# INDUSTRIAL ELECTRONIC APPLICATIONS

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| 1 | Course Title: | INDUSTRIAL ELECTRONIC APPLICATIONS |
| 2 | Course Code: | EEM4302 |
| 3 | Type of Course: | Optional |
| 4 | Level of Course: | First Cycle |
| 5 | Year of Study: | 4 |
| 6 | Semester: | 8 |
| 7 | ECTS Credits Allocated: | 4.00 |
| 8 | Theoretical (hour/week): | 3.00 |
| 9 | Practice (hour/week): | 0.00 |
| 10 | Laboratory (hour/week): | 0 |
| 11 | Prerequisites: | - |
| 12 | Language: | Turkish |
| 13 | Mode of Delivery: | Face to face |
| 14 | Course Coordinator: | Öğr.Gör.Dr. İSMAİL TEKİN |
| 15 | Course Lecturers: | - |
| 16 | Contact information of the Course Coordinator: | Öğr. Gör. Dr. İsmail TEKİN<br>E-posta:itekin@uludag.edu.tr<br>Tel: (224) 294 2030<br>Adres: Elektrik - Elektronik Mühendisliği Bölümü, Ofis No:316 |
| 17 | Website: | |
| 18 | Objective of the Course: | Inform students about power devices and their applications, switching techniques of power devices, sensor types and applications |
| 19 | Contribution of the Course to Professional Development: | The ability to analyze and solve a problem with available data |
| 20 | Learning Outcomes: | |

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| | 1 | Learn power devices and their applications |
| | 2 | Learn switching techniques of power devices |
| | 3 | Learn sensor types and applications |
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| 21 | Course Content: | |
| | **Course Content:** | |
| Week | Theoretical | Practice |
| 1 | Single phase and three phase AC / DC converter circuits | |
| 2 | SMPS circuits and applications | |
| 3 | Sensor structures, function and types | |
| 4 | Sensors applications | |

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| **5** | Power switching devices and driving techniques | |
| **6** | Switching techniques of power transistors and their applications | |
| **7** | IGBTs switching techniques and applications | |
| **8** | Midterm + review session | |
| **9** | Switching techniques of thyristors, triacs and their applications | |
| **10** | Driver circuits | |
| **11** | Optocupler circuits | |
| **12** | AC, DC motor driver circuits | |
| **13** | Stepper motor drive circuits | |
| **14** | Relay and contactor drive circuits | |

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| **22** | Textbooks, References and/or Other Materials: | 1. Power Electronics : Converters, Applications, and Design, Ned Mohan, Tore M. Undeland, William P. Robbins,ISBN 471226939, 2002, Wiley<br>2. Power Electronics : Circuits, Devices and Applications, Muhammad H. Rashid, ISBN 131011405, 2003, Prentice Hall<br>3. Musayev E., “Optokuplörler ve Uygulamaları (Optoocuplers and their applications)”, Birsen yayınevi, Istanbul, 2000, 202 s. ISBN 975-511-257-X<br>4. Modern Industrial Electronics, Timothy J. Maloney, ISBN 130487414, 2003, Prentice Hall<br>5. Industrial Electronics: Applications for Programmable |

| Activites | | Number | Duration (hour) | Total Work Load (hour) |
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| Assesment | | | | |
| Theoretical | | 14 | 3.00 | 42.00 |
| Practicals/Labs | | 0 | 0.00 | 0.00 |
| Self study and preperation | 1 | 14 | 3.00 | 42.00 |
| Midterm Exam | | 1 | 40.00 | |
| Homeworks | | 0 | 0.00 | 0.00 |
| Projects | | 0 | 0.00 | 0.00 |
| Home work-project | 0 | 0.00 | | |
| Field Studies | | 0 | 0.00 | 0.00 |
| Midterm exams | 2 | 1 | 16.00 | 16.00 |
| Total | | 100.00 | | |
| Others | | 0 | 0.00 | 0.00 |
| Success Grade | | 1 | 20.00 | 20.00 |
| Final Exams | | | | |
| Total Work Load | | | | 136.00 |
| Total work load/ 30 hr | | 100.00 | | 4.00 |
| ECTS Credit of the Course | | | | 4.00 |

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| Course | the principles of Bursa Uludağ University Associate and Undergraduate Education Regulation. |
| **24** | **ECTS / WORK LOAD TABLE** |

| **25** | **CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS** | | | | | | | | | | | | | | | |
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| | **PQ1** | **PQ2** | **PQ3** | **PQ4** | **PQ5** | **PQ6** | **PQ7** | **PQ8** | **PQ9** | **PQ10** | **PQ11** | **PQ12** | **PQ13** | **PQ14** | **PQ15** | **PQ16** |
| **ÖK1** | 0 | 3 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 0 | 4 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK3** | 0 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| LO: Learning Objectives PQ: Program Qualifications | | | | | |
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| **Contribution Level:** | **1 very low** | **2 low** | **3 Medium** | **4 High** | **5 Very High** |