

Course Number and Title:	EE-315 Communication Electronics		
Credit Hours:	3+1		
Pre Requisite	Electronic Devices and Circuits		
Instructor (s):	Dr. Shabbir Majeed		
Lab Engineer:	Engr. M.Waseem		
Compulsory/Elective:	Compulsory		
If Elective:Depth Core/Breadth Core:	Engineering Foundation		
Course Schedule:	Lecture:	3 hours/week	
	Lab:	3 hours/week	
	Office hours:	2 hours/week	
Course Assessment:	Assignments:	4	
	Quizzes:	4	
	Course project:	1	
	Lab work:	13 experiments	
	Exams:	Mid-semester and Final	
Grading Policy:	Quizzes:	20%	
	Assignments		
	Lab work+ Course project::	20%	
	Mid-Semester:	20%	
	End-Semester:	40%	
Text Book:	Louis E. Frenzel Jr., "Principles of Electronic Communication Systems, Fourth Edition, 2015, McGraw-Hill Education,USA.		
Reference Book(s):	Thomas Floyd, "Electronics Fundamentals: Circuits, Devices, and Applications," Sixth Edition, 2004, Prentice Hall, USA.		
	Albert Malvino and David J Bates, "Electronic Principles," Seventh Edition, 2007, Mcgraw-Hill, ISBN: 9780070634244.		
Course Objective:	To introduce the concept of the use of electronic circuits in communication systems		
Course Learning Outcome	CLO Statement	PLO	Bloom
CLO-1:	To describe the basic operation of different types of amplifiers used in communication electronics and signal frequency effects on amplifier Gain and Phase shift.	PLO-1	C2
CLO-2:	Knowledge about different types of oscillators, mixers, and filters used in communication circuits.	PLO-2	C1
Topics covered in the course and level of coverage:	Introduction to electronic communication systems	6 hours	
	Study of Different Base Band and RF Power Amplifiers	9 hours	
	Frequency Response of Amplifiers	9 hours	
	Introduction to oscillator circuits and their types	9 hours	

	Introduction to Mixer Circuits	6 hours	
	Introduction to Filter Circuits	9 hours	
Program learning outcomes and how they are covered by specific course outcomes:	Detailed Contents	CLO	PLO
	BJT and FET Transistor as Power Amplifiers, large-signal analysis, gain and Power Efficiency calculation of single-stage and multistage amplifier.	CLO-1	PLO-2
	Class A amplifier, class B amplifier, class AB amplifier, class C amplifier, push-pull amplifier, and complementary symmetry amplifier.	CLO-1	PLO-2
	Frequency Response of single-stage and multistage BJT and FET amplifier circuits, Critical Frequencies and Roll off rates, Miller's Effects, Bode Plots	CLO-1	PLO-2
	Feedback Oscillator Principles, Oscillators with RC and LC feedback circuits, Crystal Controlled Oscillator circuits, Relaxation Oscillators, Voltage Controlled Oscillators	CLO-2	PLO-1
	Introduction to Active and Passive Low Pass, High Pass, Band Pass and Band Stop filter circuits, Gain and Bandwidth calculations and Q-Factor of Filters.	CLO-2	PLO-1
	Introduction to Amplitude modulation and Demodulation, Mixer as a Linear Multiplier, Mixer Circuit Basics	CLO-2	PLO-1

Mapping of CLOs with PLOs and Bloom's Taxonomy Cognitive Levels:

PLO	1	2	3	4	5	6	7	8	9	10	11	12
CLO-1	C2											
CLO-2		C1										

Mapping of CLOs with Assessment Methods:

CLOs/Assessment	CLO-1	CLO-2
Quizzes:	√	√
Mid-Semester:	√	
End-Semester:	√	√