

| International University of Sarajevo (IUS), Faculty of Engineering and Natural Sciences (FENS) |   |                 |     |     |     |      |                                       |  |                 |     |     |     |      |
|--|---|-----------------|-----|-----|-----|------|---------------------------------------|--|-----------------|-----|-----|-----|------|
| First Cycle Curriculum: Mechanical Engineering (ME)  |   |                 |     |     |     |      |                                       |  |                 |     |     |     |      |
| Academic Year: 2024-2025   |   |                 |     |     |     |      |                                       |  |                 |     |     |     |      |
| Click on the course code or course title to see the syllabus.                                  |   |                 |     |     |     |      |                                       |  |                 |     |     |     |      |
| Semester I   |   |                 |     |     |     |      | Semester II                           |  |                 |     |     |     |      |
| Code   | Title   | Prerequisites   | Lec | Tut | Lab | ECTS | Code                                  | Title  | Prerequisites   | Lec | Tut | Lab | ECTS |
| ELIT100  | Academic English and Effective Communication            |                 | 2   | 0   | 0   | 6    | ENS207-3                              | Engineering Graphics                                     |                 | 1   | 2   | 0   | 3    |
| ENS101   | Introduction to Engineering                             |                 | 3   | 0   | 0   | 3    | ENS209-3                              | Statics  | MATH101         | 3   | 2   | 0   | 3    |
| ENS103   | Introduction to Machine Design                          |                 | 2   | 0   | 1   | 3    | ENS213 / CS103                        | Programming for Engineers / Introduction to Programming  |                 | 3   | 2   | 0   | 6    |
| MATH101  | Calculus I  |                 | 3   | 2   | 0   | 6    | MATH102                               | Calculus II  | MATH101         | 3   | 2   | 0   | 6    |
| NS102  | Physics   |                 | 3   | 1   | 2   | 6    | MATH201                               | Linear Algebra   | MATH101         | 3   | 2   | 0   | 6    |
| NS104  | General Chemistry                                       |                 | 3   | 1   | 1   | 6    | NS122                                 | Physics II   | NS102           | 3   | 1   | 2   | 6    |
| Semester Total =   |   |                 |     |     |     | 30   | Semester Total =                      |  |                 |     |     |     | 30   |
| Semester III   |   |                 |     |     |     |      | Semester IV                           |  |                 |     |     |     |      |
| Code   | Title   | Prerequisites   | Lec | Tut | Lab | ECTS | Code                                  | Title  | Prerequisites   | Lec | Tut | Lab | ECTS |
| ENS202   | Thermodynamics  | NS102           | 3   | 2   | 0   | 6    | ENS203                                | Electrical Circuits I                                    | NS122           | 3   | 2   | 0   | 6    |
| ENS205-3   | Materials Science                                       | NS104           | 3   | 0   | 1   | 3    | ENS204                                | Thermodynamics II  | ENS202          | 3   | 2   | 0   | 6    |
| ENS208-3   | Introduction to Manufacturing Systems                   | ENS103          | 3   | 0   | 2   | 3    | MATH205                               | Numerical Analysis                                       | MATH202         | 3   | 2   | 0   | 6    |
| MATH202  | Differential Equations                                  | MATH101         | 3   | 2   | 0   | 6    | ME206                                 | Engineering Materials                                    | ENS205          | 3   | 0   | 0   | 3    |
| MATH203  | Introduction to Probability and Statistics              | MATH101         | 3   | 2   | 0   | 6    | ME211                                 | Strength of Materials II                                 | ME210-3         | 3   | 2   | 0   | 3    |
| ME208-3  | Dynamics  | NS102           | 3   | 2   | 0   | 3    | ME304                                 | Fluid Mechanics  | MATH202         | 3   | 2   | 0   | 6    |
| ME210-3  | Strength of Materials I                                 | ENS209          | 3   | 2   | 0   | 3    | Semester Total =                      |  |                 |     |     |     | 30   |
| Semester Total =   |   |                 |     |     |     | 30   | Semester VI                           |  |                 |     |     |     |      |
| Semester V   |   |                 |     |     |     |      | Code                                  | Title  | Prerequisites   | Lec | Tut | Lab | ECTS |
