

Transilvania University of Braşov, Romania

Study program: Mechatronics

Faculty: Product Design and Environment
 Study period: 4 years (bachelor);
 Academic year structure: 2 semesters (14 weeks per semester)
 Examination sessions (two): inter session (January/February)
 Summer session (June/July)

Courses per years (C= course; S = seminar; L = laboratory; P = project)

1st Year

| No. | Course | Code | Language of instruction | 1 st Semester | | | | | 2 nd Semester | | | | |
|-----|--|-----------|-------------------------|--------------------------|---|---|---|------|--------------------------|---|---|---|------|
| | | | | C | S | L | P | Cred | C | S | L | P | Cred |
| 01 | Mathematical Analysis | MKTAM01 | Romanian | 2 | 3 | - | - | 5 | | | | | |
| 02 | Chemistry | MKTCH01 | Romanian | 2 | - | 1 | - | 4 | | | | | |
| 03 | Computer Aided Graphics I | DIDT01 | Romanian | 2 | - | 2 | - | 5 | | | | | |
| 04 | Computer Programming and Programming Languages I | MKTPC01 | Romanian | 1 | - | 2 | - | 4 | | | | | |
| 05 | Mechatronic Systems I | SIMT01 | Romanian | 2 | 2 | - | - | 5 | | | | | |
| 06 | Science and Engineering of Materials | MKTSM01 | Romanian | 3 | - | 2 | - | 5 | | | | | |
| 07 | Linear Algebra, Analytic Geometry and Differential Equations | DIAGAD | Romanian | | | | | | 2 | 2 | - | - | 4 |
| 08 | Computer Aided Graphics II | MKTDT02 | Romanian | | | | | | 2 | - | 2 | - | 5 |
| 09 | Computer Programming and Programming Languages II | MKTPC02 | Romanian | | | | | | 1 | - | 2 | - | 4 |
| 10 | Physics | MKTfZ02 | Romanian | | | | | | 2 | - | 1 | - | 4 |
| 11 | Mechanics | MKTMC02 | Romanian | | | | | | 3 | 2 | - | - | 5 |
| 12 | Communication | TDCO | Romanian | | | | | | 1 | - | 1 | - | 3 |
| 13 | Electrotechnics | MKEA02 | Romanian | | | | | | 2 | - | 1 | - | 3 |
| 14 | Foreign Languages: English | LE01/LE02 | English | 1 | 1 | - | - | 2 | 1 | 1 | - | - | 2 |
| | Foreign Languages: French | LF01/LF02 | French | | | | | | | | | | |
| | Foreign Languages: German | LG01/LG02 | German | | | | | | | | | | |
| | Foreign Languages: Spanish | LS01/LS02 | Spanish | | | | | | | | | | |
| 15 | Physical Education and Sports I/II | EF01/EF02 | Romanian | - | 1 | - | - | 1 | - | 1 | - | - | 1 |

2nd Year

| No. | Course | Code | Language of instruction | 3 rd Semester | | | | | 4 th Semester | | | | |
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| | | | | C | S | L | P | Cred | C | S | L | P | Cred |
| 01 | Special Mathematics and Mathematical Statistics | DIMS03 | Romanian | 2 | 1 | - | - | 4 | | | | | |
| 02 | Strength of Materials | DIRM03 | Romanian | 3 | 1 | 1 | - | 5 | | | | | |
| 03 | Applied Informatics | ANUM | Romanian | 2 | - | 2 | - | 5 | | | | | |
| 04 | Electronics | ELEC | Romanian | 2 | - | 2 | - | 4 | | | | | |

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| 05 | Biomechanics | BMEC | Romanian | 2 | - | 2 | - | 5 | | | | | |
| 06 | Optoelectronics | OPEL | Romanian | 2 | - | 2 | - | 5 | | | | | |
| 07 | Digital Electronics | ELDI | Romanian | | | | | | 2 | - | 1 | - | 3 |
| 08 | Mechanisms and Machine Elements | DIOM04 | Romanian | | | | | | 3 | - | 1 | 1 | 5 |
| 09 | Processing Technologies | THPL | Romanian | | | | | | 2 | - | 2 | - | 4 |
| 10 | Numerical Methods | MNUM | Romanian | | | | | | 2 | - | 2 | - | 4 |
| 11 | Fundamentals of Mechatronic Systems | BSMT | Romanian | | | | | | 3 | - | 2 | - | 5 |
| 12 | Techniques and Measurement Systems | TCDI | Romanian | | | | | | 2 | - | 1 | - | 3 |
| 13 | Domain Practice | PRAC1 | Romanian | | | | | | 3 weeksx30h=90h | | | | 4 |
| 14 | Foreign Languages: English | LE03/LE04 | English | | | | | | | | | | |
| | Foreign Languages: French | LF03/LF04 | French | | | | | | | | | | |
| | Foreign Languages: German | LG03/LG04 | German | 1 | 1 | - | - | 2 | 1 | 1 | - | - | 2 |
| | Foreign Languages: Spanish | LS03/LS04 | Spanish | | | | | | | | | | |
| 15 | Physical Education and Sports III/IV | EF03/EF04 | Romanian | - | 1 | - | - | 1 | - | 1 | - | - | 1 |

