

Course name: ECE505 – Introduction to Communication Theory				Department: Electronics and Communications Engineering				
Semester	Methods of Education							Credit (ECTS)
	Lecture	Recitation/ (Etude)	Lab	Project/Field Study	Homework	Other	Total	
1	60	10		50	50	15	185	7,5
Language	English							
Compulsory/Elective	Elective							
Prerequisites	None							
Course Contents	The course contents include the fundamental physics and mathematics of communication, metrics and limitations of telecommunication systems, past and current telecommunication practices.							
Course Objectives	To gain understanding about communication engineering fundamentals and be able to analyze telecommunication systems							
Learning Outcomes and Competences	<p>After taking this course, students will be able to:</p> <ul style="list-style-type: none"> • Students learn the bandpass representation for carrier modulated signals. • Students engage in engineering design of communications system components. • Students learn to analyze the performance, spectral efficiency and complexity of the various options for transmitting analog and digital message signals. • Students learn to characterize noise in communication systems 							
Textbook and /or References	1. M. Fitz, Fundamentals of Communications Systems, McGraw-Hill, 2007.							
Assessment Criteria					If any, mark as (X)	Percentage (%)		
	Midterm Exams							
	Quizzes							
	Homeworks				X	25		
	Projects				X	50		
	Term Paper							
	Laboratory work							
	Other							
Final Exam				X	25			
Instructors	Ast. Prof. Dr. Asaf Behzat Sahin							
Week	Subject							
1	Signal and Systems Review, Fourier Transform							
2	Analog Modulation and Performance Metrics, Amplitude Modulation							
3	Amplitude Demodulation, Coherent and Envelope Detectors							
4	Phase and Frequency Modulation Systems							
5	Phase and Frequency Modulation Systems, Multiplexing							
6	Noise and Random Processes							
7	Noise and Random Processes							
8	Review, Project							
9	Digital Modulation and Performance Metrics, Shannon's Limit							
10	Digital Modulation Systems							
11	Digital Modulation Design Process							
12	M-ary Modulation Performance and Spectral Efficiency							
13	Digital Coding, Compression, and Error Correction							
14	Project, Homework							