago, with the exception of IGCSE, IELTS, and TOEFL certifications, which are valid for only 2 years. For a complete list of recognized certifications, please refer to the following link: https://www.uninsubria.it/sites/default/files/Didattica/DiSTA/Riconoscimento_Certificazioni_Inglese_DISTA_ISLA.pdf
2. Acquiring credits within the University by passing an English language exam administered by the University. Students may take this exam throughout the academic year at specifically scheduled exam sessions.

Courses are taught in person. The organization of the courses hours into full days and the request to instructors to provide dedicated materials intend to facilitate the use of the program by working students. Instructors conduct personalized discussions based on the specific the participation of working students who have difficulty attending in-person classes.

To facilitate the progress of students with declared disabilities, the program, upon notification by the dedicated University Office, supports them by providing the necessary measures.

Attendance is not mandatory but is highly recommended.

CFU/hours correspondance for each type of activity

University Educational Credits (CFU) are a measurement of the amount of learning, including individual study, required to a student with an adequate initial preparation to acquire knowledge and skills in the educational activities required by the degree program.

Any educational activity (teaching, laboratory, internship, thesis, etc.) within the degree program corresponds to a specific number of educational credits (CFU).

Each CFU corresponds to 25 hours of commitment, given by the hours of lectures and laboratory and the ones of independent study necessary to complete the student's preparation.

The CFU number corresponding to each educational activity is acquired by the student upon passing the exam or any other form of assessment defined in the degree program rules.

Educational Activities / CFU:

- lectures: 8 hours
- practical exercises: 12 hours

- laboratory: 16 hours
- seminars: 12 hours
- field laboratories: 16 hours
- internship: 25 hours

The credits corresponding to each training activity are acquired by the student upon passing the exam or other form of assessment established in the course regulations.

Lectures: This is the main and fundamental teaching activity; students attend lectures and independently process the content they have listened to.

Exercises: This activity allows to understand completely the content of lectures through the development of applications. No additional content is added to the lectures. Typically, exercises are associated with lectures and do not exist independently. In "passive" exercises, the application development is performed by the instructor; in active exercises, students develop applications under the instructor's supervision.

Laboratory: This is a supervised activity that involves the student interaction with tools, equipment, or application software packages.

Seminars: Activities in which recognized experts in a given field are invited to share their experiences, showcasing both scientific advances in research and professional applications.

Visits/Study Trips: In-person activities in an internal or external production or research context, accompanied by a faculty member;

Internships: Activities in which students work alongside industry professionals or researchers to perform technical tasks relevant to the topics covered in the program;

Thesis: Preparation of the final dissertation.

Assessment Methods for Educational Activities

The assessment methods for learning activities vary greatly, to best meet the specific needs of each course. This may include written exams, oral exams, homework, or a combination of these.

The assessment and evaluation methods are detailed in the course syllabuses.

Propaedeutics

COURSE	IF YOU HAVE NOT PASSED THE FOLLOWING EXAM
PLUMBING AND HYDRAULIC SYSTEMS	MATHEMATICAL ANALYSIS B PHYSICS
CONSTRUCTION SCIENCE	MATHEMATICAL ANALYSIS B PHYSICS
CONSTRUCTION TECHNIQUES	CONSTRUCTION SCIENCE
ELECTRICAL ENGINEERING, SYSTEMS AND ELECTRICAL RISK	MATHEMATICAL ANALYSIS A MATHEMATICAL ANALYSIS B PHYSICS
COMPUTER SCIENCE AND STATISTICS FOR ENGINEERING	MATHEMATICAL ANALYSIS A

Art. 6 - Rules for submitting study plans

Students must submit their Study Plan in their third year, with the possibility of modifying it in the following years, according to the deadlines set annually and reported on the Student Secretariat web pages: https://www.uninsubria.it/servizi/presentazione-piano-di-studio.

Students have to compile their study plan online by accessing their ESSE3 reserved area and must indicate:

- courses that have to be chosen in a dedicated list
- elective courses (TAF D), which are worth 12 credits.

Elective courses may be chosen from all courses offered at the University, with the exception of some integrated courses offered by limited-access health-related degree programs.

The Degree Program Council will evaluate the consistency of these elective courses with the program in which the student is enrolled.

To facilitate the selection process, some recommended courses consistent with the program are listed in the online plan submission process.

Please note that the lessons of elective courses taken from other University degree programs may have an unresolvable overlap with the program's class schedule.

