

## Studies Plan

### Génie mécanique 2023-24

#### Block 3

| Courses   |          |         |                    | Bachelor 3 | Bachelor 4 | Bachelor 5 | Bachelor 6 | Exam Session | Exam    | Credit |
|---|----------|---------|--------------------|------------|------------|------------|------------|--------------|---------|--------|
| Language  | Code     | Section | Teacher            | l e p      | l e p      | l e p      | l e p      |              |         |        |
| <b>Control systems + TP</b>                                 |          |         |                    |            |            |            |            |              |         |        |
| E   | ME-321   | GM      | Jones Salzmann     |            |            | 3h 1h      |            | Win          | Written | 4      |
| <b>Dynamical effects in mechanical design</b>               |          |         |                    |            |            |            |            |              |         |        |
| F   | ME-311   | GM      | Schiffmann         |            |            |            | 1h 1h 1h   | Sum          | Written | 3      |
| <b>Electrical machines (for ME)</b>                         |          |         |                    |            |            |            |            |              |         |        |
| F   | EE-382   | EL      | Hodder             |            |            | 2h 1h      |            | Win          | Written | 3      |
| <b>Electronics</b>  |          |         |                    |            |            |            |            |              |         |        |
| F   | EE-280   | EL      | Meinen Sallese     |            |            | 2h 1h      |            | Win          | Written | 3      |
| <b>Finite element method</b>                                |          |         |                    |            |            |            |            |              |         |        |
| F   | ME-372   | GM      | Gallaire           |            |            | 2h 1h      |            | Win          | Written | 3      |
| <b>Foundations of artificial intelligence</b>               |          |         |                    |            |            |            |            |              |         |        |
| E   | ME-390   | GM      | Kamgarpour         |            |            | 2h 1h      |            | Win          | Written | 3      |
| <b>Heat and mass transfer</b>                               |          |         |                    |            |            |            |            |              |         |        |
| E   | ME-341   | GM      | Tagliabue          |            |            |            | 3h 1h      | Sum          | Written | 4      |
| <b>Introduction to optimization and operations research</b> |          |         |                    |            |            |            |            |              |         |        |
| E   | MATH-265 | GC      | Bierlaire          |            |            | 2h 2h      |            | Win          | Written | 4      |
| <b>Mechanical vibrations</b>                                |          |         |                    |            |            |            |            |              |         |        |
| F   | ME-332   | GM      | Villanueva Torrijo |            |            | 3h 1h      |            | Win          | Written | 4      |
| <b>Product development and engineering design</b>           |          |         |                    |            |            |            |            |              |         |        |
| E   | ME-320   | GM      | Hughes             |            |            | 2h 1h      |            | Win          | Written | 3      |
| <b>Solid mechanics</b>                                      |          |         |                    |            |            |            |            |              |         |        |
| E   | ME-331   | GM      | Vacat              |            |            |            | 3h 1h      | Sum          | Written | 4      |

#### Block 4

| Courses   |             |         |                | Bachelor 3 | Bachelor 4 | Bachelor 5 | Bachelor 6 | Exam Session | Exam                | Credit |
|---|-------------|---------|----------------|------------|------------|------------|------------|--------------|---------------------|--------|
| Language  | Code        | Section | Teacher        | l e p      | l e p      | l e p      | l e p      |              |                     |        |
| <b>Compressible-fluid dynamics</b>                |             |         |                |            |            |            |            |              |                     |        |
| F   | ME-343      | GM      | Noca           |            |            |            | 3h 1h      | Sum          | Written             | 4      |
| <b>Discrete-time control of dynamical systems</b> |             |         |                |            |            |            |            |              |                     |        |
| F   | ME-324      | GM      | Müllhaupt      |            |            |            | 2h         | Sum          | Written             | 2      |
| <b>Discretization methods in fluids</b>           |             |         |                |            |            |            |            |              |                     |        |
| F   | ME-371      | GM      | Habisreutinger |            |            |            | 2h 1h      | Sum          | Written             | 3      |
| <b>Experimental methods in biomechanics</b>       |             |         |                |            |            |            |            |              |                     |        |
| F   | ME-380      | GM      | Pioletti       |            |            |            | 3h         | Sum          | Oral                | 3      |
| <b>Finite element modelling and simulation</b>    |             |         |                |            |            |            |            |              |                     |        |
| F   | ME-373      | GM      | Boujo          |            |            |            | 1h 1h 1h   | Sum          | During the semester | 3      |
| <b>General physics : quanta</b>                   |             |         |                |            |            |            |            |              |                     |        |
| F   | PHYS-207(c) | PH      | Pasquarello    |            |            |            | 2h 2h      | Sum          | Written             | 4      |
| <b>Introduction to turbomachinery</b>             |             |         |                |            |            |            |            |              |                     |        |
| F   | ME-342      | GM      | Farhat         |            |            |            | 2h         | Sum          | Written             | 2      |
| <b>Matrix analysis</b>                            |             |         |                |            |            |            |            |              |                     |        |
| F   | EE-312      | EL      | Vandergheynst  |            |            |            | 2h 2h      | Sum          | Written             | 4      |
| <b>Microinformatique (pour GM)</b>                |             |         |                |            |            |            |            |              |                     |        |
| F   | ME-303      | GM      | Rochat         |            |            |            | 2h 2h      | Sum          | During the semester | 4      |
| <b>Thermodynamics and energetics II</b>           |             |         |                |            |            |            |            |              |                     |        |
| E   | ME-351      | GM      | Raju Natarajan |            |            |            | 2h 1h      | Sum          | Written             | 3      |

