

# ENGINEERING MANAGEMENT

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## Bachelor of Sciences in English

UNIVERSITY OF PERUGIA – DEPARTMENT OF ENGINEERING  
ACADEMIC YEAR 2025-2026

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A.D. 1308

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DI INGEGNERIA

# Engineering Management Degree Course

## Teaching Regulations

### Title I – General Information

#### ART. 1 FUNCTIONS AND STRUCTURE OF THE COURSE

These Regulations govern the Degree Course in Engineering Management (degree in Management Engineering taught in English, interclass L-8 and L-9) of the Department of Engineering of the University of Perugia in accordance with Law No. 341 of 19 November 1990, the Decree of the Minister of Education, University and Research No. 270 of 22 October 2004 and related implementing decrees, and the University's Teaching Regulations.

The course is held at the Perugia campus and is coordinated by the Department of Engineering Council.

The temporary course coordinator is Prof. [Stefano SAETTA](#).

The Department Council provides, as established by the Ministerial Decree on Initial and Periodic Self-Assessment of Study Programmes and Periodic Evaluation (Legislative Decree 19 of 27/01/2012), adequate and documented quality control, assessment and assurance (QA) activities. The evaluation may be carried out by several parties: teaching staff, students and, in particular, graduating students, external associations and/or professional associations, as well as through the parameters collected by the Alma Laurea database.

The course offerings can be found on the page: <https://orienta.ing.unipg.it/EngManagement/I8I9/>

The course is taught in English and takes place in a conventional format.

The course leads to the degree of 'Dottore in Ingegneria Gestionale'.

#### ART. 2 SPECIFIC TRAINING OBJECTIVES, CAREER AND PROFESSIONAL OPPORTUNITIES

The Engineering Management degree program (corresponding to the Italian version in Management Engineering) aims to train professionals capable of addressing the main issues related to the study, organisation and management of complex companies and systems. Graduates will acquire important skills in industrial and information engineering, together with knowledge in economics and management.

The aim is to train management engineers who can work in both manufacturing and service companies and in public administration. Hence the multidisciplinary program, which also emphasises non-technical subjects such as business strategy, innovation management, business analysis, marketing and logistics. Together, these subjects provide a systemic view of business dynamics and enhance graduates' problem-solving and management skills in complex situations. At the same time, the program is supported by solid basic teaching and

also includes courses that provide specific technical and engineering skills, which complement the acquisition of soft skills and strategic skills, in order to find a winning synergy between the various fields.

In summary, the course aims to train graduates who:

- know how to work with information and communication systems, both in the product and process fields;
- are familiar with the basics of economics, business organisation, business strategy and innovation management;
- are able to model decision-making problems specific to companies in different sectors, plan tactical and strategic actions and develop analytical tools, using efficient techniques and/or solution algorithms;
- be familiar with the main business communication processes and have a basic knowledge of marketing;
- have basic knowledge of mechanical and electronic components and systems, both in terms of function and construction;
- be familiar with the relevant regulations in the sector and have skills in safety and quality management;
- be familiar with methods and tools for product design and development;
- be familiar with methods and tools for managing production processes and logistics;
- be able to manage innovation in processes, products and methods.

The teaching program is organised as follows:

- During the first year, students take basic subjects typical of the field of industrial and information engineering.
- During the second and third years, courses typical of industrial and information engineering and related subjects are taught;
- The program is completed by additional training activities, such as company internships or individual or group projects, aimed at enhancing practical skills that can be used in the workplace.

The problem-solving skills acquired and the highly diversified training enable management engineers to tackle organisational and management problems, analyse and manage complex systems, and interact with colleagues who have a more technical engineering background. In particular, graduates in management engineering have specific skills in: analysing and redesigning business processes, while evaluating possible organisational improvements; providing consultancy services to support business decisions; evaluating the cost-effectiveness of business initiatives; applying data analysis models and techniques; planning, managing and controlling quality actions; collaborating in the analysis and management of production, procurement and logistics processes. Graduates of this degree program are therefore able to apply their knowledge in the fields of business management, production systems, industrial plants and information technology. For this reason, graduates

in Engineering Management easily find employment in both large organisations and small and medium-sized enterprises engaged in industrial and service activities.

The course allows students to obtain a professional qualification, subject to passing the state exam, and to register in the relevant professional register for the following regulated professions: junior industrial engineer, junior information engineer, graduate industrial expert. The qualification also allows students to enrol in a master's degree program and first-level master's programs.

