



University of Brescia

# Civil and Environmental Engineering CCSA (Aggregated Study Programme Advice)

## Teaching Regulations for the Master's Degree in CIVIL AND ENVIRONMENTAL ENGINEERING

(extract)

Degree Class LM35-LAND AND ENVIRONMENTAL ENGINEERING (pursuant to DM 270/04)

(Study programme starting in A.Y. 2018/2019)



University of Brescia

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## Art. 1) Introduction to the Course

The Master's Degree in Civil and Environmental Engineering is structured in order to provide interdisciplinary advanced knowledge and comprehension in the principal areas of civil, environmental and land engineering and, specifically, to prepare students for the design and management of hydraulic and land defence works, water and waste treatment systems, urban and rural transport systems and environmental surveys, urban regeneration and the restoration of built up areas; for the design and management of urban and land planning, programming and design on different scales, as well as the assessment of technological plans, projects and systems; for high level technical-administrative and technical-commercial management within Public Administration, enterprises, public and private bodies and professional firms.

Graduates of the Master's Degree Programme shall, in particular, be able to work in contexts characterised by high levels of international interaction, such as companies with branches in different countries, major professional contracts abroad, projects funded by EU Structural Funds, etc.

The Master's Degree in Civil and Environmental Engineering is thus established as a pathway of excellence intended to train engineers who are preparing to compete on the global job market with specific expertise bridging the traditional skills of civil and environmental engineering. The course offers the opportunity, according to the choices available in the study plan, to channel preparation more towards the civil area or environmental area of engineering. The course is organised over two academic years and foresees the acquisition of a total of 120 credits divided among specific subjects, related and additional subjects chosen by the student, as well as final examination preparation activities. The course is taught entirely in English.

## Art. 5) Requirements for admission to the degree course and admission and verification methods

In order to enrol into the Master's Degree Programme in Land and Environmental Engineering, applicants must hold a three-year university degree or diploma, or other recognised and approved qualification obtained abroad. Admission to the study programme is subject to possession of curricular requirements and an assessment of the adequacy of the applicant's personal preparation, which will be carried out as specified below.

### 5.1) European Community students of any residence and foreign students legally registered in Italy with a Bachelor's Degree awarded in Italy.

#### 5.1.1) Verification of possession of curricular requirements

In order to be admitted to the Study Programme, applicants must have acquired, or must acquire, within the established deadline, **at least 100 credits within the following Scientific and Disciplinary Sectors (SDSs)**, with limits specified on a case-by-case basis. The compulsory curricular requirements refer to the number of credits envisaged for all the SDSs with regard to the subjects of the Degree Course in Land and Environmental Engineering.

1) Basic subjects:

**40 credits in the SDSs ING-INF/05, MAT/02, MAT/03, MAT/05, MAT/06, MAT/07, MAT/08, CHIM/07, FIS/01**

Of which at least:

15 credits in the SDS MAT/05

15 credits in the SDSs CHIM/07, FIS/01

2) Specific subjects

**55 credits in the SDSs GEO/05, ICAR/01, ICAR/02, ICAR/03, ICAR/04, ICAR/05, ICAR/06, ICAR/07, ICAR/08, ICAR/09, ICAR/10, ICAR/20, ING-IND/35, ING-INF/04**

Of which at least:

5 credits in the SDSs ICAR/01 or ICAR/02

5 credits in SDS ICAR/08

3) Related and additional subjects

**5 credits in the SDSs ICAR/11, ICAR/17, ICAR/21, ICAR/22, ING-IND/10, ING-IND/11, MAT/02, SECS-P/06, SPS/09**



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### **5.1.2) Assessment of personal preparation**

Assessment of personal preparation is carried out with reference to the grade achieved in the degree awarded that is required to enrol on the Master's Degree course and with regard to the level of proficiency in English. Proficiency must be demonstrated via presentation of an English language certificate demonstrating the minimum level indicated in the points below, according to the methods indicated in Art. 16 of these Regulations.

