



## BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING

### DEGREE PROGRAMME 2015/2016

Course contents are available at this [link](#)

#### 1<sup>st</sup> year – 1<sup>st</sup> semester

| Teaching course   | SSD     | TAF | Credits | h  |
|---|---------|-----|---------|----|
| Mathematical Analysis 1                                       | MAT/05  | A   | 9       | 90 |
| Chemistry   | CHIM/07 | A   | 6       | 60 |
| Physics 1   | FIS/01  | A   | 8       | 80 |
| English Language Test <sup>1</sup>                            |         | E   | 3       |    |
| Total Credits 1 <sup>st</sup> year – 1 <sup>st</sup> semester |         |     | 26      |    |

#### 1<sup>st</sup> year – 2<sup>nd</sup> semester

| Teaching course   | SSD        | TAF | Credits | h  |
|---|------------|-----|---------|----|
| Integrated Course: Mathematics                                |            |     |         |    |
| - Module: Mathematical Analysis 2                             | MAT/05     | A   | 5       | 50 |
| - Module: Geometry and Algebra                                | MAT/03     | A   | 7       | 70 |
| Integrated Course: Information Processing Systems             |            |     |         |    |
| - Module: Fundamentals of Computer Science                    | ING-INF/05 | A   | 6       | 60 |
| - Module: Computer Architectures                              | ING-INF/05 | A   | 6       | 60 |
| Physics 2   | FIS/01     | A   | 7       | 70 |
| Total Credits 1 <sup>st</sup> year – 2 <sup>nd</sup> semester |            |     | 31      |    |

#### 2<sup>nd</sup> year – 1<sup>st</sup> semester

| Teaching course  | SSD        | TAF | Credits | h  |
|--|------------|-----|---------|----|
| Integrated Course: Biochemistry and Molecular Biology              |            |     |         |    |
| - Module: Biochemistry   | BIO/10     | C   | 3       | 30 |
| - Module: Molecular Biology  | BIO/11     | C   | 2       | 20 |
| Integrated Course: Fundamentals of Mechanics and Biomaterials      |            |     |         |    |
| - Module: Fundamentals of Mechanics and Biomechanic                | ING-IND/13 | B   | 5       | 50 |
| - Module: Biomaterials   | ING-IND/24 | B   | 5       | 50 |
| Integrated Course: Transport Phenomena and Chemical Bioengineering |            |     |         |    |
| - Module: Transport Phenomena in Biomedical Systems                | ING-IND/24 | B   | 5       | 50 |
| - Module: Chemical Bioengineering                                  | ING-IND/24 | B   | 5       | 50 |
| Applied Mathematics  | MAT/08     | A   | 6       | 60 |
| Total Credits 2 <sup>nd</sup> year – 1 <sup>st</sup> semester      |            |     | 31      |    |



**2<sup>nd</sup> year – 2<sup>nd</sup> semester**

| Teaching course  | SSD                      | TAF    | Credits | h        |
|--|--------------------------|--------|---------|----------|
| Integrated Course: Anatomy and Physiology<br>- Module: Human Anatomy<br>- Module: Fundamentals of Physiology                                       | BIO/16<br>BIO/09         | C<br>C | 4<br>3  | 40<br>30 |
| Integrated Course: Fundamentals of Information Engineering<br>- Module: Fundamentals of Systems Theory<br>- Module: Electronical Signal Processing | ING-INF/04<br>ING-INF/06 | B<br>B | 5<br>5  | 50<br>50 |
| Integrated Course: Electronic Design<br>- Module: Analog Electronics<br>- Module: Digital Electronics  | ING-INF/01<br>ING-INF/01 | B<br>B | 5<br>5  | 50<br>50 |
| Total Credits 2 <sup>nd</sup> year – 2 <sup>nd</sup> semester  |                          |        | 27      |          |

**3<sup>rd</sup> year – 1<sup>st</sup> semester**

| Teaching course  | SSD                      | TAF    | Credits | h        |
|--|--------------------------|--------|---------|----------|
| Electric Actuators and Converters  | ING-IND/32               | B      | 5       | 50       |
| Integrated Course: Bioelectronics<br>- Module: Bioelectronics Fundamentals<br>- Module: Bioelectronic Interfaces | ING-INF/06<br>ING-INF/06 | B<br>B | 5<br>5  | 50<br>50 |
| Mechanical Bioengineering  | ING-IND/14               | B      | 10      | 100      |
| Integrated Course: Fundamentals of Clinic and Pathology<br>- Module: Pathology                                   | MED/08                   | C      | 2       | 20       |
| Total Credits 3 <sup>rd</sup> year – 1 <sup>st</sup> semester  |                          |        | 27      |          |

**3<sup>rd</sup> year – 2<sup>nd</sup> semester**

| Teaching course   | SSD  | TAF         | Credits     | h              |
|---|--|-------------|-------------|----------------|
| Integrated Course: Fundamentals of Clinic and Pathology<br>- Module: Internal Medicine<br>- Module: Instrumentation and Proesthetic Materials<br>- Module: Radiology and Nuclear Medicine | MED/09<br>MED/22<br>MED/36                           | C<br>C<br>C | 2<br>2<br>2 | 20<br>20<br>20 |
| <i>Choose between:</i><br>Medical Instrumentation<br>Biosensors   | ING-INF/06<br>ING-INF/06                             | B           | 5           | 50             |
| <i>One choice among:</i><br>Fluid Dynamics<br>Fundamentals of Bioinformatics<br>Electromagnetic Compatibility<br>Power and Electrical Safety in Hospital                                  | ING-IND/08<br>ING-INF/05<br>ING-INF/02<br>ING-IND/33 | C           | 5           | 50             |
| Total Credits 3 <sup>rd</sup> year – 2 <sup>nd</sup> semester   |  |             | 16          |                |



| <b>Additional credits to be acquired</b> | <b>TAF</b> | <b>Credits</b> |
|--|------------|----------------|
| Elective activities <sup>2</sup>         | D          | 12             |
| Other activities                         | F          | 4              |
| Final Exam                               | E          | 6              |

**Total credits                      180**

**\*Abbreviations**

|     |                                |
|-----|--------------------------------|
| SSD | Scientific Disciplinary Sector |
| TAF | Type of Educational Activity   |

- (1) The credits of European language level can be acquired:
- passing the English language test as part of the admission test,
  - passing the English language test at B1 European level (CEFR) at Centro Linguistico d'Ateneo,
  - showing appropriate certification of B1 European level (CEFR) knowledge.
- (2) The elective activities must be consistent with the personal educational plan and they need approval by the Degree Programme Board.