

COURSE PROFILE

Course Number : EE 473	Course Title : Communication Electronics
Required / Elective : Elective	Pre-requisite : EE 331 or EE 332 or EE 335
Catalog Description: Active and passive filters. Transistors, RF amplifier analysis and synthesis using Y parameters. LC and crystal oscillators. PLL's and frequency synthesizers. Linear and exponential modulator and demodulator design.	Textbook / Required Material : Louis Frenzel, Communication Electronics 3e, McGraw-Hill, 2001
Course Structure / Schedule : (3+0+0) 3 / 6 ECTS	
Extended Description: This is a senior level course, focusing on practical issues in communication system design. This course aims to arm the students with the basic knowledge and skills required to design communication circuits, on the basis of following topics: <ul style="list-style-type: none"> • Introduction to electronic communication • Amplitude modulation and single sideband modulation • Amplitude modulation circuits • Frequency Modulation • Frequency modulation circuits • Radio transmitters and components • Communication receivers and components • Multiplexing <p>The challenges in RF communications, such as amplifier and mixer noise will be analyzed in detail</p>	
Design content : Projects and homeworks on the design of analog communication circuits.	Computer usage: Computer aided design tools, to simulate the signals at different stages of the communication circuits, before their hardware implementation.
Course Outcomes: <ol style="list-style-type: none"> a. Ability to mathematically model the input-output characteristics of parts used in communication transmitters and receivers, and the effect of noise, in the RF range [2,6] b. Ability to analyze and design basic communication systems; and implement them in hardware, to meet given specifications [2,6,7]. c. Ability to appreciate, the need for effective use of scarce resources such as power and bandwidth, and the trade-offs in system design, and incorporate them in the design process, [3,6,7] d. Ability to use basic circuit design tools, for modeling, simulation, and design of communication systems [7,11] 	

<p>The contribution of this course to the program outcomes can be rated as follows:</p> <p>Outcomes 2,6,7: SIGNIFICANT</p> <p>Outcomes 11: MODERATE</p> <p>Outcomes 3: SOME</p>															
<p>Recommended reading:</p>															
<p>Teaching Methods: Pre-readings, lectures, individual exercises and projects.</p>															
<p>Assessment Methods:</p> <ul style="list-style-type: none"> - Exams (written and oral) [a, b, c] - Portfolios (homework, design projects,) [a,b,c,d]. - Class surveys, exit surveys [c,d] 															
<p>Student Workload:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Preparatory reading</td> <td style="text-align: right; padding: 5px;">30 hrs</td> </tr> <tr> <td style="padding: 5px;">Lectures</td> <td style="text-align: right; padding: 5px;">42 hrs</td> </tr> <tr> <td style="padding: 5px;">Homeworks</td> <td style="text-align: right; padding: 5px;">24 hrs</td> </tr> <tr> <td style="padding: 5px;">Presentations</td> <td style="text-align: right; padding: 5px;">3 hrs</td> </tr> <tr> <td style="padding: 5px;">Projects</td> <td style="text-align: right; padding: 5px;">48 hrs</td> </tr> <tr> <td style="padding: 5px;">Final Exam</td> <td style="text-align: right; padding: 5px;">3 hrs</td> </tr> <tr> <td style="padding: 5px;">TOTAL</td> <td style="text-align: right; padding: 5px;">150 hrs to match 25 x 6 ECTS</td> </tr> </table>		Preparatory reading	30 hrs	Lectures	42 hrs	Homeworks	24 hrs	Presentations	3 hrs	Projects	48 hrs	Final Exam	3 hrs	TOTAL	150 hrs to match 25 x 6 ECTS
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Prepared by : Onur Kaya	Revision Date : 03/02/2010														