



MASTER COURSE IN MECHATRONICS ENGINEERING - A.A. 2022/23

A2 Curriculum Electronics and robotics

| FIRST YEAR | | | | | | | | | | | |
|-----------------------|----|---|------------|-----------|-----------|-----------|----------|----------|----------|------------------|-------|
| FIRST SEMESTER | | | | | | | | | | | |
| Esse3 code | N° | Courses | SSD | CFU | B | C | D | E | F | Duration (hours) | Notes |
| 146029 | 1a | Mechatronic systems simulation - Mod. 1 Computational methods | MAT/08 | 6 | | 6 | | | | 60 | |
| 146030 | 2a | Precision engineering - Mod. 1 Design of precision systems | ING-IND/12 | 6 | 6 | | | | | 60 | |
| 146031 | 3 | Mechanical design for mechatronics | ING-IND/14 | 9 | 9 | | | | | 90 | |
| 146032 | 4 | Digital signal processing for mechatronics | ING-INF/07 | 6 | | 6 | | | | 60 | |
| SAFETY COURSES | | | | | | | | | | | (1) |
| | | | | Tot. | 27 | 15 | 12 | 0 | 0 | 0 | |
| SECOND SEMESTER | | | | | | | | | | | |
| Esse3 code | N° | Courses | SSD | CFU | B | C | D | E | F | Duration (hours) | Notes |
| 146029 | 1b | Mechatronic systems simulation - Mod. 2 Modeling | ING-IND/13 | 9 | 9 | | | | | 90 | |
| 146030 | 2b | Precision engineering - Mod. 2 Digital manufacturing | ING-IND/16 | 6 | 6 | | | | | 60 | |
| 140500 | 5 | Automatic control | ING-INF/04 | 9 | | 9 | | | | 90 | |
| 140417 | 6 | Mechanical vibrations | ING-IND/13 | 6 | 6 | | | | | 60 | |
| Other activities | | | | 3 | | | | | 3 | | (2) |
| | | | | Tot. | 33 | 21 | 9 | 0 | 0 | 3 | |
| Tot. 1st year | | | | 60 | 36 | 21 | 0 | 0 | 3 | | |

| PROFESSOR |
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| Bertolazzi Enrico |
| Bosetti Paolo |
| Rustighi Emiliano |
| Macii David |

| PROFESSOR |
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| Biral Francesco |
| Bosetti Paolo |
| Zaccarian Luca |
| Bortoluzzi Daniele |

| SECOND YEAR | | | | | | | | | | | |
|----------------------|-----|--|------------|-----------|-----------|-----------|-----------|-----------|----------|------------------|----------------------|
| FIRST SEMESTER | | | | | | | | | | | |
| Esse3 code | N° | Courses | SSD | CFU | B | C | D | E | F | Duration (hours) | Notes |
| 146036 | 7 | Distributed estimation for robots and vehicles | ING-INF/07 | 6 | | 6 | | | | 60 | 6 cfu from AD 146033 |
| 140506 | 8 | Robotic perception and action | ING-IND/12 | 9 | 9 | | | | | 90 | |
| 140440 | 9 | Industrial robotics | ING-IND/13 | 6 | 6 | | | | | 60 | |
| 146037 | 10 | Embedded systems | ING-INF/01 | 6 | | 6 | | | | 60 | 6 cfu from AD 140502 |
| 145781 | 11 | Advanced optimization-based robot control | ING-INF/04 | 6 | | 6 | | | | 48 | offered by DISI |
| | | | | Tot. | 33 | 15 | 18 | 0 | 0 | 0 | |
| SECOND SEMESTER | | | | | | | | | | | |
| Esse3 code | N° | Courses | SSD | CFU | B | C | D | E | F | Duration (hours) | Notes |
| | 12a | Elective course | | 6 | | | 6 | | | 60 | (3) |
| | 12b | Elective course | | 6 | | | 6 | | | 60 | (3) |
| 140458 | | Final project | | 15 | | | | 15 | | | |
| | | | | Tot. | 27 | 0 | 0 | 12 | 15 | 0 | |
| Tot. 2nd year | | | | 60 | 15 | 18 | 12 | 15 | 0 | | |

| PROFESSOR |
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| Fontanelli Daniele |
| De Cecco Mariolino |
| Bortoluzzi Daniele |
| Brunelli Davide |
| Del Prete Andrea |

TOTAL CFU 120 51 39 12 15 3

| ELECTIVE COURSES | | | | | | | | | | | |
|------------------|----|--|------------|-----|---|---|---|---|---|------------------|-------------------------------------|
| FIRST SEMESTER | | | | | | | | | | | |
| Esse3 code | N° | Courses | SSD | CFU | B | C | D | E | F | Duration (hours) | Notes |
| 145783 | | Advanced Formula SAE | | 6 | | | 6 | | | | |
| SECOND SEMESTER | | | | | | | | | | | |
| Esse3 code | N° | Courses | SSD | CFU | B | C | D | E | F | Duration (hours) | Notes |
| 140474 | | Computer vision | ING-INF/03 | 6 | | | 6 | | | 48 | offered by DISI |
| 145782 | | Laboratory of the Internet of Things | ING-INF/01 | 6 | | | 6 | | | 60 | |
| NEW | | Optoelectronics and quantum devices for sensing and automation | FIS/01 | 6 | | | 6 | | | 60 | |
| 145958 | | Network dynamics | ING-INF/04 | 6 | | | 6 | | | 60 | offered by LM 31 - AD 146007 mod. 2 |
| 145536 | | Sensors and micro electro-mechanical systems | ING-INF/01 | 6 | | | 6 | | | 60 | |

| PROFESSOR |
|---------------|
| Bosetti Paolo |

| PROFESSOR |
|-------------------------|
| TO BE DEFINED |
| Brunelli Davide |
| Lobino Mirko |
| Giordano Giulia |
| Dalla Betta Gian-Franco |

NOTES:

- (1) = To access the research facilities of the Department is required to have obtained the certifications of:
- the course **Health and safety in the workplace** (Esse3 code FORGE) or similar courses;
 - the course **Sicurezza in laboratorio** (Esse3 code 140550) or similar specific training safety course - medium risk.
- (2) = The curriculum is considered complete with a total of 3CFU - type F. The credits have to be obtained during the master with the following regulation: <https://www.dii.unitn.it/en/121/other-activities-type-f-credits>.
- (3) = Different elective modules - not included in the Manifesto - have to be approved by the Teaching board of the Department.