The main areas of employment for management engineers are:

- Strategic planning and decision support;
- Marketing, strategic communication and sales;
- Knowledge management;
- Security management;
- Project management;
- Quality management;
- Business management and management control;
- New product development;
- Process innovation and innovation management;
- Production and supply chain management.

### ART. 3 ADMISSION REQUIREMENTS AND ASSESSMENT METHODS

The degree program has a sustainable enrolment capacity of 180 students.

The conditions for admission are:

- a) upper secondary school diploma or other qualification obtained abroad, recognised as equivalent, as provided for in Art. 6, paragraph 1 of Ministerial Decree 270/2004.
- b) Possession of suitable certification of knowledge of English at level B2 (Common European Framework of Reference for Languages, CEFR) or equivalent. For equivalents, please refer to the table on the University Language Centre website. This condition does not prevent enrolment, except for those who need to apply for a visa. The certification must be obtained by the end of the first academic year (A.Y.). If the student does not submit the required language certification by the end of the first academic year, they will not be able to take exams starting from the academic year following their enrolment until the certification is submitted.
- c) For admission to the degree course in Engineering Management, it is also necessary to take a test, in accordance with Article 6 of the Decree of the Ministry of Education, University and Research No. 270/2004, to verify the adequacy of initial preparation in mathematics, verbal comprehension and logic. The assessment is carried out through the TOLC-I test (online Test of the CISIA consortium for engineering courses). Alternatively, internationally recognised tests

such as the SAT and ACT are also accepted. The pass thresholds for the admission tests are as follows:

- for the TOLC-I, the total must be at least 14/50 (excluding the English section) and there is also a minimum threshold for the TOLC mathematics section of 7/20.
- for the SAT, the threshold for the SAT total is 700 (out of 1600) and for SAT-MATH is 350 (out of 800).
- for the ACT, the threshold for the ACT composite score is 16 (out of 36) and for ACT-Math is 15 (out of 36).

Failure to pass the test does not prevent enrolment, except for those who need to apply for a visa, but it does prevent students from taking and registering for second-year exams. This is until students have passed the test (which can be taken several times during the year) or have satisfied the additional educational requirements in mathematics or, finally, have successfully passed an exam in a course in the SSD MATH-03. For further information, please consult the regulations of the Department of Engineering relating to [the Admission Test](#).

#### ART. 4 TRANSFERS AND TRANSFER

In order to allow for effective integration into teaching activities, the transfer from another degree program and/or transfer from another university must normally be submitted by the end of October.

## Title II – Educational Path

### ART. 5 CURRICULA

No curricula are required.

### ART. 6 TRAINING COURSES

#### Structure of the educational program

The teaching activities are divided into three years and correspond to a teaching load of 180 ECTS.

For classroom-based teaching (therefore excluding training internships and the final exam), each ECTS corresponds to 25 hours of student commitment, of which 9 hours are classroom-based teaching and 16 hours are self-study. All teaching is carried out in the conventional manner (in person with the additional option of following online, only simultaneously) and in English.

The calendar of teaching activities is established by the Department of Engineering Council as part of its coordination with other degree programs.

The training program for the various teaching cycles is set out below.

### 2025 CYCLE

#### First year (2025-2026) - TEACHING DELIVERED IN 2025-26

| Name Teaching                            | Modules                                          | SSD       | ECTS | Semester |
|------------------------------------------|--------------------------------------------------|-----------|------|----------|
| MATHEMATICS I AND GEOMETRY               | Mathematics I                                    | MATH-03/A | 6    | I        |
|                                          | Geometry                                         | MATH-02/B | 6    | I        |
| MATHEMATICS II AND STATISTICS            | Mathematics II                                   | MATH-03/A | 6    | II       |
|                                          | Statistics                                       | MATH-03/B | 6    | II       |
| MANUFACTURING ENGINEERING AND TECHNOLOGY |                                                  | IIND-04/A | 8    | II       |
| FUNDAMENTALS OF COMPUTER SCIENCE         | Introduction to computer science and programming | IINF-05/A | 6    | I        |
|                                          | Information systems                              | IINF-05/A | 6    | II       |
| PHYSICS                                  | Physics I                                        | PHYS-01/A | 1    | I        |
|                                          | Physics II                                       | PHYS-01/A |      | II       |

