



DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech		
Course Title	ANALOG COMMUNICATION		
Course Code	ECPC21	No. of Credits	3
Course Code of Pre-requisite subject(s)	ECPC10		
Session	JULY2020	Section (if, applicable)	B
Name of Faculty	Dr. B. Malarkodi	Department	ECE
Official Email	malark@nitt.edu	Telephone No.	04312503308
Name of Course Coordinator(s) (if, applicable)			
Official E-mail		Telephone No.	
Course Type (please tick appropriately)	core course		
Syllabus (approved in BoS)			
<p>Basic blocks of Communication System. Amplitude (Linear) Modulation –AM, DSB-SC, SSB-SC and VSB-SC. Methods of generation and detection. FDM. Super Heterodyne Receivers.</p> <p>Angle (Non-Linear) Modulation -Frequency and Phase modulation. Transmission Bandwidth of FM signals, Methods of generation and detection. FM Stereo Multiplexing.</p> <p>Noise -Internal and External Noise, Noise Calculation, Noise Figure. Noise in linear and nonlinear AM receivers, Threshold effect.</p> <p>Noise in FM receivers, Threshold effect, Capture effect, FM Threshold reduction, Pre-emphasis and De-emphasis.</p> <p>Pulse Modulation techniques –Sampling Process, PAM, PWM and PPM concepts, Methods of generation and detection. TDM. Noise performance.</p>			



COURSE OBJECTIVES	
To develop a fundamental understanding on Communication Systems with emphasis on analog modulation techniques and noise performance.	
MAPPING OF COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
CO1: Understand the basics of communication system and analog modulation techniques	1,2,3,4,12
CO2: Apply the basic knowledge of signals and systems and understand the concept of Frequency modulation.	1,2,3,4,12
CO3: Apply the basic knowledge of electronic circuits and understand the effect of Noise in communication system and noise performance of AM system	1,2,3,4,12
CO4: : Understand the effect of noise performance of FM system	1,2,3,4,12
CO5: Understand TDM and Pulse Modulation techniques	1,2,3,4,12

COURSE PLAN – PART II			
COURSE OVERVIEW			
To develop a fundamental understanding on Communication Systems with emphasis on analog modulation techniques and noise performance.			
COURSE TEACHING AND LEARNING ACTIVITIES			(Add more rows)
S.No.	Week/Contact Hours	Topic	Mode of Delivery (ms team-online mode)
1	1 st	Basic blocks of communication system, need for modulation, types and signal representation in frequency domain	PPT
2	2 nd	Standard equation of AM wave, modulation index, transmission bandwidth, single tone modulation, spectrum representation, power content, transmission efficiency, modulator and	PPT



		demodulator circuits for AM,DSBSC,QAM, carrier acquisition in DSBSC	
3	3 rd	SSBSC modulation, spectrum, generation and detection, VSB modulation and detection comparison of AM systems	PPT
4	4 th	FDM, Super heterodyne receiver. Numerical problems in AM	PPT
5	5 th	Frequency and Phase modulation. Transmission Bandwidth of FM signals. Comparison of angle modulated and amplitude modulated signal	PPT
6	6 th	Methods of generation and detection. Narrowband and broadband FM FM Stereo Multiplexing. Numerical problems in FM	PPT
7	7 th	Noise -Internal and External Noise, Noise Calculation, Noise Figure. Noise in linear and nonlinear AM receivers, Threshold effect.	PPT
8	8 th	Noise in FM receivers, Threshold effect, Capture effect, FM Threshold reduction, Pre-emphasis and De-emphasis	PPT
9	9 th	Sampling theorem, sampling techniques, Aperture effect, Comparison of various sampling	PPT



		techniques. Problems and solutions	
10	10 th	Pulse Modulation techniques : PAM, PWM and PPM concepts, Methods of generation and detection. TDM. Noise performance.	PPT

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	ASSESSMENT I Descriptive Type Examination (2 Units)		90 minutes	30
2	ASSESSMENT II Descriptive Type Examination (2 Units)		90 minutes	30
CPA	Compensation Assessment*		90 minutes	
3	SEMINAR/ASSIGNMENT			10
4	Final Assessment *		120 minutes	30

*mandatory; refer to guidelines on page 4

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

1. Direct feedback from the students by having face-to-face meeting individually and as the class as a whole.
2. Feedback from the students during the class committee meetings

COURSE POLICY (including compensation assessment to be specified)

COMPENSATION ASSESSMENT

- Attending all the assessments is MANDATORY for every student.
- If any student is not able to attend either one or both of the continuous assessments I & II due to genuine reason, student is permitted to attend the compensation assessment (CPA) with only 20 % weightage for both the cases.
- At any case, CPA will not be considered as an improvement test.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.



- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

Students may fix appointments for detailed discussion by sending email to malark@nitt.edu two days prior to the desired appointments date with the topic to discuss. The students must come prepared for the discussion with background preparation
Minor doubts will be clarified after the contact hours without any prior appointment.

FOR APPROVAL

B. Malarkodi
Course Faculty B.Malarkodi CC- Chairperson *R.K. Jeyachitra* HOD *[Signature]*
(Dr.R.K.Jeyachitra)



Guidelines

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.