

# Master of Science and Technology CSE BME

## Biomedical engineering track

### 1st year - 70ECTS

#### 1st Semester S7:

| Name   | Course unit code | Year | Semester | Hour    | ECTS | Teacher/[Responsible]   |
|--|------------------|------|----------|---------|------|---|
| Transport phenomena                                    | TRPH             | 1    | 1        | 32      | 4    | F. Schwander, P. Denis, C. Baron  |
| Computer Sciences and Num. methods                     | CSNM             | 1    | 1        | 24      | 3    | F. Schwander  |
| Introduction to clinical medicine                      | CLMD             | 1    | 1        | 24      | 3    | L. Dambricourt, A. Janet, F. Benmiloud, M. Lebret/[J. Fade, P. Berto]   |
| Introduction to material science and structural design | MTSC             | 1    | 1        | 24      | 3    | Y. Knapp, A. Bechikh  |
| Introduction to biomedical signal processing           | SIPR             | 1    | 1        | 24      | 3    | C. Fossati, T. Gaidon   |
| Engineering & biological systems                       | ENBS             | 1    | 1        | 24      | 3    | P. Santucci   |
| Wave propagation                                       | WAPG             | 1    | 1        | 24      | 3    | L. A. Castaneda   |
| Industrial engineering & Soft skills                   | IES7             | 1    | 1        | 32      | 4    | J. Zimmermann, L. Serfaty, A. Tinel / [J. Fade, P. Berto, F. Schwander] |
| Train'Eng in CSE                                       | TCS7             | 1    | 1        | 62      | 6    | Various lecturers/ [J. Fade, P. Berto, F. Schwander]                    |
| Languages  | LAN7             | 1    | 1        | 20      | 2    | B. Kehoe  |
| Winter Lab internship                                  | STG7             | 1    | 1        | 8 weeks | 6    |   |

#### 2nd Semester S8:

| Name                               | Course unit code | Year | Semester | Hour | ECTS | Teacher   |
|------------------------------------|------------------|------|----------|------|------|---|
| The living bricks                  | LBRI             | 1    | 2        | 58   | 6    | [M. Jaeger]   |
| Imaging and wave therapy           | IMAG             | 1    | 2        | 46   | 6    | C. Fossati, E. Franceschini, C. Baron, H. Rigneault, P. Berto / [J. Fade] |
| Bioinformatics and data processing | BIOF             | 1    | 2        | 52   | 6    | [J. Fade]   |
| Bio Planet                         | BIOP             | 1    | 2        | 50   | 4    | Various lecturers / [J. Fade]   |
| Languages                          | LAN8             | 1    | 2        | 20   | 2    | B. Kehoe  |

| Name                              | Course unit code | Year | Semester | Hour    | ECTS | Teacher                           |
|-----------------------------------|------------------|------|----------|---------|------|-----------------------------------|
| <a href="#">Summer internship</a> | STG8             | 1    | 2        | 8 weeks | 6    | [J. Fade, P. Berto, F. Schwander] |



The detailed syllabus of the second semester of 1st year (M1) can be downloaded [here](#)

## 2nd year - 70ECTS

### 3rd Semester S9:

| Name   | Course unit code | Year | Semester | Hour | ECTS | Teacher                                  |
|--|------------------|------|----------|------|------|--|
| <a href="#">Computer Sciences &amp; data sciences</a>                | CSDS             | 2    | 1        | 24   | 3    | V. Pesce                                 |
| <a href="#">Advanced imaging/Advanced image processing (option.)</a> | IMAB             | 2    | 1        | 24   | 3    | P. Berto, J. Fade                        |
| <a href="#">Biomechanics</a>   | BIOM             | 2    | 1        | 24   | 3    | V. Deplano                               |
| <a href="#">Advanced image processing</a>                            | IFPR             | 2    | 1        | 24   | 3    | M. Roche                                 |
| <a href="#">Numerical modeling for BME</a>                           | NUMB             | 2    | 1        | 24   | 3    | M. Brandenbourger, M. Rodriguez, J. FAde |
| <a href="#">Advanced material sciences and structural design</a>     | AMID             | 2    | 1        | 24   | 3    | Y. Knapp, A. Bechikh                     |
| <a href="#">Sensors &amp; Telemedicine</a>                           | TELM             | 2    | 1        | 12   | 1.5  | A. Khalighi                              |
| <a href="#">Industrial engineering &amp; Soft Skills</a>             | IES9             | 2    | 1        | 100  | 6    |  |
| <a href="#">Language</a>   | LAN9             | 2    | 1        | 20   | 2    | B. Kehoe                                 |
| <a href="#">Project &amp; Seminars</a>                               | PRO9             | 2    | 1        | 100  | 4    |  |

### 4th Semester S10:

| Name   | Course unit code | Year | Semester | Hour       | ECTS | Teacher |
|--|------------------|------|----------|------------|------|---------|
| <a href="#">Master thesis &amp; internship</a> | THES             | 2    | 2        | 4-6 months | 30   |         |

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