Art. 7 - Opportunities offered during the training path

The program promotes several initiatives that complement and enrich the academic experience. In particular, it is possible to participate in mobility and internationalization programs:

Il corso di studio promuove alcune iniziative che vanno a completare e arricchire l'esperienza accademica, in particolare è possibile partecipare ai programmi di mobilità e internazionalizzazione:

- **Mobility abroad – Erasmus and other opportunities**
  https://www.uninsubria.it/internazionale/mobilita-allestero/programma-erasmus
- **Tutoring service** (https://www.uninsubria.it/servizi/tutti-i-servizi/tutorato)
  It consists of a series of activities aimed at orienting, assisting, advising, and informing students. In addition to the university information service, the program annually selects subject-specific tutors from among both students and faculty. Student tutors are responsible for assisting their peers in preparing for complex subjects (e.g., Mathematical Analysis and Physics). The tutors are available to students to advise them on the best solutions to problems they may encounter while completing the program (e.g., in compiling study plans and choosing internships).

Contacting the "Diritto allo Studio" office, it is possible to apply for student collaborations: https://www.uninsubria.it/servizi/tutti-i-servizi/collaborazioni-studentesche-200-ore

Internship

The training internship represents an opportunity for students to concretely apply and deepen the knowledge and skills acquired during their studies. During the internship, students improve their independent judgment and communication skills, particularly in the specific terminology of the chosen discipline. Self-learning and self-assessment skills are also encouraged and enhanced.

Depending on the chosen field, students will gain valuable experience for further studies or for entering the

job market.

The educational objectives of the internship are specifically outlined in an individual training plan approved by a dedicated internship committee, in line with the specific educational objectives of the program and the expected career opportunities.

The internship is preparatory to the thesis that the student will defend in the final exam.

The internship may be completed once students have earned at least 120 credits of exams required by their study plan and 3 credits in English.

The Department of Theoretical and Applied Sciences (DiSTA), through its Internship Desk, promotes curricular internships. These offer students the opportunity to undertake practical work, including outside the University, particularly with qualified public or private organizations.

The procedure for activating external and internal internships can be found at https://www.uninsubria.it/servizi/tutti-i-servizi/tirocini-curriculari-dista.

For the Degree Program in Occupational and Environmental Safety Engineering, please consult the internship details page: https://www.uninsubria.it/sites/default/files/Didattica/DiSTA/DISTA_Tirocinio_ISLA_F001.pdf

Students can contact the Internship Desk for further information: https://www.uninsubria.it/ateneo/tutte-le-sedi/sportello-stage-dista

Art. 8 - Graduation

The final exam consists of a 15-minute presentation of the thesis work in a public session (via PowerPoint presentation) before a special Degree Committee, composed of no fewer than five members and a majority of professors and researchers from the Degree Program.

Any external members (co-supervisors or company tutors) may be invited to participate in the session for advisory purposes.

The thesis is submitted by the student according to the procedures established by the University and accessible on the page https://www.uninsubria.it/servizi/vivere-insubria/laurearsi/esame-di-laurea-triennale-ingegneria-la-sicurezza-del-lavoro-e

The final exam is worth 3 credits.

The final exam syllabus is available on the Degree Programme website, in the Course Details – Study Plans section, by selecting the relevant cohort.

The Degree Programme has developed a specific Regulation that integrates and specifies the contents of the current University Teaching Regulations: https://www.uninsubria.it/sites/default/files/2024-04/Regolamento_conseguimento_laurea_ISLA.pdf

The final score is expressed in hundredths. The basic score for the degree exam is calculated as the overall average of the grades, weighted by the number of credits, that is each grade contributes to the average in proportion to the number of credits of the course. Educational activities requiring only a "pass" grade do not contribute to the overall average.

To determine the final score, the final thesis evaluation determined by the degree committee (up to 8 points) is added to the basic score. The assignment of scores takes into account the originality of the work and the

quality of the presentation.
To be awarded Academic Honors, the basic score must be no lower than 103/110. The proposal for Academic Honors must be presented by the Supervisor to the President of the Degree Committee before the meeting and must be unanimously approved by the Committee. The announcement is made by the Committee President at the conclusion of the meeting.

Upon graduation, a **Diploma Supplement** is issued. The Diploma Supplement is an informative report accompanying the official qualification awarded at the end of the study program. It describes the nature, level, context, content, and status of the studies undertaken and completed by the student. It is issued in both Italian and English. The purpose of the document is to provide independent data for the international transparency of qualifications (diplomas, degrees, certificates, etc.) and to enable equitable academic and professional recognition, promoting student mobility. The Diploma Supplement complies with the Europass standard.