## Second Year (2026-2027) - PLANNED

| Name Teaching                                   | Modules                                       | SSD       | ECTS | Semester |
|-------------------------------------------------|-----------------------------------------------|-----------|------|----------|
| SYSTEMS ENGINEERING                             |                                               | IINF-07/A | 6    | I        |
| ENGINEERING ECONOMY                             |                                               | IEGE-01/A | 6    | I        |
| STRATEGIC BUSINESS MANAGEMENT                   |                                               | IEGE-01/A | 8    | II       |
| MATHEMATICAL METHODS FOR ENGINEERING MANAGEMENT |                                               | MATH-07/A | 6    | II       |
| ENERGY MANAGEMENT                               | Applied thermodynamics and thermal management | IIND-07/A | 6    | I        |
|                                                 | Management of energy conversion systems       | IIND-06/A | 6    | II       |
| FACILITY PLANNING AND DESIGN                    | Facility Planning and Design Methodologies    | IIND-05/A | 6    | II       |
|                                                 | Electrical Systems                            | IJET-01/A | 6    | II       |
| CONTROL SYSTEMS                                 |                                               | IINF-04/A | 8    | I        |
| SYSTEM MECHANICS                                |                                               | IIND-02/A | 6    | I        |

## Third Year (2027-2028) - PLANNED

| Name Teaching                                                                   | Modules                                        | SSD       | ECTS | Semester |
|---------------------------------------------------------------------------------|------------------------------------------------|-----------|------|----------|
| PRODUCT DESIGN                                                                  | Principles and Methods of Machine Design       | IIND-03/A | 5    | I        |
|                                                                                 | Graphical Communication for Engineering Design | IIND-03/B | 5    | II       |
| INDUSTRIAL AUTOMATION, PRODUCTION SYSTEMS AND COMPUTER INTEGRATED MANUFACTURING |                                                | IIND-04/A | 6    | II       |
| PRODUCTION PLANNING                                                             |                                                | IIND-05/A | 8    | II       |
| QUALITY MANAGEMENT AND CONTROL                                                  |                                                | IMIS-01/A | 6    | I        |
| ORGANISATIONAL AND WORK SOCIOLOGY                                               |                                                | GSPS-08/A | 6    | I        |
| One exam to be chosen from:                                                     |                                                |           |      |          |
| INTRODUCTION TO DATA ANALYSIS AND MODELLING                                     |                                                | IINF-03/A | 6    | II       |
| or                                                                              |                                                |           |      |          |
| INDUSTRIAL ECONOMICS                                                            |                                                | ECON-04/A | 6    | II       |
| Elective/Internship                                                             |                                                |           | 12   |          |
| Final exam                                                                      |                                                |           | 3    |          |
| Training Internship                                                             |                                                |           | 3    |          |



2024

## Second Year (2025-2026) - TEACHING DELIVERED IN 2025-26

| Name Teaching                                   | Modules                                       | SSD       | ECTS | Semester |
|-------------------------------------------------|-----------------------------------------------|-----------|------|----------|
| SYSTEMS ENGINEERING                             |                                               | IINF-07/A | 6    | I        |
| ENGINEERING ECONOMY                             |                                               | IEGE-01/A | 6    | I        |
| STRATEGIC BUSINESS MANAGEMENT                   |                                               | IEGE-01/A | 8    | II       |
| MATHEMATICAL METHODS FOR ENGINEERING MANAGEMENT |                                               | MATH-07/A | 6    | II       |
| ENERGY MANAGEMENT                               | Applied thermodynamics and thermal management | IIND-07/A | 6    | I        |
|                                                 | Management of energy conversion systems       | IIND-06/A | 6    | II       |
| FACILITY PLANNING AND DESIGN                    | Facility Planning and Design Methodologies    | IIND-05/A | 6    | II       |
|                                                 | Electrical Systems                            | IET-01/A  | 6    | II       |
| CONTROL SYSTEMS                                 |                                               | IINF-04/A | 8    | I        |
| SYSTEM MECHANICS                                |                                               | IIND-02/A | 6    | I        |