#### Block 5

| Courses       |   |                       | Bachelor 3 | Bachelor 4 | Bachelor 5 | Bachelor 6 | Exam Session | Exam | Credit                |
|---------------|---|-----------------------|------------|------------|------------|------------|--------------|------|-----------------------|
| Language Code | Section   | Teacher               | l e p      | l e p      | l e p      | l e p      |              |      |                       |
|               | <b>Concurrent engineering project</b><br>ME-314 | GM<br>Profs<br>divers |            |            |            |            | 5h           | Sum  | During the 5 semester |
| E             | <b>Measurement techniques</b><br>ME-301         | GM<br>Mulleners       |            |            |            |            | 1h 3h        | Sum  | Written 4             |

### Block 1

| Courses       |  |                  | Bachelor 3 | Bachelor 4 | Bachelor 5 | Bachelor 6 | Exam Session | Exam | Credit                |
|---------------|--|------------------|------------|------------|------------|------------|--------------|------|-----------------------|
| Language Code | Section  | Teacher          | l e p      | l e p      | l e p      | l e p      |              |      |                       |
| E             | <b>Analysis III</b><br>MATH-202(c)                       | MA<br>Licht      | 3h 2h      |            |            |            |              | Win  | Written 5             |
| E             | <b>Analysis IV</b><br>MATH-207(c)                        | MA<br>Licht      |            | 2h 2h      |            |            |              | Sum  | Written 4             |
| E             | <b>Continuum mechanics</b><br>ME-201                     | GM<br>Kolinski   |            | 2h 1h      |            |            |              | Sum  | During the 3 semester |
| F             | <b>General physics : electromagnetism</b><br>PHYS-201(b) | PH<br>Gruetter   | 4h 2h      |            |            |            |              | Win  | Written 6             |
| F             | <b>Mechanics of structures (For GM)</b><br>ME-232        | GM<br>Prenleloup | 3h 1h      |            |            |            |              | Win  | Written 4             |
| F             | <b>Numerical analysis</b><br>MATH-251(e)                 | MA<br>Caboussat  |            | 2h 2h      |            |            |              | Sum  | Written 4             |
| F             | <b>Probability and statistics</b><br>MATH-234(d)         | MA<br>Vacat      |            | 2h 1h      |            |            |              | Sum  | Written 3             |
| E             | <b>Thermodynamics and energetics I</b><br>ME-251         | GM<br>Haussener  | 3h 1h      |            |            |            |              | Win  | Written 4             |

### Block 2

| Courses       |   |   | Bachelor 3 | Bachelor 4 | Bachelor 5 | Bachelor 6 | Exam Session | Exam | Credit                |
|---------------|---|---|------------|------------|------------|------------|--------------|------|-----------------------|
| Language Code | Section   | Teacher                                 | l e p      | l e p      | l e p      | l e p      |              |      |                       |
| E             | <b>Dynamical systems</b><br>ME-221                  | GM<br>Sakar                             |            | 2h 1h      |            |            |              | Sum  | Written 3             |
| E             | <b>Fluid mechanics (for GM)</b><br>ME-280           | GM<br>Schneider                         |            | 3h 1h      |            |            |              | Sum  | Written 4             |
| F             | <b>Industrial production processes</b><br>ME-212    | GM<br>Boillat                           |            | 4h         |            |            |              | Sum  | Written 4             |
| F             | <b>Mechanical behaviour of materials</b><br>MSE-234 | MX<br>Hernandez<br>Escobar<br>Mortensen | 3h         | 1h         |            |            |              | Win  | Written 4             |
| F             | <b>Mechanical systems</b><br>ME-202                 | GM<br>Soubielle                         |            | 2h 1h 1h   |            |            |              | Sum  | Written 4             |
| F             | <b>Programmation pour ingénieur</b><br>ME-213       | GM<br>Salzmann                          | 2h 1h 1h   |            |            |            |              | Win  | During the 4 semester |

### Transverse block HSS

| Courses       |  |         | Exam Session | Exam | Credit |
|---------------|--|---------|--------------|------|--------|
| Language Code | Section                                | Teacher |              |      |        |
| F             | <b>SHS : Bachelor cycle BA6</b><br>SHS |         |              |      | 2      |
| F             | <b>HSS : Bachelor cycle BA5</b><br>SHS |         |              |      | 2      |
| F             | <b>HSS : Bachelor cycle BA4</b><br>SHS |         |              |      | 2      |
| F             | <b>HSS : Bachelor cycle BA3</b><br>SHS |         |              |      | 2      |