| ME306  | Heat and Mass Transfer                                  | MATH202         | 3   | 2   | 0   | 6    | EE305                                 | Instrumentation and Measurements                         | ENS203          | 3   | 0   | 2   | 6    |
| ME312  | Machine Elements  | ME210           | 3   | 2   | 0   | 6    | ELIT200                               | Critical Reading and Writing                             |                 | 2   | 1   | 0   | 6    |
| xxx  | Foreign Language Elective I <a href="#">See Table 1</a> |                 |     |     |     | 3    | ENS206                                | System Modeling  | MATH202         | 3   | 2   | 0   | 6    |
| xxx  | Program Elective I <a href="#">See Table 2</a>          | Junior Standing |     |     |     | 6    | ENS309                                | Ethics in Engineering and Natural Sciences               |                 | 3   | 1   | 0   | 6    |
| xxx  | Program Elective II <a href="#">See Table 2</a>         | Junior Standing |     |     |     | 6    | NS112                                 | Understanding Science and Technology                     |                 | 2   | 0   | 0   | 3    |
| xxx  | University Elective <a href="#">See Table 1</a>         |                 |     |     |     | 3    | xxx                                   | Foreign Language Elective II <a href="#">See Table 1</a> |                 |     |     |     | 3    |
| Semester Total =   |   |                 |     |     |     | 30   | Semester Total =                      |  |                 |     |     |     | 30   |
| Semester VII   |   |                 |     |     |     |      | Semester VIII                         |  |                 |     |     |     |      |
| Code   | Title   | Prerequisites   | Lec | Tut | Lab | ECTS | Code                                  | Title  | Prerequisites   | Lec | Tut | Lab | ECTS |
| EE311  | Control System Design                                   | ENS206          | 3   | 2   | 0   | 6    | ENS490                                | Graduation Project                                       | Last Semester   | 0   | 4   | 0   | 6    |
| ME370  | Work Placement / Internship                             | Junior Standing | 0   | 14  | 0   | 6    | xxx                                   | Program Elective V <a href="#">See Table 2</a>           | Senior Standing |     |     |     | 6    |
| xxx  | Program Elective III <a href="#">See Table 2</a>        | Junior Standing |     |     |     | 6    | xxx                                   | Program Elective VI <a href="#">See Table 2</a>          | Senior Standing |     |     |     | 6    |
| xxx  | Program Elective IV <a href="#">See Table 2</a>         | Junior Standing |     |     |     | 6    | xxx                                   | Program Elective VII <a href="#">See Table 2</a>         | Senior Standing |     |     |     | 6    |
| xxx  | Free Elective I   |                 |     |     |     | 6    | xxx                                   | Free Elective II   |                 |     |     |     | 6    |
| Semester Total =   |   |                 |     |     |     | 30   | Semester Total =                      |  |                 |     |     |     | 30   |
| Total Credits Required for Graduation  |   |                 |     |     |     | 240  | No. of Courses                        |  |                 |     |     |     | 45   |
| Total Credits of Electives   |   |                 |     |     |     | 63   | Average ECTS Credit Load Per Semester |  |                 |     |     |     | 30   |
|  |   |                 |     |     |     |      | Elective Ratio                        |  |                 |     |     |     | 26%  |

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| IMPORTANT NOTES  |
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| <i>7 available Program elective courses are taken from junior, senior, or graduate level courses in ME, as seen in Table 2. Three program elective courses can be chosen from other junior or senior level courses offered in FENS with the consent of the Academic Advisor.</i> |
| <i>Junior standing means the student has successfully completed at least 105 ECTS units in the program.</i>  |
| <i>Senior standing means the student has successfully completed at least 165 ECTS units in the program.</i>  |
| <i>University Elective can be taken from Table 1: University Elective Courses List.</i>  |
| <i>2 Language elective courses are taken from the list of language courses provided (cannot be the student's mother tongue).</i>   |
| <i>2 Free elective courses are taken from any faculty or program.</i>  |
| <i>Work placement/Internship is typically practiced in summer for a period of at least 25 work days, totalling at least 150 hours.</i>   |
| <b><i>This curriculum is being implemented for the new freshman students who entered the freshman class in the 2022-2023 academic year or after.</i></b>   |
| <b><i>The course ENS309 has replaced LAW109 (sixth semester) since AY 2024-2025.</i></b>   |

| TABLE 1: University Elective Courses  |   |  |   |   |      |