## Third Year (2026-2027) - PLANNED

| Name Teaching                                                                       | Modules                                        | SSD       | Credits | Semester |
|-------------------------------------------------------------------------------------|------------------------------------------------|-----------|---------|----------|
| PRODUCT DESIGN                                                                      | Principles and Methods of Machine Design       | IIND-03/A | 5       | I        |
|                                                                                     | Graphical Communication for Engineering Design | IIND-03/B | 5       | II       |
| INDUSTRIAL AUTOMATION, PRODUCTION SYSTEMS AND COMPUTERS<br>INTEGRATED MANUFACTURING |                                                | IIND-04/A | 6       | II       |
| PRODUCTION PLANNING                                                                 |                                                | IIND-05/A | 8       | II       |
| QUALITY MANAGEMENT                                                                  |                                                | IMIS-01/A | 6       | I        |
| ORGANISATIONAL AND WORK SOCIOLOGY                                                   |                                                | GSPS-08/A | 6       | I        |
| One exam to be chosen from:                                                         |                                                |           |         |          |
| INTRODUCTION TO DATA ANALYSIS AND MODELLING                                         |                                                | IINF-03/A | 6       | II       |
| or                                                                                  |                                                |           |         |          |
| INDUSTRIAL ECONOMICS                                                                |                                                | ECON-04/A | 6       | II       |
| Elective/Internship                                                                 |                                                |           | 12      |          |
| Final exam                                                                          |                                                |           | 3       |          |
| Training Internship                                                                 |                                                |           | 3       |          |

## 2023

## Third Year (2025-2026) - TEACHING DELIVERED IN 2025-26

| Name Teaching                                                                       | Modules                                        | SSD       | ECTS | Semester |
|-------------------------------------------------------------------------------------|------------------------------------------------|-----------|------|----------|
| PRODUCT DESIGN                                                                      | Principles and Methods of Machine Design       | IIND-03/A | 5    | I        |
|                                                                                     | Graphical Communication for Engineering Design | IIND-03/B | 5    | II       |
| INDUSTRIAL AUTOMATION, PRODUCTION SYSTEMS AND COMPUTERS<br>INTEGRATED MANUFACTURING |                                                | IIND-04/A | 6    | II       |
| STRATEGIC BUSINESS MANAGEMENT                                                       |                                                | IEGE-01/A | 8    | II       |
| QUALITY MANAGEMENT                                                                  |                                                | IMIS-01/A | 6    | I        |
| ORGANISATIONAL AND WORK SOCIOLOGY                                                   |                                                | GSPS-08/A | 6    | I        |
| One exam to be chosen from:<br>INTRODUCTION TO DATA ANALYSIS AND MODELLING          |                                                | IINF-03/A | 6    | II       |
| or                                                                                  |                                                |           |      |          |
| INDUSTRIAL ECONOMICS                                                                |                                                | ECON-04/A | 6    | II       |
| Elective/Internship                                                                 |                                                |           | 12   |          |
| Final exam                                                                          |                                                |           | 3    |          |
| Training Internship                                                                 |                                                |           | 3    |          |

### Training Internship

The training programme includes an internship that can be carried out in a company or internally, through which students can earn 3 credits, which are compulsory for all students. Additional credits may be earned through activities of their choice. A maximum of 15 credits can therefore be earned if all 12 credits available for free-choice activities are used. Students are allowed to undertake only one internship, agreed upon with their university tutor.

At the end of the internship, a special committee will analyse the relevant documentation and assess the suitability of the internship, with the subsequent accreditation of the relevant credits. For all information and procedures, please consult the relevant regulations: [Internships - Engineering Management Area](#).

### Activities chosen by the student

Students can acquire the 12 credits reserved for activities of their choice in two different ways:

- elective courses;
- internship activities as specified above.

Elective courses must be consistent with the training program. Courses from other engineering degree programs available at the University of Perugia are particularly recommended. The Council reserves the right to evaluate different free choices based on their consistency and suitability with the educational objectives of the degree program. Students are responsible for taking a number of exams in excess of the minimum required by the program.

In the teaching program, elective exams are scheduled for the third year of the course. Students may take these exams in the second year. At the beginning of the academic year in which they intend to attend the teaching activities and take the elective exam, students must submit an explicit request to the Student Office.

#### ART. 7 PART-TIME STUDENTS

For students who enrol as part-time students and have a personal study plan that provides for a different structure of the educational program, ad hoc teaching activities may be arranged.

Depending on the needs arising from work commitments and the study plan, dedicated forms of teaching will be made available, including tutorial assistance, monitoring of preparation, specific classroom teaching and, if necessary, distance learning services using the ad hoc resources made available by the university.

#### ART. 8 PREREQUISITES, ATTENDANCE REQUIREMENTS - BARRIER RULES

There are no compulsory prerequisites.

Rules for assessing attendance may be established. Lecturers who deem this necessary must officially notify the teaching department and students.

## ART. 9 STUDY PLANS

The teaching plan set out in the Study Program is the official plan for the degree program, which students enrolled in the relevant cycles and years of the program must follow.

Current students may prepare a personal study plan, in derogation from the official plan, in compliance with the teaching regulations and the activities actually activated.

