### MSc degree program in Electrical Engineering

#### 4 semesters, 120 credits, starts: Spring, valid from 2016

**Budapest University of Technology and Economics**

**Faculty of Electrical Engineering and Informatics**

**Program Overview**

- **Main specialization**: 30 credits
- **Secondary specialization**: 2 credits
- **Semester 1**: 2/1/0/m/3 Advanced mathematics, 2/1/0/e/4 Common subject, 2/1/0/e/4 Main specialization subject, 2/1/0/e/4 Secondary specialization subject, 2/1/0/e/4 Project laboratory 1, 0/0/5/m/5 Common subjects, 3/0/0/m/4 Communication theory, 3/0/0/m/4 Measurement theory, 3/0/0/m/4 Alternating current systems
- **Semester 2**: 2/1/0/m/3 Advanced mathematics, 2/1/0/e/4 Common subject, 2/1/0/e/4 Main specialization subject, 2/1/0/e/4 Secondary specialization subject, 2/1/0/e/4 Project laboratory 2, 0/0/5/m/5 Common subjects, 3/0/0/m/4 Communication theory, 3/0/0/m/4 Measurement theory, 3/0/0/m/4 Alternating current systems
- **Semester 3**: 3/1/0/e/4 Physics 3, 2/1/0/m/2 Mandatory human & economic science elective, 2/2/0/m/2 MSc Diploma Design 2, 0/0/5/m/20 BMEVIMMA02 Advanced mathematics, 2/1/0/m/3 Electric Power Systems operation and control, 2/1/0/m/3 Electrical systems of sustainable energetic, 2/1/0/m/3 Power system transients, 2/1/0/m/3 Protection systems and measurement tech., 2/1/0/m/3 Electric energy market, 2/1/0/m/3 Electric Power Systems laboratory 1, 0/0/3/m/4 Electric Power Systems laboratory 2, 0/0/3/m/4 Mandatory human & economic science elective 2/0/0/m/2 MSc Diploma Thesis Design 1, 0/0/5/m/10 BMEVIMMA03 Advanced mathematics, 2/1/0/m/3 Mobile and wireless networks, 2/1/0/m/3 Broadband wireless telecommunications and broadcasting systems, 2/1/0/m/3 Foundations of multimedia technologies, 2/1/0/m/3 Networked multimedia systems & services, 2/1/0/m/3 Media informatics systems, 2/1/0/m/3 Lab. on multimedia systems & services 1, 0/0/3/m/4 Lab. on multimedia systems & services 2, 0/0/3/m/4 Mandatory human & economic science elective 2/0/0/m/2 MSc Diploma Thesis Design 1, 0/0/5/m/10 BMEVIMMA03 Advanced mathematics, 2/1/0/m/3 Artificial Intelligence Based Control, 2/1/0/m/3 SW technology for embedded systems, 2/1/0/m/3 Computer vision systems, 2/1/0/m/3 Development of SW applications, 2/1/0/m/3 Design & integration of embedded systems, 2/1/0/m/3 Control Engineering and Image Processing Laboratory 0/0/3/m/4 Lab. on multimedia systems & services 2, 0/0/3/m/4 Mandatory human & economic science elective 2/0/0/m/2 MSc Diploma Thesis Design 1, 0/0/5/m/10 BMEVIMMA03 Advanced mathematics, 2/1/0/m/3 Sensor networks and applications, 2/1/0/m/3 Intelligent traffic systems, 2/1/0/m/3 Circuit environment, 2/1/0/m/3 System level design, 2/1/0/m/3 Optical Network Elements, 2/1/0/m/3 Optical Networking Architectures, 2/1/0/m/3 Optical Networks Laboratory 0/0/3/m/4 Specialist subject, 3/0/0/m/5 Subject title: 3/1/1/m/5 ECTS credit 1 credit represents 30 work hours.

**Smart City**

- Sensor networks and applications 2/1/0/m/3 BMEVITMA09
- Intelligent traffic systems 2/1/0/m/3 BMEVITMA10
- Human-Computer Interaction 2/1/0/m/3 BMEVITMA11
- Smart city laboratory 0/0/2/m/2 BMEVITMMA04

**Smart Systems Integration**

- Circuit environment 2/1/0/m/3 BMEVIEE103
- System level design 2/1/0/m/3 BMEVIEE105
- Fundamentals of smart systems 2/1/0/m/3 BMEVIEE104
- Smart systems design laboratory 0/0/2/m/2 BMEVIEE100

**Optical Communication**

- Optical Network Elements 2/1/0/m/3 BMEVIMMA03
- Optical Networking Architectures 2/1/0/m/3 BMEVIMMA12
- Optical Networks Laboratory 0/0/2/m/2 BMEVIMMA03

**Combustion optimization**

- Electric Power Systems Laboratory 2, 0/0/3/m/4 BMEVIMMA06

**Additional Notes**

- **Course Structure**: The program includes lectures, laboratory work, and project work.
- **Specialization Subjects**: Specialization subjects are determined by the main specialization subjects and two subjects from the advanced mathematics block are determined by the main specialization.
- **Mandatory Human & Economic Science Elective**: The mandatory human & economic science elective is included in the program.
- **Smart Systems Design Diploma Thesis**: The diploma thesis is a requirement for graduation.

**Smart City Laboratory**

- Project Laboratory 3, Project Laboratory 2, Diploma Thesis Design 1, Diploma Thesis Design 2 can be taken after the previous subject.

**Legends**

- **Subject title**: 3/1/1/m/5
- **ECTS credit**: 1 credit represents 30 work hours.
- **Weekly hours**: 3 hours per week.
- **Subject code**: as in the Neptun course management system.
- **Credit requirement**: 3 credits.

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**DISCLAIMER**: This roadmap is for information purposes only, without contractual value. Changes may occur. Content is subject to change without notice. **MINIMAL NUMBER OF APPLICANTS REQUIRED**

**Physics 3 subject can be substituted by Electromagnetic Fields**

*More details and regulations can be found on the official university website.*