

# Master of Science and Technology CSE BME

## Biomedical engineering

### 1st year - 70ECTS

#### 1st Semester S7

| Name                                                   | Course unit code | Year | Semester | Hour    | ECTS |                                                                          |
|--------------------------------------------------------|------------------|------|----------|---------|------|--------------------------------------------------------------------------|
| Transport phenomena                                    | TRPH             | 1    | 1        | 32      | 4    | O. Boiron, F. Schwander                                                  |
| Computer Sciences and Num. methods                     | CSNM             | 1    | 1        | 24      | 3    | B. Favier                                                                |
| Introduction to clinical medicine                      | CLMD             | 1    | 1        | 24      | 3    | L. Dambricourt, A. Janet, C. Jacquet, M. Lebreton/[J. Fade, O. Boiron]   |
| Introduction to material science and structural design | MTSC             | 1    | 1        | 24      | 3    | Y. Knapp, S. Bourgeois                                                   |
| 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        | 45      | 4    | J. Zimmermann, L. Serfaty, A. Tinel / [J. Fade, O. Boiron, F. Schwander] |
| Train'Eng in CSE                                       | TCS7             | 1    | 1        | 62      | 6    | Various lecturers/ [J. Fade, O. Boiron, F. Schwander]                    |
| Languages                                              | LAN7             | 1    | 1        | 20      | 2    | V. Hamel                                                                 |
| 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        | 78      | 6    | / [M. Jaeger]                                                            |
| Imaging and wave therapy | IMAG             | 1    | 2        | 68      | 5    | C. Fossati, E. Franceschini, C. Baron, H. Rigneault, J. Fade / [J. Fade] |
| Bioinformatics           | BIOF             | 1    | 2        | 68      | 5    | / [J. Fade]                                                              |
| Bio Planet               | BIOP             | 1    | 2        | 46      | 6    | Various lecturers / [J. Fade, M. Jaeger]                                 |
| French                   | LAN8             | 1    | 2        | 20      | 2    | V. Hamel                                                                 |
| Summer internship        | STG8             | 1    | 2        | 8 weeks | 6    | [J. Fade, O. Boiron, F. Schwander]                                       |



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

## 2nd year - 70ECTS

| Name                                                             | Course unit code | Year | Semester | Hour      | ECTS | Teacher                                                             |
|------------------------------------------------------------------|------------------|------|----------|-----------|------|---------------------------------------------------------------------|
| <a href="#">Computer Sciences &amp; data sciences</a>            | CSDS             | 2    | 1        | 24        | 3    | T. Artières                                                         |
| <a href="#">Advanced imaging</a>                                 | IFPR             | 2    | 1        | 24        | 3    | L. Abel-Tiberini                                                    |
| <a href="#">Biomechanics</a>                                     | BIOM             | 2    | 1        | 24        | 3    | <a href="#">V. Deplano</a>                                          |
| <a href="#">Integrated design of biomedical systems</a>          | INDE             | 2    | 1        | 24        | 3    | C. Jalain                                                           |
| <a href="#">Advanced image processing</a>                        | IMAB             | 2    | 1        | 24        | 3    | M. Roche                                                            |
| <a href="#">Numerical modeling for BME</a>                       | NUMB             | 2    | 1        | 24        | 3    | <a href="#">V. Deplano</a> , <a href="#">C. Guivier</a> , J-M Rossi |
| <a href="#">Advanced material sciences and structural design</a> | ADMS             | 2    | 1        | 24        | 3    | Y. Knapp                                                            |
| <a href="#">Sensors &amp; biomedical monitoring</a>              | SEN1             | 2    | 1        | 12        | 1.5  | A. Khalighi                                                         |
| <a href="#">IoT for medecine</a>                                 | SEN2             | 2    | 1        | 12        | 1.5  | A. Khalighi                                                         |
| <a href="#">Elective course</a>                                  | ELC9             | 2    | 1        | 24        | 3    |                                                                     |
| <a href="#">Inter. elective course</a>                           | ELFO             | 2    | 1        | 12        | 1    |                                                                     |
| <a href="#">Industrial engineering</a>                           | INE9             | 2    | 1        | 100       | 6    |                                                                     |
| <a href="#">French</a>                                           | LAN9             | 2    | 1        | 30        | 2    | V. Hamel                                                            |
| Project - Lab work                                               | PRO9             | 2    | 1        | 100       | 2    |                                                                     |
| Seminars                                                         | SEM9             | 2    | 1        |           | 2    |                                                                     |
| Name                                                             | Course unit code | Year | Semester | Hour      | ECTS | Teacher                                                             |
| Master thesis                                                    | THES             | 2    | 2        | 4-6months | 30   |                                                                     |

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