The plan must normally be submitted for approval by the end of October. It must be prepared on a specific form provided by the student office and delivered to the same office, which will register it and forward it for evaluation.

The teaching staff will evaluate the individual study plans, taking into account the cultural training and professional preparation requirements of the student.

Any change to the educational path set out in the Study Manifesto, involving changes to courses or a different distribution of courses over the years of the course and/or semesters, constitutes a personal study plan and, as such, must be submitted to the teaching department for approval.

## ART. 10 FINAL EXAM

To be admitted to the final exam, students must have earned all credits in the other educational activities required by the study plan.

The exam consists of a project work, i.e. a written paper (without oral presentation), carried out under the supervision of a lecturer (possibly assisted by a co-supervisor), in which the student must demonstrate that they have acquired the knowledge and skills required to carry out the professional activity. The topic of the project work will cover topics that the student has dealt with during their training, including the internship.

A special committee for the awarding of the degree evaluates the project and the student's entire course of study to determine the final grade. A positive evaluation allows students to acquire the credits necessary to complete their studies. The Final Assessment Committee is composed of seven members appointed from among the University's teaching staff. The Committee decides in closed session on the degree classification for students who have passed the final assessment.

The final grade with which the degree is awarded, expressed in hundredths, is the sum of:

- a) the arithmetic mean of the exam grades, weighted in proportion to the credits corresponding to each exam;
- b) the final mark awarded to the exam by the committee;
- c) any bonuses.

The final score is rounded down if the decimal part is less than 0.5, otherwise it is rounded up.

The degree committee may also award honors "cum laude" unanimously if the final grade is higher than 111.

With regard to point b), the degree committee may award up to a maximum of 3/110 tenths for the final paper.

With regard to point c), the following bonuses are available:

- Duration bonus:
  - 3 points for students who obtain their degree on time. The score is recognised until the last graduation session in the academic year in question;
  - 1 point for students who graduate in the first year after the normal duration of the program;
  - no bonus is awarded for students who are behind schedule after the first year.
- Average bonus:
  - a score is awarded for the average, up to a maximum of 3 points or up to a total score of 108 (whichever is reached first), distributed proportionally according to the following table:

| Average exam marks | Up to 85 | 85 | 90 | 95  | 100 | 105-107.99 | from 108.00 |
|--------------------|----------|----|----|-----|-----|------------|-------------|
| Bonus              | 0        | 0  | 1  | 1.5 | 2   | Up to 108  | 0           |

- Internship bonus:
  - 1 point is awarded to students who have completed a curricular internship in a company, acquiring the maximum number of free-choice credits available for a total of 15 ECTS (12 + 3 compulsory)
- Erasmus bonus:
  - 1 point is awarded to students who have obtained at least 12 ECTS credits during their career through the Erasmus+ Mobility for Study program and/or the Erasmus+ Mobility for Traineeships call for applications.
- Lodi bonus:
  - 0.25 points are awarded for each distinction obtained in course assessments, up to a maximum of 1 point.

## Title III – Teachers - Tutors

### ART. 11 TEACHERS

The teaching program and teaching responsibilities are available at the following Department website <https://orienta.ing.unipg.it/EngManagement/I8I9/>.

### ART. 12 ORIENTATION AND TUTORING

For preparatory training activities for the teaching activities of the degree program, please refer to Art. 3 of these Regulations.

Ongoing tutoring is provided in various ways:

- a) support tutoring, consisting of training activities aimed at improving the learning of certain basic subjects that are considered essential for subsequent courses. This support is provided by high school teachers and PhD or Master's degree students in Engineering, Mathematics or Physics;
- b) upon specific request by students, or if students with disabilities are enrolled (<https://www.unipg.it/en/international-students/general-information/facilities-for-special-needs-students>), the teaching facility will provide support staff and tools, according to specific needs and available resources.

The following may carry out tutoring activities:

- A) professors and researchers
- B) individuals covered by Law 170/2003.
- C) other persons specified in the University Teaching Regulations.

## Title IV – Common rules

### ART. 13 APPROVAL AND AMENDMENTS TO THE REGULATIONS

The Regulations are approved by the Department of Engineering Council within the deadlines set by the University.

The Regulations shall be reviewed annually, at least for the articles of Title II.

In cases of proven necessity, amendments to the Regulations may be proposed during the year by the competent teaching body and approved by the Department of Engineering Council.

These Regulations comply with the teaching regulations of the degree program and the University's teaching regulations.

The Regulations shall enter into force upon their issuance by Rector's Decree and publication in the University Register.



|                                                                                       |          |
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