|---|---|--|---|---|------|
| Code  | Title   |  | T | P | ECTS |
| ARCH107   | Understanding Art and Architecture                |  | 2 | 0 | 3    |
| BIO100  | Introduction to Bioengineering                    |  | 3 | 0 | 3    |
| CS100   | Computer Skills                                   |  | 0 | 2 | 3    |
| CULT101   | Understanding Cultural Encounters                 |  | 2 | 0 | 3    |
| ECON105   | Understanding Business                            |  | 2 | 0 | 3    |
| ECON107   | Python  |  | 1 | 1 | 3    |
| ECON108   | Matlab  |  | 1 | 1 | 3    |
| HUM100  | Social Responsibility and Sustainable Development |  | 2 | 0 | 3    |
| IBF105  | Financial Literacy                                |  | 2 | 0 | 3    |
| IR100   | Understanding the Contemporary World through Curr |  | 2 | 0 | 3    |
| MAN105  | Corporate Social Responsibility                   |  | 2 | 0 | 3    |
| NS111   | Understanding Nature and Knowledge                |  | 2 | 0 | 3    |
| SPS140  | Understanding Religion                            |  | 2 | 0 | 3    |
|   | Foreign Language Elective I (&)                   |  | 0 | 2 | 3    |
|   | Foreign Language Elective II (&)                  |  | 0 | 2 | 3    |
| (&) Scholarship students will take either Spoken Turkish I and II or Spoken Bosnian I and II. |   |  |   |   |      |

| TABLE 2: Program Elective Courses |   |                 |   |   |      |  |  |                 |   |         |
|-----------------------------------|---|-----------------|---|---|------|--|--|-----------------|---|---------|
| Code                              | Title                                   | Prerequisites   | T | P | ECTS | Code   | Title  | Prerequisites   | T | P ECTS  |
| ARCH408-6                         | Building Physics                        |                 | 1 | 2 | 6    | MATH306  | Statistical Modeling                         | MATH203         | 3 | 2 6     |
| CS304                             | Computer Architecture                   | CS105           | 3 | 2 | 6    | ME301  | Engineering Project I                        | Junior Standing | 3 | 0 6     |
| EE201                             | Analog Electronics I                    | ENS203          | 3 | 3 | 6    | ME302  | Engineering Project II                       | Junior Standing | 3 | 0 6     |
| EE202                             | Electrical Circuits II                  | ENS203          | 3 | 3 | 6    | ME313  | Mechanical Vibrations                        | Junior Standing | 3 | 2 6     |
| EE221                             | Object Oriented Programming             | ENS213 or CS103 | 3 | 2 | 6    | ME401  | Engineering Design I                         | Junior Standing | 3 | 2 6     |
| EE325                             | Embedded Systems                        | ENS213 or CS103 | 3 | 2 | 6    | ME402  | Engineering Design II                        | Junior Standing | 3 | 2 6     |
| ENS201                            | Electromagnetism I                      | MATH102         | 3 | 0 | 6    | ME410  | Unmanned Aerial Vehicles                     | Junior Standing |   | 6       |
| IE301                             | Production Planning I                   | MATH203         | 3 | 2 | 6    | ME411  | Renewable Energy Technology                  | Junior Standing | 3 | 0 6     |
| IE303                             | Operations Research I                   | MATH201         | 3 | 2 | 6    | ME412  | Introduction to Computational Fluid Dynamics | Senior Standing | 3 | 0 6     |
| IE305                             | Work Analysis and Design                | Junior Standing | 3 | 2 | 6    | ME414  | Energy Conversion Technology                 | Senior Standing | 3 | 0 6     |
| IE306                             | Simulation                              | MATH203         | 3 | 2 | 6    | ME415  | Computational methods                        | Senior Standing | 3 | 2 6     |
| IE307                             | Quality and Reliability Engineering     | Junior Standing | 3 | 2 | 6    | ME416  | Turbomachinery                               | Senior Standing | 3 | 0 6     |
| IE309                             | Ergonomics                              | Junior Standing | 2 | 2 | 6    | ME430  | Hydraulics and Pneumatics                    | Senior Standing | 3 | 2 6     |
| IE318                             | Engineering Economics                   | Junior Standing | 2 | 2 | 6    | ME432  | HVAC   | Senior Standing | 3 | 2 6     |
| IE425                             | Computer Aided Design And Manufacturing | Senior Standing | 3 | 2 | 6    | ME436  | Plumbing System and Design                   | Senior Standing | 3 | 2 6     |
| IE408                             | Project Management                      | Junior Standing | 2 | 2 | 6    | Abbreviations: T (Theory), P (Practice), ECTS credit |  |                 |   |         |
|                                   |   |                 |   |   |      |  |  |                 |   | pg. 2/2 |