



**MASTER DEGREE**

**COMPUTER ENGINEERING**

**CLASS LM-32**

**PLAN OF STUDY**

**for students enrolled in the academic year 2025/26**

The Computer Engineering degree program has 4 Curricula:

- INFORMATICS
- ELECTRONIC SYSTEMS
- ROBOTICS AND ARTIFICIAL INTELLIGENCE
- NETWORKS AND INTERNET OF THINGS

The courses are classified based as follows (type of educational activity, "TAF"):

TAF A = base courses

TAF B = characterizing courses

TAF C = complementary courses

TAF D = elective courses

TAF E = final thesis

TAF F = other activities

| <b>Curriculum "INFORMATICS"</b>              |                       |                |            |            |            |
|----------------------------------------------|-----------------------|----------------|------------|------------|------------|
| <b>I anno</b>                                |                       |                |            |            |            |
| <i>Insegnamento</i>                          | <i>Modulo</i>         | <i>Settore</i> | <i>TAF</i> | <i>CFU</i> | <i>SEM</i> |
| Machine learning                             | Machine learning      | ING-INF/05     | B          | 6          | 1          |
|                                              | Evolutionary robotics | ING-INF/05     | B          | 3          | 1          |
| Advanced internet technologies               |                       | ING-INF/05     | B          | 6          | 1          |
| Software development methods                 |                       | ING-INF/05     | B          | 6          | 1          |
| Complexity and cryptography                  |                       | ING-INF/05     | B          | 9          | 2          |
| Cybersecurity                                |                       | ING-INF/05     | B          | 9          | 2          |
| Mathematical optimisation                    |                       | MAT/09         | C          | 6          | 2          |
| <b>II anno</b>                               |                       |                |            |            |            |
| <i>Insegnamento</i>                          | <i>Modulo</i>         | <i>Settore</i> | <i>TAF</i> | <i>CFU</i> | <i>SEM</i> |
| Cybersecurity Lab                            |                       | ING-INF/05     | B          | 6          | 1          |
| Web application programming                  |                       | ING-INF/05     | B          | 6          | 1          |
| Information retrieval and data visualization |                       | INF/01         | C          | 6          | 1          |
| Optimization for artificial intelligence     |                       | INF/01         | C          | 6          | 1          |
| Data-driven systems engineering              |                       | ING-INF/05     | B          | 9          | 2          |
| Elective courses                             |                       | /              | D          | 12         |            |
| Internship                                   |                       | /              | F          | 6          |            |
| Final project                                |                       | /              | E          | 24         |            |



| Curriculum "ELECTRONIC SYSTEMS"          |                             |            |     |     |     |
|------------------------------------------|-----------------------------|------------|-----|-----|-----|
| I anno                                   |                             |            |     |     |     |
| Insegnamento                             | Modulo                      | Settore    | TAF | CFU | SEM |
| Machine learning                         | Machine learning            | ING-INF/05 | B   | 6   | 1   |
|                                          | Evolutionary robotics       | ING-INF/05 | B   | 3   | 1   |
| Advanced internet technologies           |                             | ING-INF/05 | B   | 6   | 1   |
| Data-Driven digital systems              | Data-Driven digital systems | ING-INF/04 | B   | 6   | 1   |
| Wireless networks and Internet of Things | Wireless networks           | ING-INF/05 | B   | 3   | 1   |
|                                          | Digital communication       | ING-INF/05 | B   | 6   | 2   |
| Digital signal and image processing      | Digital signal processing   | ING-INF/01 | C   | 6   | 1/2 |
|                                          | Digital image processing    | ING-INF/01 | C   | 3   | 2   |
| Digital electronics and devices          |                             | ING-INF/01 | C   | 6   | 2   |
| Cybersecurity                            |                             | ING-INF/05 | B   | 9   | 2   |
| II anno                                  |                             |            |     |     |     |
| Insegnamento                             | Modulo                      | Settore    | TAF | CFU | SEM |
| Computer vision and pattern recognition  |                             | ING-INF/04 | B   | 6   | 1   |
| Electronics for Wireless Networks        |                             | ING-INF/01 | C   | 3   | 1   |
| Electronic systems design                |                             | ING-INF/01 | C   | 9   | A   |
| Embedded systems                         |                             | ING-INF/01 | C   | 9   | 2   |
| Elective courses                         |                             | /          | D   | 12  |     |
| Internship                               |                             | /          | F   | 6   |     |
| Final project                            |                             | /          | E   | 21  |     |

