

## COURSE PROFILE

<b>Course Number:</b> EE 332		<b>Course Title:</b> Electronics II	
<b>Required / Elective:</b> Required (EE)		<b>Pre-requisite:</b> EE 330 Electronics I	
<b>Catalog Description:</b> Multistage amplifiers, coupling techniques and frequency response, differential amplifiers. High-frequency modeling of transistors. Feedback and broad banding techniques. Analog integrated circuits. OPAMPs. Power amplifiers, filters and oscillators, regulated power supplies.		<b>Textbook / Required Material:</b> Donald A. Neamen, Electronic Circuit Analysis and Design, 2ed., Mc Graw Hill, 2001 (ISBN 0-13-814757-4)	
<b>Course Structure / Schedule:</b> (3+1+0) 3 / 6 ECTS			
<b>Extended Description:</b> Frequency response concepts, low and high frequency analysis of BJT and MOS, Miller effect. Differential and common mode operation of BJT differential amplifiers, active load and current mirrors. Class A,B and AB output stages. OPAMP circuits, non-ideal analysis of OPAMPs. Basic properties of feedback circuits, analyze and design circuits with four feedback topologies. Basic Oscillator circuits, Wien bridge, Hartley and Collpitts Oscillator analysis.			
<b>Design content:</b> Basic BJT & FET amplifier design.		<b>Computer Usage:</b> Exercises and HWs electronic circuit simulation in Pspice	
<b>Course Outcomes:</b> [relevant program outcomes in brackets]: <ul style="list-style-type: none"> <li>• Ability to apply knowledge of mathematics, science, and engineering to problems in electronics engineering [2] (Moderate).</li> <li>• Ability to identify, formulate and solve engineering problems [6] (Strong).</li> <li>• Ability to use the hardware and software based modeling, simulation, design and communication tools necessary for engineering practice [7] (Strong)</li> <li>• Ability to use the hardware and software based modeling, simulation, design and communication tools necessary for engineering practice [11] (Rare).</li> </ul>			
<b>Recommended reading:</b> Sedra/Smith, Microelectronic Circuits, 5 <sup>th</sup> Edition,			
<b>Teaching Methods:</b> Pre-readings, lectures, individual exercises, HWs, midterm and quiz exams.			
<b>Assessment Methods:</b> In class exams for testing i) learn analysis techniques for frequency response and differential operation of BJT and MOS transistors, and ii) gain an understanding of non-ideal effects of OPAMPs and feedback circuits.			
<b>Student Workload:</b>			
Preparatory reading	40	Assigned exercise + HW studies	50
Lectures and discussion	50	In class exams (midterm + quizzes)	10
Total		150 hours (6x25 ects)	
<b>Prepared by:</b> Mustafa Karaman		<b>Revision Date:</b> February 10, 2010	