

## COURSE PROFILE

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| <b>Course Number : EE 334</b>  | <b>Course Title : Electronics Laboratory</b>   |
| <b>Required / Elective : Required</b>  | <b>Pre-requisite : EE 332 Electronics II</b>   |
| <b>Catalog Description:</b><br>Diode characteristics and applications. Transistor biasing. Measurement of transistor parameters. Single and multistage transistor amplifiers. Amplifier frequency response. DC power supplies and regulator circuits. Design and simulation of differential amplifiers, active filters, oscillator circuits and power amplifiers.  | <b>Textbook / Required Material :</b><br>Laboratory Experiment Handouts (Available course online). |
| <b>Course Structure / Schedule : (1+0+2) 2 / 4 ECTS</b>  |  |
| <b>Extended Description : -</b>  |  |
| <b>Design content :</b><br>Design differential amplifiers, active filter circuits, oscillator circuits, and power amplifiers.  | <b>Computer usage:</b><br>Pspice   |
| <b>Course Outcomes:</b> [relevant program outcomes in brackets]:<br>At the completion of the course, students will be able to: <ul style="list-style-type: none"> <li>• perform experimental circuit analysis of electronic circuits using oscilloscopes, multimeters, function generators, and power supplies [5,6,7,8].</li> <li>• interpret experimental measurements [5,6,7,8].</li> <li>• design, build, test, troubleshoot, and evaluate analog circuits [5,6,7,8,11].</li> <li>• utilize PSPICE to design and analyze specified circuits and applications as well as student project designs [8,11].</li> <li>• prepare a written report that effectively communicates the objective, the design procedure, the experimental results, and the conclusion for any project design [8,9].</li> </ul> Level of contribution of course to program outcomes:<br>Strong: [5], [7], [11]<br>Average: [6], [8], [9]<br>Some: |  |
| <b>Recommended reading:</b><br>Introduction to Pspice for Electric Circuits, James W. Nilsson, (Emeritus) Iowa State University, Prentice Hall, ISBN-10: 0132448394.<br>Donald A. Neamen, Electronic Circuit Analysis and Design, McGraw-Hill, ISBN-13: 978-0256261158.<br>Robert L. Boylestad, Louis Nashelsky, Electronic Devices and Circuit Theory, 9th Edition, Prentice Hall, ISBN-13: 978-0131189058.   |  |

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| <b>Teaching Methods:</b>                                       |   |
| Pre-readings, lecture, and laboratory experiments.             |   |
| <b>Assessment Methods:</b> [Related to course objectives]      |   |
| Laboratory Reports, Final project, Midterm (oral exam), Final. |   |
| <b>Student Workload:</b>                                       |   |
| e.g. Preparatory reading                                       | 14 hrs                                  |
| Lectures, discussions  | 14 hrs                                  |
| Laboratory Reports   | 52 hrs                                  |
| Projects   | 10 hrs                                  |
| Laboratory work  | 28 hrs                                  |
| Final Exam   | 2 hrs                                   |
| <b>TOTAL .....</b>   | <b>120 hrs ... to match 30 x 4 ECTS</b> |
| Prepared by : Assist.Prof. Hakan Gürkan                        | Revision Date : 02.02.2010              |