

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 |
|-----------------------------------|------------------|------|----------|---------|------|-----------------------------------|
| Summer internship | 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 |
|--|------------------|------|----------|------|------|--|
| Computer Sciences & data sciences | CSDS | 2 | 1 | 24 | 3 | V. Pesce |
| Advanced imaging/Advanced image processing (option.) | IMAB/IFPR | 2 | 1 | 24 | 3 | P. Berto, J. Fade, M. Roche |
| Biomechanics | BIOM | 2 | 1 | 24 | 3 | V. Deplano, D. Mazzoni, O. Boiron |
| Introduction to neurotechnologies | NEUR | 2 | 1 | 40 | 5 | P. Berto |
| Introduction to bioethics | ETIC | 2 | 1 | 16 | 2 | J. Fade |
| Numerical modeling for BME | NUMB | 2 | 1 | 36 | 4 | M. Brandenbourger, M. Rodriguez, J. Fade, F. Schwander |
| Advanced material sciences and structural design | AMID | 2 | 1 | 36 | 5 | Y. Knapp, A. Bechikh |
| Sensors & Telemedicine | TELM | 2 | 1 | 24 | 3 | A. Khalighi |
| Industrial engineering & Soft Skills | IES9 | 2 | 1 | 100 | 6 | |
| Language | LAN9 | 2 | 1 | 20 | 2 | B. Kehoe |
| Project & Seminars | PRO9 | 2 | 1 | 100 | 4 | J. Fade / P. Berto |

4th Semester S10:

| Name | Course unit code | Year | Semester | Hour | ECTS | Teacher |
|--|------------------|------|----------|------------|------|---------|
| Master thesis & internship | THES | 2 | 2 | 4-6 months | 30 | |

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