Zagdu Singh Charitable Trust's (Regd.)
THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY
(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai*)
(Accredited Programmes by National Board of Accreditation, New Delhi**)
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ISO 9001 : 2008 Certified
*Permanent Affiliated UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology (w.e.f.: A.Y. 2015-16 onwards)
**1st time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology
**2nd time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology • Electronics Engineering (3 years w.e.f.: 01-07-2016)

Semester Plan
(Theory)

Semester: V Course: TE

Subject: Analog Communication Class: A;

Sr. No	Prerequisite /Bridge Course	Duration(Hr/week)	Modes of learning	Recommended Resources
1	Prerequisite course: ETC302: Analog Electronics-I ETC405: Signals and Systems	06 hrs	Technology Based learning	1. Donald A. Neamen, "Electronic Circuit Analysis and Design", Tata McGraw Hill, 2nd Edition 2.Nagoor Kani, Signals and Systems, Tata McGraw Hill, Third Edition, 2011.

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1	SOP	L1.1	SOP Theory	Chalk, board, ppt	10/7/17	Taub, Schilling	
2		L1.2	SOP Practical	Chalk, board, ppt	11/7/17	Taub, Schilling	
3		L1.3	AC (OBE)	Chalk, board, ppt	12/7/17	Taub, Schilling	
4	M1	L1.4	Basics of Communication System: Block diagram, electromagnetic spectrum	Chalk, board, ppt	13/7/17	Taub, Schilling	

5		L1.5	signal bandwidth and power, types of communication channels	Chalk, board, ppt	14/7/17	Taub, Schilling	
6			Amplitude Modulation and Demodulation: Basic concept, signal representation, need for modulation	Chalk, board, ppt	17/7/17	Taub, Schilling	
7			Spectrum, waveforms, modulation index, bandwidth	Chalk, board, ppt	19/7/17	Taub, Schilling	
Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
8			voltage distribution, and power calculation	Chalk, board, ppt	21/7/17	Taub, Schilling	
9	M2		DSBFC: Principles, modulating circuits, low level and high level transmitters	Chalk, board, ppt	24/7/17	Kennedy and Davis	
10			DSB suppressed carrier:- Multiplier modulator, nonlinear modulator, and switching modulator,	Chalk, board, ppt	25/7/17	Kennedy and Davis	
11			Single Side Band (SSB):-Principle, Filter method, phase shift method and third Method	Chalk, board, ppt	26/7/17	Kennedy and Davis	
12			Quadrature amplitude modulation (QAM)	Chalk, board, ppt	27/7/17	Kennedy and Davis	
13			Independent sideband (ISB)	Chalk, board, ppt	31/7/17	Kennedy and Davis	

14			VestigialSide Band (VSB) principles and transmitters	Chalk, board, ppt	1/8/17	Kennedy and Davis	
15			Amplitude demodulation: Diode detector, practical diode detector, and square law detector	Chalk, board, ppt	2/8/17	Kennedy and Davis	
16	M3		Angle Modulation and Demodulation: Frequency modulation (FM): Basic concept, mathematical analysis, frequency spectrum of FM wave, sensitivity	Chalk, board, ppt	3/8/17	Kennedy and Davis	
Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
17			phase deviation and modulation index, frequency deviation and percent modulated waves	Chalk, board, ppt	7/8/17	Kennedy and Davis	
18			bandwidth requirement of angle modulated waves, deviation ratio	Chalk, board, ppt	8/8/17	Kennedy and Davis	
19			narrow Band FM, and Wide Band FM.	Chalk, board, ppt	9/8/17	Kennedy and Davis	
20			Varactor diode modulator, FET reactance modulator, stabilized reactance modulator- AFC	Chalk, board, ppt	10/8/17	Kennedy and Davis	
21			Direct FM transmitter, indirect FM Transmitter	Chalk, board, ppt	14/8/17	Kennedy and Davis	
22			noise triangle in FM, preemphasis and de-emphasis.	Chalk, board, ppt	16/8/17	Kennedy and Davis	