In the event that the applicant does not hold an English language certificate at the time of making his/her application, but believes himself/herself to possess an adequate level of English, he/she can ask to sit the test awarding suitable English language certification at one of the approved international certification bodies or institutes included in the list that can be viewed here: <http://www.unibs.it/didattica/corsi-di-laurea-triennale-e-magistrale/certificazioni-linguistiche-ed-esercitazioni/certificazioni-linguistiche-riconosciute>

### **5.2) European Community students of any residence and foreign students legally registered in Italy with a Bachelor's Degree awarded abroad.**

The application for admission should be submitted directly to the Students' Service Office, accompanied by the documents required by the university. Academic qualification certificates awarded by foreign authorities must be accompanied by an official translation in Italian, as well as legalisation and a declaration of value issued by local competent Italian Diplomatic or Consular representation. Although the student's academic qualification certificate must include an Italian translation, he/she may produce any other documents attesting to his/her path of study without Italian translation, if said documents are originally produced in the following languages: English, French or Spanish. Students that have passed the initial application assessment may be exempted from having to produce Italian translations of documents attesting to their path of study even for languages other than those stated above. Exemption will be established at the time of initial assessment and the Students' Service will be notified.

#### **5.2.1) Verification of possession of curricular requirements**

Verification of curricular requirements will be undertaken via the detailed examination of the documents presented with the admission application, in particular the academic qualifications and previous academic career of the applicant, including establishing, where possible, due correspondence between exams passed with high scores and the scientific and disciplinary sectors required according to that specified earlier. Where deemed appropriate, in order to clarify certain elements of the academic curriculum presented, the CCSA or its delegated Commissions may request an interview with the applicant in person or online.

#### **5.2.2) Assessment of personal preparation**

Assessment of personal preparation is carried out with reference both to the applicant's proficiency in English and the score achieved in his/her Bachelor's Degree. For the purposes of the quantitative assessment of these aspects of the applicant's preparation, in relation to the levels established for admitting Italian students with Bachelor's Degree awarded in Italy, the CCSA will base its decision on the analysis of the elements available in the individual case under consideration. Where deemed appropriate, in order to obtain clearer confirmation of the applicant's proficiency in English, the CCSA or its delegated Commissions may request an interview with the applicant in person or online.

#### **5.2.3) Prior assessment of applications**

Students resident abroad may, via internet or other communication tools, pending the start of formal procedures following admission application, contact the CCSA to provide copies of the documents relating to their path of study, in order to enable the prior assessment of their application. The CCSA or its delegated Commissions may, in this way, provide the interested students with an informal advance indication of possible admission to enrolment. Where necessary, an additional online interview can be organised. In the event that the applicant does not pass this prior assessment, recommendations may be made to apply to another appropriate Study Programme. In the event of passing this prior assessment, the CCSA or its delegated Commissions may establish exemption from having to produce Italian translations of documents attesting to the applicant's path of study. Prior notification from the CCSA does not substitute the actual Study Programme enrolment procedure with verification of curricular requirements and of personal preparation based on original documents.

### **5.3) Foreign students resident abroad (non-European Community and not legally registered in Italy)**



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Interested students can request prior assessment of their application. Prior assessment does not substitute the actual Study Programme pre-enrolment procedure with subsequent verification of curricular requirements and of personal preparation based on original documents, which takes place only via diplomatic or consular representation. Therefore, all students are subject, indiscriminately, to that outlined in the following points, which include any specific instructions for students who have successfully passed prior assessment.

### **5.3.1) Presentation of the application and related documents**

Students interested in applying to the Master's Degree Programme present their pre-enrolment application to the Italian representative body in their country of origin. Pre-enrolment application acceptance is limited to the number of places available for the Study Programme. The application must include the following attachments, as set out in Part I, Ch. I, Part 1.B of the Ministerial Regulations, more specifically: (i) academic qualification awarded at a university or approved higher educational qualification, (ii) certificate issued by the competent university, duly confirmed by diplomatic representation, attesting to the exams passed, as well as detailed programmes for each of the qualifications obtained. Candidates are obliged to submit to the Students' Service original copies of the translated and legalised documents, issued by the diplomatic or consular representation, for the purposes of finalising enrolment on the Study Programme (Part III, Point 2 of the Ministerial Regulations). Although the student's academic qualification certificate must include an Italian translation, the certificate issued by the competent university, if originally produced in the following languages: English, French or Spanish, does not have to be accompanied by a translation into Italian. Students that have passed the initial application assessment may be exempted from having to produce Italian translations of documents attesting to their path of study even for languages other than those stated above. Exemption will be established at the time of initial assessment and the diplomatic or consular representative body and Students' Service will be notified.

