

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 | 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. Lebret/[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] |
| Languages | LAN8 | 1 | 2 | 20 | 2 | V. Hamel |

| Name | Course unit code | Year | Semester | Hour | ECTS | Teacher |
|-----------------------------------|------------------|------|----------|---------|------|------------------------------------|
| 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

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 | IMAB | 2 | 1 | 24 | 3 | J. Fade |
| Biomechanics | BIOM | 2 | 1 | 24 | 3 | V. Deplano |
| Advanced image processing | IFPR | 2 | 1 | 24 | 3 | M. Roche |
| Numerical modeling for BME | NUMB | 2 | 1 | 24 | 3 | M. Brandenbourger, M Rodriguez |
| Advanced material sciences and structural design | AMID | 2 | 1 | 24 | 3 | Y. Knapp, S. Bourgeois |
| Sensors & Telemedicine | TELM | 2 | 1 | 12 | 1.5 | A. Khalighi |
| Industrial engineering & Soft Skills | IES9 | 2 | 1 | 100 | 6 | |
| Language | LAN9 | 2 | 1 | 20 | 2 | V. Hamel |
| Project - Lab work | PRO9 | 2 | 1 | 100 | 2 | |
| Seminars | SEM9 | 2 | 1 | | 2 | |

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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