3rd Year

| No. | Course | Code | Language of instruction | 5 th Semester | | | | | 6 th Semester | | | | |
|-----|---|---------|-------------------------|--------------------------|---|---|---|------|--------------------------|---|---|---|------|
| | | | | C | S | L | P | Cred | C | S | L | P | Cred |
| 01 | Working Machines and CNC | MLCNC | Romanian | 2 | - | 2 | - | 4 | | | | | |
| 02 | Working Machines and CNC - Project | MLCNP | Romanian | - | - | - | 1 | 2 | | | | | |
| 03 | Drive Systems | SIAC | Romanian | 2 | - | 2 | - | 4 | | | | | |
| 04 | Manufacture and Assembly in Mechatronics using Flexible Systems | FMMT | Romanian | 2 | - | 2 | - | 5 | | | | | |
| 05 | Fundamentals of Automated Systems | BSAT | Romanian | 2 | - | 2 | - | 5 | | | | | |
| 06 | Sensors and Sensory Systems | SENZ | Romanian | 2 | - | 2 | - | 5 | | | | | |
| 07 | Heat Engineering and Fluid Mechanics | TMFL | Romanian | 3 | - | 2 | - | 5 | | | | | |
| 08 | Medical Apparatus | APLAc | Romanian | | | | | | 2 | - | 1 | - | 3 |
| 09 | Measurement and Instrumentation | MASlC | Romanian | | | | | | 2 | - | 1 | - | 3 |
| 10 | Computer-Aided Design | PRAC | Romanian | | | | | | 2 | - | 2 | - | 4 |
| 11 | Microcontrollers, Microprocessors | MICR | Romanian | | | | | | 2 | - | 2 | - | 4 |
| 12 | Mechatronic Systems II | SIMT02 | Romanian | | | | | | 2 | - | 2 | - | 4 |
| 13 | Mechatronic Systems II - Project | SIMTP02 | Romanian | | | | | | - | - | - | 2 | 2 |
| 14 | Programming Industrial Robots | PRI | Romanian | | | | | | 2 | - | 2 | - | 3 |
| 15 | PLCs (Programmable Logic Controllers) | AUTP | Romanian | | | | | | 2 | - | 2 | - | 3 |
| 16 | Specialized Practice | PRAC2 | Romanian | | | | | | 3 weeks x 30h = 90h | | | | 4 |

4th Year

| No. | Course | Code | Language of instruction | 7 th Semester | | | | | 8 th Semester (10 weeks) | | | | |
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| | | | | C | S | L | P | Cred | C | S | L | P | Cred |
| 01 | Manufacturing technologies and micro / nanotechnologies | TMNS | Romanian | 3 | - | 1 | 1 | 6 | | | | | |
| 02 | Image Processing, Artificial Vision and Medical Imaging | PIVI | Romanian | 2 | - | 2 | - | 4 | | | | | |

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| 03 | Microcontroller Programming | MPMC | Romanian | 2 | - | 2 | - | 4 | | | | | |
| 04 | Microcontroller Programming - Project | MPMP | Romanian | - | - | - | 1 | 2 | | | | | |
| 05 | Artificial Intelligence | IART | Romanian | 2 | - | 2 | - | 4 | | | | | |
| 06 | Pneumatic and Hydraulic Automation | APHI | Romanian | 2 | - | 2 | - | 5 | | | | | |
| | Pneutronics and Hydronics | PNHI | Romanian | | | | | | | | | | |
| 07 | Acquisition Systems and Interfaces | SAIN | Romanian | 2 | - | 2 | - | 5 | | | | | |
| | Signals and Systems | SESI | Romanian | | | | | | | | | | |
| 08 | Mechatronics of Biomedical Systems | MTSB | Romanian | | | | | | 2 | - | 2 | - | 4 |
| 09 | Databases and Statistical Processing | BDPS | Romanian | | | | | | 2 | - | 2 | - | 3 |
| 10 | Coordinate Measuring Machines | MMCO | Romanian | | | | | | 2 | - | 2 | - | 3 |
| 11 | General Economy | ECOG | Romanian | | | | | | 1 | 1 | - | - | 2 |
| 12 | Mechatronics in Agriculture | MTAG | Romanian | | | | | | 1 | - | 1 | - | 2 |
| | Automotive Mechatronics | MAUT | Romanian | | | | | | | | | | |
| 13 | CAD / CAM / CIM | PCAM | Romanian | | | | | | 2 | - | 1 | 1 | 4 |
| | CNC Programming | PMCN | Romanian | | | | | | | | | | |
| 14 | Automatic Control and Service Industry | ACSI | Romanian | | | | | | 2 | - | 2 | - | 4 |
| | ATMs and Commercial | AUBC | Romanian | | | | | | | | | | |
| 15 | Elaboration of the Diploma Project | PTEM | Romanian | | | | | | - | - | - | 4 | 4 |
| 16 | Practice for Diploma Project | PRAC3 | Romanian | | | | | | 60 +36 hours | | | | 4 |