### **5.3.2) Italian language proficiency test**

The Italian language proficiency test is not required if the Degree Programme is taught exclusively in a foreign language (Part I, Ch. I, Point 9 of the Ministerial Regulations). Part I, Ch. I, Point 10 of the Ministerial Regulations outlines the cases of exemption from the obligation to sit the Italian language proficiency test.

### **5.3.3) Verification of possession of curricular requirements**

The curricular requirements are those listed in Part 5.1.1 above. Verification of these curricular requirements will be undertaken via the detailed examination of the documents presented with the admission application, in particular the academic qualifications and previous academic career of the applicant, including establishing, where possible, due correspondence between exams passed with high scores and the scientific and disciplinary sectors required according to that specified earlier. In the CCSA decision, the outcome of the assessment and relative justifications will be explicitly indicated and may be expressed in overall terms with reference to each of the sets of SDSs outlined earlier. Where deemed appropriate, in order to clarify certain elements of the academic curriculum presented, the CCSA or its delegated Commissions may request an interview with the applicant in person or online.

### **5.3.4) Assessment of personal preparation**

Assessment of personal preparation is carried out with reference both to the applicant's proficiency in English and the score achieved in his/her Bachelor's Degree. For the purposes of the quantitative assessment of these aspects of the applicant's preparation, in relation to the levels indicated in the cases above, the CCSA will base its decision on the analysis of the elements available in the individual case under consideration. Where deemed appropriate, in order to obtain clearer confirmation of the applicants proficiency in English, the CCSA or its delegated Commissions may request an interview with the applicant in person or online.

### **5.3.5) Prior assessment of applications**

Students resident abroad may, via internet or other communication tools, pending the start of procedures undertaken by diplomatic or consular representation, contact the CCSA to provide copies of the documents relating to their path of study, in order to enable the prior assessment of their application. The CCSA or its delegated Commissions may, in this way, provide the interested students with an informal advance indication of possible admission to enrolment. Where necessary, an additional online interview can be organised. Should the number of application requests exceed the number of places established for the study programme of interest, potential applicants may be notified of their position in the ranking list. Students who do not qualify within the number of



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places established for the study programme of interest and students who not pass the prior assessment may be provided with recommendations to apply to another appropriate Study Programme.

In the event of passing this prior assessment, the CCSA or its delegated Commissions may, as indicated in Part 5.3.1, establish exemption from having to produce Italian translations of documents attesting to the applicant's path of study.

The outcome of the informal assessment of admission requirements by the CCSA or its delegated Commissions, undertaken according to the methods described above, will be communicated via fax or email sent to the applicant as soon as possible. In the event that the student passes prior assessment, the diplomatic or consular representative body and the Students' Service will be notified of the positive outcome and any indications of exemption from translation of the detailed study programmes.

As already indicated in Part 5.3.1, advance notification by the CCSA does not substitute the actual Study Programme pre-enrolment procedure with subsequent verification of curricular requirements and of personal preparation based on original documents, which takes place only via diplomatic or consular representation (Part III of the Ministerial Regulations).

### **5.3.6) Procedures or special agreements with foreign universities or university associations for student mobility**

In the event that the applicant is selected as part of an agreement between the University of Brescia and a foreign university or university association for student mobility, the admission methods are regulated by the agreement itself. If foreseen by the procedure or special agreement, selection and verification of requirements can be carried out by the university of origin and, in this case, applicants are admitted directly to enrolment on the Study Programme.