23			Phase modulation (PM): Principle and working of Transistor direct PM modulator and relationship and comparison between FM and PM	Chalk, board, ppt	24/8/17	Kennedy and Davis	
24			FM demodulation: Balance slope detector, Foster-Seely discriminator, ratio detector	Chalk, board, ppt	30/8/17	Kennedy and Davis	
25			Phase lock loop(PLL) FM demodulator, amplitude limiting and thresholding	Chalk, board, ppt	31/8/17	Kennedy and Davis	
Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
26			comparison between FM demodulators, comparison between AM, FM and PM	Chalk, board, ppt	4/9/17	Kennedy and Davis	
27			Applications of FM and PM	Chalk, board, ppt	5/9/17	Kennedy and Davis	
28	M4		Radio Receivers : TRF, Super-heterodyne receiver,	Chalk, board, ppt	6/9/17	Kennedy and Davis	
29			receiver parameters, and choice of IF	Chalk, board, ppt	7/9/17	Kennedy and Davis	
30			AM receiver circuits and analysis, simple AGC, delayed AGC	Chalk, board, ppt	11/9/17	Kennedy and Davis	
31			forward AGC, and communication receiver	Chalk, board, ppt	12/9/17	Kennedy and Davis	

32			FM receiver circuits, comparison with AM receiver	Chalk, board, ppt	13/9/17	Kennedy and Davis	
33			Single and independent sideband (SSB and ISB) receivers	Chalk, board, ppt	14/9/17	Kennedy and Davis Kennedy and Davis	
34	M5		Sampling Techniques: Theorem for low pass and band pass signals, proof with spectrum,	Chalk, board, ppt	18/9/17	Kennedy and Davis	
Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
35			Nyquist criteria	Chalk, board, ppt	19/9/17	Kennedy and Davis	
36			Sampling techniques, aliasing error, and aperture effect	Chalk, board, ppt	20/9/17	Kennedy and Davis	
37			Problem Solution relaed to sampling theorem	Chalk, board, ppt	21/9/17	Kennedy and Davis	
38	M6		Pulse Modulation and Demodulation : PAM, PWM, PPM generation and detection	Chalk, board, ppt	25/9/17	Kennedy and Davis	
39			Delta modulation, adaptive delta modulation, principle, generation and detection	Chalk, board, ppt	26/9/17	Kennedy and Davis	
40			TDM and FDM basic concepts and block diagram	Chalk, board, ppt	26/9/17	Kennedy and Davis	

41			Applications of pulse communication	Chalk, board, ppt	3/10/17	Kennedy and Davis	
42			Problems related to FDM,TDM	Chalk, board, ppt	4/10/17	Kennedy and Davis	
43			University problem solution	Chalk, board, ppt	5/10/17	Kennedy and Davis	
Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
44			Doubt solving	Chalk, board, ppt	12/10/17	Kennedy and Davis	
45			University problem solution	Chalk, board, ppt	16/10/17	Kennedy and Davis	
Remark:: Course:		Syllabus Coverage:		Practice Session:		Beyond Syllabus:	
No. of (lectures planned)/(lecture taken):45/							

Text Books:

1. Taub, Schilling and Saha, "*Taub's Principles of Communication systems*", Tata McGraw Hill,Third edition.

Reference Books:

1. WayneTomasi, "*Electronics Communication Systems*", Pearson education, Fifth edition.
2. Kennedy and Davis, "*Electronics Communication System*", Tata McGraw Hill,4e.
3. B.P. Lathi, Zhi Ding, "*Modern Digital and Analog Communication system*", Oxford University Press, Fourth edition
4. Simon Haykin, Michel Moher, "*Introduction to Analog and Digital Communication*", Wiley, Second edition.

Digital Reference: NPTEL videos

Name & Signature of Faculty	Signature of HOD	Signature of Principal /Dean (Academics)
Date:	Date:	Date:

Note:

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 55 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.