NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN			
Course Title	**ANALOG COMMUNICATION**		
Course Code	**ECPC21**	**No. of Credits**	**03**
Department	**Electronics and Communication Engineering**	**Faculty**	**Ms. V. Sudha**
Pre- requisites Course Code	**ECPC10** **MAIR 45**		
Course Coordinator	**-**		
Other Course Teacher(s)/Tutor(s) E-mail		**Telephone No.**	**9443608785** **vsudha@nitt.edu**
Course Type	**Program Core**		

COURSE OVERVIEW

This course deals with the basics of communication systems and analog modulation techniques in detail. Students will get exposure about the practical circuits for AM and FM generation and its detection. Students can learn about various pulse modulation techniques.

COURSE OBJECTIVES

To develop a fundamental understanding on Communication Systems with emphasis on analog modulation techniques and noise performance.

COURSE OUTCOMES (CO)

At the end of the course student will be able to

- CO1: Understand the basics of communication system and analog modulation techniques
- CO2: Apply the basic knowledge of signals and systems and understand the concept of Frequency modulation.
- CO3: Apply the basic knowledge of electronic circuits and understand the effect of Noise in communication system and noise performance of AM system.
- CO4: Understand the effect of noise performance of FM system.
- CO5: Understand TDM and Pulse Modulation techniques.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	**Week**	**Topic**	**Mode of Delivery**
1.	Week 1 **(3 Contact Hours)**	**Basic blocks of Communication System. Need of modulation, Amplitude (Linear) Modulation – AM, DSB-SC**	**Lecture** **C&T/ PPT or any suitable mode**
2.	Week 2 **(3 Contact Hours)**	**SSB-SC and VSB-SC. Methods of generation and detection.**	
3.	Week 3 **(3 Contact Hours)**	**FDM. Super Heterodyne Receivers. Introduction to Angle (Non-Linear) Modulation.**	**Lecture**

4.	Week 4 **(3 Contact Hours)**	**Frequency modulation. Transmission Bandwidth of FM signals, Methods of generation and detection.**	**C&T/ PPT or any suitable mode**
	ASSESSMENT I - 20 Marks		**Descriptive type (Written)**
5.	Week 5 **(3 Contact Hours)**	**Phase modulation. FM Stereo Multiplexing. Introduction to Noise in Communication systems.**	**Lecture C&T/ PPT or any suitable mode**
6.	Week 6 **(3 Contact Hours)**	**Internal and External Noise. Noise Calculation, Noise Figure.**	
	ASSESSMENT II - 10 Mark		**Assignment**
7.	Week 7 **(3 Contact Hours)**	**Noise in linear and nonlinear AM receivers, Threshold effect.**	**Lecture C&T/ PPT or any suitable mode**
8.	Week 8 **(3 Contact Hours)**	**Noise in FM receivers, Threshold effect, Capture effect.**	
9.	Week 9 **(3 Contact Hours)**	**FM Threshold reduction, Pre-emphasis and De-emphasis**	
	ASSESSMENT III - 20 Marks		**Descriptive type (Written)**
10.	Week 10 **(3 Contact Hours)**	**Pulse Modulation techniques – Sampling Process.**	**Lecture C&T/ PPT or any suitable mode**
11.	Week 11 **(3 Contact Hours)**	**PAM, PWM and PPM concepts**	
12.	Week 12 **(3 Contact Hours)**	**Methods of generation and detection**	
13.	Week 13 **(3 Contact Hours)**	**TDM. Noise performance**	
14.	Week 14 **(3 Contact Hours)**	**CPA - 20 Marks**	**Descriptive type (Written)**
15.	Week 15 **(3 Contact Hours)**	**END ASSESSMENT – 50 Marks**	**Descriptive type (Written)**

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1.	Assessment I	1st Week of August	60 Minutes	20
2.	Assessment II (Assignment)	3rd Week of August	-	10
3.	Assessment III	2nd Week of September	60 Minutes	20
4.	CPA	4th Week of October	60 Minutes	20
5.	End Assessment	1st Week of November	180 Minutes	50

ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc

Text Books

1. S.Haykins, Communication Systems , Wiley, (4/e), Reprint 2009.
2. Kennedy, Davis, Electronic Communication Systems (4/e), McGraw Hill, Reprint 2008

Reference Books

1. B.Carlson, Introduction to Communication Systems, McGraw-Hill, (4/e), 2009.
2. J.Smith, Modern Communication Circuits (2/e), McGraw Hill, 1997.
3. J.S.Beasley&G.M.Miler, Modern Electronic Communication (9/e), Prentice-Hall, 2008.

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

Feedback from the students during class committee meetings
Anonymous feedback through questionnaire

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

CORRESPONDENCE

1. All the students are advised to check their NITT WEBMAIL/group mail/suggested by the course faculty, class representative regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be done through them only.
2. Queries (if required) to the course teacher shall only be emailed to the email id specified by the teacher.

ATTENDANCE

3. Attendance will be taken by the faculty in all the contact hours. Every student should maintain minimum of 75 % physical attendance in these contact hours along with assessment criteria to attend the end semester examination.
4. Any student, who fails to maintain 75% attendance need to appear for the compensation assessment (CPA). On successful completion of CPA Class along with assessment criteria will be eligible for attending the end semester examination.
5. Those students who have attendance lag and also missed any of the continuous assessments (CAs) with a valid reason can appear for CPA to get eligibility for writing the end semester examination as quoted in Pt. 2.
6. Students not having 75% minimum attendance at the end of the semester and also fail to attend CPA Classes have to take up REDO the course.

ASSESSMENT

7. Attending all the assessments are MANDATORY for every student.
8. If any student is not able to attend any of the continuous assessments due to genuine reason, student is permitted to attend the compensation assessment (CPA) with 20% weightage.
9. Finally, every student is expected to score min(ClassAverage/2, Maximun Mark/3) in the total assessment (1, 2, 3, 4 and 5) to pass the course. Otherwise the student would be declared fail and 'F' grade will be awarded. Further he can take up only FORMATIVE ASSESSMENT.

ACADEMIC HONESTY & PLAGIARISM

1. All the students are expected to be genuine during the course work. Taking of information by means of copying simulations, assignments, looking or attempting to look at another student's paper or bringing and using study material in any form for copying during any assessments is considered dishonest.
2. Tendering of information such as giving one's program, simulation work, assignments to another student to use or copy is also considered dishonest.
3. Preventing or hampering other students from pursuing their academic activities is also considered as academic dishonesty.
4. Any evidence of such academic dishonesty will result in the loss of marks on that assessment. Additionally, the names of those students so penalized will be reported to the class committee chairperson and HoD of the concerned department.

Students who honestly producing ORIGINAL and OUTSTANDING WORK will be REWARDED.

ADDITIONAL COURSE INFORMATION

e.g.: The Course Coordinator is available for consultation at times that are displayed on the coordinator's office notice board. Queries may also be emailed to the Course Coordinator directly at ----------

FOR SENATE'S CONSIDERATION

Course Faculty _____ **CC-Chairperson** _____ **HOD** _____