

# Transilvania University of Braşov, Romania

## Study program: Mechatronic Systems for Industry and Medicine

Faculty: Product Design and Environment  
 Study period: 2 years (master)  
 Academic year structure: 2 semesters (14 weeks per semester)  
 Examination sessions (two): winter session (January/February)  
 summer session (June/July)

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

### 1<sup>st</sup> Year

| No. crt. | Course  | Code  | Language of instruction | 1 <sup>st</sup> Semester |   |   |   |      | 2 <sup>nd</sup> Semester |   |   |   |      |
|----------|---|-------|-------------------------|--------------------------|---|---|---|------|--------------------------|---|---|---|------|
|          |   |       |                         | C                        | S | L | P | Cred | C                        | S | L | P | Cred |
| 01       | Complements of Physics and Applied Mathematics                  | CFMA  | Romanian                | 2                        | 1 | - | - | 6    |                          |   |   |   |      |
| 02       | Finite Element Analysis of Engineering Systems                  | AFEM  | Romanian                | 2                        | - | 1 | - | 6    |                          |   |   |   |      |
| 03       | Modelling And Simulation of Bio systems                         | MSBI  | Romanian                | 2                        | - | 2 | - | 6    |                          |   |   |   |      |
| 04       | Advanced Methods of Quality Inspection                          | MAIC  | Romanian                | 2                        | 2 | - | - | 6    |                          |   |   |   |      |
| 05       | Experimental and Investigative Methods in Industry and Medicine | MEIM  | Romanian                |                          |   |   |   |      | 2                        | - | 2 | - | 6    |
| 06       | Robotic Systems for Industry and Medicine                       | SRIM  | Romanian                |                          |   |   |   |      | 2                        | - | - | 2 | 6    |
| 07       | Precision Micro-Electro-Mechanical Systems                      | MEMS  | Romanian                |                          |   |   |   |      | 2                        | - | 2 | - | 6    |
| 08       | Protocols and Communication Interfaces in Mechatronic Systems   | PICS  | Romanian                |                          |   |   |   |      | 2                        | - | 2 | - | 6    |
| 09       | Practical Activity and/or Scientific Research                   | PRCI  | Romanian                | 12X14weeks=168 hours     |   |   |   | 6    |                          |   |   |   |      |
| 10       | Practical Activity and/or Scientific Research                   | PRCII | Romanian                |                          |   |   |   |      | 12X14weeks=168 hours     |   |   |   | 6    |

### 2<sup>nd</sup> Year

| No. crt. | Course  | Code | Language of instruction | 3 <sup>rd</sup> Semester |   |   |   |      | 4 <sup>th</sup> Semester |   |   |   |      |
|----------|---|------|-------------------------|--------------------------|---|---|---|------|--------------------------|---|---|---|------|
|          |   |      |                         | C                        | S | L | P | Cred | C                        | S | L | P | Cred |
|          | <b>Optional direction I: Mechatronic Systems for Industry</b> |      |                         |                          |   |   |   |      |                          |   |   |   |      |
| 01       | Information Systems Management: Ethics And Academic Integrity | MPCM | Romanian                | 2                        | - | - | 1 | 5    |                          |   |   |   |      |

|    |   |      |          |                      |   |   |   |   |                      |   |   |   |   |
|----|---|------|----------|----------------------|---|---|---|---|----------------------|---|---|---|---|
| 02 | Modern Manufacturing and Assembly Systems   | SMFA | Romanian | 2                    | - | 1 | - | 5 |                      |   |   |   |   |
| 03 | CAD /CAM Systems in Flexible Manufacturing  | SCAD | Romanian | 1                    |   | 2 |   | 5 |                      |   |   |   |   |
| 04 | Systems for Services Automation   | SASV | Romanian | 2                    |   | 2 |   | 5 |                      |   |   |   |   |
| 05 | Control of Processes  | CCPR | Romanian | 1                    |   | 2 |   | 5 |                      |   |   |   |   |
| 06 | Information Acquisition and Processing, Virtual Instrumentation                       | APIV | Romanian |                      |   |   |   |   | 2                    | - | 1 | - | 6 |
| 07 | Adaptive command systems  | SICA | Romanian |                      |   |   |   |   | 2                    | - | 1 | - | 6 |
| 08 | Advanced mechatronic systems in the automotive industry                               | SAMA | Romanian |                      |   |   |   |   | 2                    | - | 2 | - | 6 |
| 09 | Practical Activity and/or Scientific Research   | APCS | Romanian | 12X14weeks=168 hours |   |   |   | 4 | 8 X14weeks=112 hours |   |   |   | 4 |
| 10 | Dissertation Thesis Development   | ELDS | Romanian |                      |   |   |   |   | 6X14weeks=84 hours   |   |   |   | 8 |
|    |   |      |          |                      |   |   |   |   |                      |   |   |   |   |
|    | Optional direction II: Mechatronic Systems in Medicine and Optometry                  |      |          |                      |   |   |   |   |                      |   |   |   |   |
| 01 | Information Systems Management: Ethics And Academic Integrity                         | MPCM | Romanian | 2                    | - | - | 1 | 5 |                      |   |   |   |   |
| 02 | Public Health Protection and Safety   | SMFA | Romanian | 2                    | - | 1 | - | 5 |                      |   |   |   |   |
| 03 | Optometry and Clinical Diagnosis  | OPAC | Romanian | 1                    |   | 2 |   | 5 |                      |   |   |   |   |
| 04 | Complex Systems for Visual Investigation  | SCBS | Romanian | 2                    |   | 2 |   | 6 |                      |   |   |   |   |
| 05 | Preventive School Optometry   | OSPI | Romanian | 1                    |   | 2 |   | 5 |                      |   |   |   |   |
| 06 | Complementary Methods of Experimental Bio systems Analysis                            | MCAB | Romanian |                      |   |   |   |   | 2                    | - | 1 | - | 6 |
| 07 | Computerized Management of Patients and of Medical and Optometric Engineering Systems | MCPS | Romanian |                      |   |   |   |   | 2                    | - | 1 | - | 6 |
| 08 | Experimental Optometry and Low Vision Prosthetics                                     | OEPO | Romanian |                      |   |   |   |   | 2                    | - | 2 |   | 6 |
| 09 | Practical Activity and/or Scientific Research   | APCS | Romanian | 12X14weeks=168 hours |   |   |   | 4 | 8 X14weeks=112 hours |   |   |   | 4 |
| 10 | Dissertation Thesis Development   | ELDS | Romanian |                      |   |   |   |   | 6X14weeks=84 hours   |   |   |   | 8 |