| Curriculum "ROBOTICS and ARTIFICIAL INTELLIGENCE" |                             |            |     |     |     |
|---------------------------------------------------|-----------------------------|------------|-----|-----|-----|
| I anno                                            |                             |            |     |     |     |
| Insegnamento                                      | Modulo                      | Settore    | TAF | CFU | SEM |
| Machine learning                                  | Machine learning            | ING-INF/05 | B   | 6   | 1   |
|                                                   | Evolutionary robotics       | ING-INF/05 | B   | 3   | 1   |
| Advanced internet technologies                    |                             | ING-INF/05 | B   | 6   | 1   |
| Data-Driven digital systems                       | Data-Driven digital systems | ING-INF/04 | B   | 6   | 1   |
|                                                   | Digital systems             | ING-INF/04 | B   | 3   | 1   |
| Cybersecurity                                     |                             | ING-INF/05 | B   | 9   | 2   |
| Control theory                                    |                             | ING-INF/04 | B   | 9   | 2   |
| Mathematical optimisation                         |                             | MAT/09     | C   | 6   | 2   |
| II anno                                           |                             |            |     |     |     |
| Insegnamento                                      | Modulo                      | Settore    | TAF | CFU | SEM |
| Computer vision and pattern recognition           |                             | ING-INF/04 | B   | 6   | 1   |
| Control of cyber-physical systems                 |                             | ING-INF/04 | B   | 6   | 1   |
| Learning-based control                            |                             | ING-INF/04 | B   | 6   | 1   |
| Robotics                                          | Robotics                    | ING-IND/13 | C   | 6   | 2   |
|                                                   | Mobile robots               | ING-IND/13 | C   | 6   | 2   |
| Elective courses                                  |                             | /          | D   | 12  |     |
| Internship                                        |                             | /          | F   | 6   |     |
| Final project                                     |                             | /          | E   | 24  |     |

| Curriculum "NETWORKS AND INTERNET OF THINGS" |                           |                |            |            |            |
|----------------------------------------------|---------------------------|----------------|------------|------------|------------|
| I anno                                       |                           |                |            |            |            |
| <i>Insegnamento</i>                          | <i>Modulo</i>             | <i>Settore</i> | <i>TAF</i> | <i>CFU</i> | <i>SEM</i> |
| Machine learning                             | Machine learning          | ING-INF/05     | B          | 6          | 1          |
|                                              | Evolutionary robotics     | ING-INF/05     | B          | 3          | 1          |
| Advanced internet technologies               |                           | ING-INF/05     | B          | 6          | 1          |
| Wireless networks and Internet of Things     | Wireless networks         | ING-INF/05     | B          | 3          | 1          |
|                                              | Digital communication     | ING-INF/05     | B          | 6          | 2          |
| Digital signal and image processing          | Digital signal processing | ING-INF/01     | C          | 6          | 1/2        |
|                                              | Digital image processing  | ING-INF/01     | C          | 3          | 2          |
| Cybersecurity                                |                           | ING-INF/05     | B          | 9          | 2          |
| Complexity and cryptography                  |                           | ING-INF/05     | B          | 9          | 2          |
| II anno                                      |                           |                |            |            |            |
| <i>Insegnamento</i>                          | <i>Modulo</i>             | <i>Settore</i> | <i>TAF</i> | <i>CFU</i> | <i>SEM</i> |
| Air and satellite networks                   |                           | ING-INF/03     | C          | 6          | 1          |
| Electronics for Wireless Networks            |                           | ING-INF/01     | C          | 3          | 1          |
| Control of cyber-physical systems            |                           | ING-INF/04     | B          | 6          | 1          |
| Microwave and optical networks               |                           | ING-INF/03     | C          | 9          | 2          |
| Antennas                                     |                           | ING-INF/02     | C          | 6          | 2          |
| Elective courses                             |                           | /              | D          | 12         |            |
| Internship                                   |                           | /              | F          | 6          |            |
| Final project                                |                           | /              | E          | 21         |            |

### Elective courses

In the study plan, the student must register for elective courses (TAF D, 12 CFU) that can be chosen from the following set.

The student cannot enroll in an elective course if s/he has already given the same or equivalent exam in previous courses of study.

- courses of curricula of this degree, different from the curriculum chosen by the student
- courses of a master degree in Engineering
- courses of the degree in Data Science and Artificial Intelligence
- courses of the degree in Physics
- courses of the degree in Mathematics