

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE TEMPLATE			
Course Title	PRINCIPLES OF COMMUNICATION SYSTEMS		
Course Code	ICPC23	No. of Credits	3
Department	ICE (A Section and B Section)	Faculty	Dr.B.Rebekka and Dr.N.Gunavathi
Pre-requisites Course Code	NONE		
Course Coordinator(s) (if, applicable)			
Other Course Teacher(s)/Tutor(s) E-mail	rebekka@nitt.edu : gunavathi@nitt.edu	Telephone No.	0431 2503316 0431 2503315
Course Type	Programme Core		
COURSE OVERVIEW			
COURSE OBJECTIVES			
To introduce the principles of analog and digital communication systems involving different modulation and demodulation schemes			
COURSE OUTCOMES (CO)			
Course Outcomes		Aligned Programme Outcomes (PO)	
1. Develop an understanding of need for modulation and generation & detection of analog modulation techniques.		1,2,7	
2. Explore AM and FM Super heterodyne receiver working principle.		1,2,7	
3. Discuss the techniques for generation and detection of pulse analog modulation techniques		1,2,7	
4. Understand the basic operation involved in PCM like sampling, quantization & encoding and are able to calculate and derive entropy and channel capacity		1,2,5,7	
5. Compare different communication systems with various modulation techniques in the presence of noise analytically		1,2,5,7	

COURSE TEACHING AND LEARNING ACTIVITIES

S. No.	Week	Topic	Mode of Delivery
1.	1 st	Modulation and its need. Types of modulation. Amplitude modulation. Generation methods and Demodulation.	Chalk and Talk, PPT
2.	2 nd	DSB-SC, SSB, VSB modulation techniques. Highlights and demerits. Generation and Detection. Multiplexing and need.	Chalk and Talk, PPT
3.	3 rd	FDM. Optical communication. Microwave communication. Satellite communication.	Chalk and Talk, PPT
4.	4 th	Angle modulation. Phase and Frequency modulation. Narrow band and wideband FM.	Chalk and Talk, PPT
5	5 th	FM generation methods. Transmission bandwidth. Demodulation of FM signals.	Chalk and Talk, PPT
6	6 th	AM and FM receivers. Superheterodyne receiver.	Chalk and Talk, PPT
7	7 th	Pulse modulation. Pulse analog and Pulse digital modulation. Sampling theorem. Time division multiplexing.	Chalk and Talk, PPT
8	8 th	Pulse amplitude modulation. Pulse time modulation. Generation methods.	Chalk and Talk, PPT
9	9 th	Pulse code modulation. Measure of information. Channel capacity.	Chalk and Talk, PPT
10	10 th	Differential pulse code modulation. Delta modulation. Digital multiplexers.	Chalk and Talk, PPT
11	11 th	Noise calculation. SNR. Noise in AM and FM receivers. FM threshold effect. Pre-emphasis and de-emphasis	Chalk and Talk, PPT
12	12 th	Noise in PCM and DM systems.	Chalk and Talk, PPT

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
•	ASSESSMENT I Descriptive Type Examination (2Units)	3 rd Week of August	60 Minutes	20
•	ASSESSMENT II Descriptive Type Examination (2 Units)		60 minutes	20
•	Compensation Assessment		60 Minutes	
•	SEMINAR / ASSIGNMENT/ ASSIGNMENT TEST			10
•	END SEMESTER Descriptive Type Examination (Unit 1,2,3,4 & 5)		180 Minutes	50

Text Books

1. S.Haykin, Communication Systems, 4th Edition, John Wiley & Sons, 2000.
2. H.Taub&D.Schilling, Principles of Communication System, 3rd Edition, Tata McGraw Hill, 2007
3. J.S.Beasley&G.M.Miler, Modern Electronic Communication, 9th Edition, Prentice-Hall, 2008

Reference Books

1. B.P.Lathi, Modern Analog And Digital Communication systems, 3rd Edition, Oxford University Press, 2007
2. B.Carlson, Communication Systems, 3rd Edition, McGraw Hill Book Co., 1986.
3. Sam Shanmugam, Digital and analog Communication Systems, John Wiley, 1985.

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

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 plagiarism, academic honesty, attendance, etc.)

All students are expected to do their work. The taking of information by means of copying homework assignments, or looking or attempting to look at another student's paper during an examination is considered dishonest.

Also preventing or hampering other students from pursuing their academic activities is also considered as academic dishonest.

Any evidence of such academic dishonesty will result in the loss of all marks on that assignment or exam.

- Students opting for plagiarism during exams will be summarily sent out and awarded zero marks for that exam.
- Students honestly producing original work will be rewarded with better marks.
- Students not having 75% minimum attendance at the end of the semester will have to repeat the course. Students who do not maintain 75% attendance between the assessments without any valid reason will be warned the first time and will be stopped from future assessments if they persists in abstaining from classes.

ADDITIONAL COURSE INFORMATION

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

FOR SENATE'S CONSIDERATION

Course Faculty Dr. B. Rebekka and Dr. N. Gunavathi

CC-Chair person

HOD

[Signature]
12/8/12

[Signature]
17/8/12