Appendix 1 – Study plan

YEAR I							
SEM	**NAME**	**MODULE**	**SECTOR**	**TAF**	**CFU**	**HOURS**	**VERIFICATION METHOD***
I	PRECOURSE – MATHEMATICAL ANALYSIS A		MAT/05	Basic / mathematics, computer science and statistics	0	LEZ:16	F
II	MATHEMATICAL ANALYSIS A		MAT/05	Basic / mathematics, computer science and statistics	9	LEZ:56 ESE:24	V
I	GENERAL, INORGANIC AND ORGANIC CHEMISTRY	*MODA*	CHIM/03	Basics / Physics and Chemistry	9	LEZ:56 ESE:24	V
II		*MOD B*	CHIM/06	Related/Complementary	6	LEZ:32 ESE:24	V
I	PHYSICS	*MODA*	FIS/01	Basics / Physics and Chemistry	6	LEZ:36 ESE:18	V
II		*MOD B*			6	LEZ:36 ESE:218	V
II	MATHEMATICAL ANALYSIS B		MAT/05	Basic / mathematics, computer science and statistics	9	LEZ:56 ESE:24	V
I	SAFETY IN WORKPLACES AND CONSTRUCTION SITES		ICAR/03	Characterizing / Environmental and Territorial Engineering	6	LEZ:48	V
II	GENERAL AND OCCUPATIONAL HYGIENE		MED/44	Related/Complementary	6	LEZ:48	V
ND	ENGLISH		NN	Knowledge of at least one foreign language	3	LEZ:24	G

YEAR II							
SEM	**NAME**	**MODULE**	**SECTOR**	**TAF**	**CFU**	**HOURS**	**VERIFICATION METHOD***
I	COMPUTER SCIENCE AND STATISTICS FOR ENGINEERING		INF/01	Basic / mathematics, computer science and statistics	6	LEZ:24 ESE:24 LAB:16	V
I	ELECTRICAL ENGINEERING, SYSTEMS AND ELECTRICAL RISK		ING-IND/31	Characterizing / Safety and Civil, Environmental and Territorial Protection Engineering	6	LEZ:32 ESE:18 LAB:8	V
I	ENVIRONMENTAL TECHNICAL PHYSICS		ING-IND/11	Characterizing / Safety and Civil, Environmental and Territorial Protection Engineering	9	LEZ:44 ESE:42	V
I	PLUMBING AND HYDRAULIC SYSTEMS		ICAR/01	Characterizing /Civil engineering	9	LEZ:56 ESE:24	V
I	ENVIRONMENTAL HEALTH ENGINEERING		ICAR/03	Characterizing / Environmental and Territorial Engineering	9	LEZ:64 ESE:12	V
II	REMEDIATION OF CONTAMINATED SITES		ICAR/03	Characterizing / Environmental and Territorial Engineering	9	LEZ:44 ESE:42	V
II	ELEMENTS OF GEOLOGY, HYDROGEOLOGY AND SEISMIC RISK		GEO/03	Related/Complementary	6	LEZ:48	V
I	GEOTECHNICS		ICAR/07	Characterizing / Environmental and Territorial Engineering	6	LEZ:48	V
II	CONSTRUCTION SCIENCE		ICAR/08	Characterizing /Civil engineering	9	LEZ:72	V

YEAR III							
SEM	**NAME**	**MODULE**	**SECTOR**	**TAF**	**CFU**	**HOURS**	**VERIFICATION METHOD***
I	PROCESS ENGINEERING, RELIABILITY AND SAFETY		ING-IND/25	Characterizing / Environmental and Territorial Engineering	9	LEZ:64 ESE:12	V
I	CONSTRUCTION TECHNIQUES		ICAR/09	Characterizing / Environmental and Territorial Engineering	6	LEZ:48	V
I+II	ELECTIVE		NN	Elective	12		V
I+II	INTERNSHIP		NN	Other/Internship	9	TIR:225	G
ND	FINAL EXAM			Language/final exam / For the final exam	3	PRF:75	V

ONE COURSE AMONG:							
SEM	**NAME**	**MODULE**	**SECTOR**	**TAF**	**CFU**	**HOURS**	**VERIFICATION METHOD***
II	FIRE-FIGHTING SYSTEMS		ICAR/03	Characterizing / Environmental and Territorial Engineering	6	LEZ:48	V
I	MAJOR INCIDENTS AND RISK ANALYSIS		ICAR/03	Characterizing / Environmental and Territorial Engineering	6	LEZ:48	V
ONE COURSE AMONG:							
II	OCCUPATIONAL CHEMICAL RISK		MED/44	Related/Complementary	6	LEZ:48	V
I	ASSESSMENT OF HYGIENISTIC-TOXICOLOGICAL RISKS		MED/44	Related/Complementary	6	LEZ:48	V
I	ELEMENTS OF ENVIRONMENTAL LAW AND CIRCULAR ECONOMY		IUS/05	Related/Complementary	6	LEZ:48	V

***G** – JUDGEMENT **V** – EXAME **I** – SUITABILITY **F** – ATTENDANCE
***HOURS** and activity type **LEZ**: lecture **ESE**: exercises **LAB**: laboratory **SEM**: seminar **TIR**: internship*