### **Art. 16) Methods of assessment of foreign language proficiency and language certifications**

#### **Language proficiency test**

Proficiency in the English language of at least level B2 of the CEFR (Common European Framework of Reference for Languages) is required as part of the personal preparation necessary for admission to the Master's Degree Programme.

**ANNEX 1****General curriculum (Study programme starting in A.Y. 2018-19)**

<i>First year</i>		<i>Credits</i>	<i>Subjects</i>	<i>Semester</i>	<i>SDS</i>
1	ENVIRONMENTAL HYDRAULICS	9	B	S2	ICAR/01
2	STRUCTURAL DESIGN	9	B	S1	ICAR/09
3	GEOTECHNICAL ENGINEERING	9	B	S1	ICAR/07
4	STRUCTURAL DYNAMICS AND SEISMOLOGY	9	B	S2	ICAR/08
5	URBAN PLANNING AND RISK MITIGATION (Integrated Course)	9			
	- Basic principles of urban planning (6)		B	S2	ICAR/20
	- Planning and risk mitigation (3)		F	S2	ICAR/20
6	BUILDING PERFORMANCE ENGINEERING	9	C	S1	ICAR/11

<i>Second year</i>		<i>Credits</i>	<i>Subjects</i>	<i>Semester</i>	<i>SDS</i>
7	HYDRAULIC STRUCTURES	9	B	S1	ICAR/02
8	REINFORCED CONCRETE STRUCTURES	6	B	S1	ICAR/09
9	CLIMATE CHANGE ADAPTATION AND MITIGATION	6	B	S1	ICAR/02
9	STRUCTURAL REHABILITATION	6	B	S1	ICAR/09
10	DESIGN OF SEISMIC RESISTANT STRUCTURES	9	B	S2	ICAR/09
10	WATER AND WASTE TREATMENT PLANT DESIGN	9	B	S1	ICAR/03
11	ADVANCED GEOMATICS	9	B	S2	ICAR/06
12	APPROPRIATE ENVIRONMENTAL TECHNOLOGIES FOR RESOURCE LIMITED COUNTRIES	6	C	S2	ICAR/03
12	ARCHITECTURAL RESTORATION AND CONSERVATION	6	C	S2	ICAR/19
13	ELECTIVE SUBJECTS	9	D		
	FINAL THESIS	12	AND		

Type of educational activity: **A** = basic; **B** = specific; **C** = related or additional; **D** = free choice; **E** = language – final test; **F** = additional subjects

Students must acquire an overall 9 credits in independently chosen subjects. For independently chosen subjects, students may by priority use all the courses on offer in the Engineering macro-area, in compliance with the examination priority constraints established by the Teaching Regulations and subject to positive assessment by the competent teaching bodies. Courses recommended for credits to be chosen by the student are reported in the following table.



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<i>Courses</i>	<i>Credits</i>	<i>Semester</i>	<i>SDS</i>
ANALISI E CONTROLLO DEI SISTEMI AMBIENTALI	9	S1	ING-INF/04
APPROPRIATE ENVIRONMENTAL TECHNOLOGIES FOR RESOURCE LIMITED COUNTRIES	6	S2	ICAR/03
ARCHITECTURAL RESTORATION AND CONSERVATION	6	S2	ICAR/19
CLIMATE CHANGE ADAPTATION AND MITIGATION	6	S1	ICAR/02
DESIGN OF SEISMIC RESISTANT STRUCTURES	9	S2	ICAR/09
ETICA DELLA SOSTENIBILITA' AMBIENTALE	3	S1	
IMPIANTI TECNICI DELL'EDILIZIA	9	S2	ICAR/11
MATHEMATICAL MODELS AND SIMULATION FOR THE ENVIRONMENT	6	S1	MAT/05
REMOTE SENSING	9	S1	ING-INF/03
EXTERNAL INTERNSHIP	6, 9		
STRUCTURAL REHABILITATION	6	S1	ICAR/09
SUMMER SCHOOL	3		
WATER AND WASTE TREATMENT PLANT DESIGN	9	S1	ICAR/03