TCET/FRM/IP-02/09 Revision: A

Semester Plan
(Theory)

Semester: V Course: EXTC

Subject: Analog Communication Class: TE- B

S.No.	Bridge courses/Technology	Duration (Week/hrs)	Modes of Learning	Recommended Sources
1.	**Prerequisite course:** ETC302: Analog Electronics-I ETC405: Signals and Systems	06 Hours	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.

Class Room Teaching

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1		L1.1	SOP Theory	LCD Projector	10/7/17		
2		L1.2	SOP Practical(CEL1)	LCD Projector	11/07/17		
3		L1.3	AC (OBE)	LCD Projector	12/07/17		
4	1	L1.4	Basics of Communication System: Block diagram, electromagnetic spectrum	LCD Projector	13/7/17	M1.1	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
5	1	L1.5	Signal bandwidth and power, types of communication channels ans types of Noise	LCD Projector	14/7/17	M1.2	
6	1	L2.1	Noise Parameters and problems related to that	LCD Projector	17/7/17	M1.3	
7	2	L2.2	Amplitude Modulation and Demodulation: Basic concept, signal representation, need for modulation	LCD Projector	18/7/17	M2.1	
8	2	L2.3	Spectrum, waveforms, modulation index, bandwidth	LCD Projector	19/07/17	M2.2	
9	2	L2.4	voltage distribution, and power calculation	LCD Projector	21/7/17	M2.3	
10	2	L3.1	DSBFC: Principles, modulating circuits, low level and high level transmitters	LCD Projector	24/7/17	M2.4	
11	2	L3.2	DSB suppressed carrier:- Multiplier modulator, nonlinear modulator, and switching modulator, voltage distribution, and power calculation	LCD Projector	25/7/17	M2.5	
12	2	L3.3	DSBFC: Principles, modulating circuits, low level and high level transmitters	LCD Projector	26/7/17	M2.6	
13	2	L3.4	Single Side Band (SSB):-Principle, Filter method, phase shift method and third Method	LCD Projector	27/7/17	M2.7	
14	2	L4.1	Quadrature amplitude modulation (QAM)	LCD Projector	31/7/17	M2.8	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
15	2	L4.2	Independent sideband (ISB)	LCD Projector	1/8/17	M2.9	
16	2	L4.3	Vestigial Side Band (VSB) principles and transmitters	LCD Projector	2/8/17	M2.10	
17	2	L4.4	Amplitude demodulation: Diode detector, practical diode detector, and square law detector	LCD Projector	3/8/17	M2.11	
18	3	L5.1	Angle Modulation and Demodulation: Frequency modulation (FM): Basic concept, mathematical analysis, frequency spectrum of FM wave, sensitivity	LCD Projector	7/8/17	M3.1	
19	3	L5.2	phase deviation and modulation index, frequency deviation and percent modulated waves	LCD Projector	8/8/17	M3.2	
20	3	L5.3	bandwidth requirement of angle modulated waves, deviation ratio	LCD Projector	9/8/17	M3.3	
21	3	L5.4	narrow Band FM, and Wide Band FM.	LCD Projector	10/8/17	M3.4	
22	3	L6.1	Varactor diode modulator, FET reactance modulator, stabilized reactance modulator- AFC	LCD Projector	14/8/17	M3.5	
23	3	L6.2	Direct FM transmitter, indirect FM Transmitter	LCD Projector	16/8/17	M3.6	
24	3	L7.1	noise triangle in FM, preemphasis and de-emphasis.	LCD Projector	24/8/17	M3.7	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
25	3	L8.1	Phase modulation (PM): Principle and working of Transistor direct PM modulator and relationship and comparison between FM and PM	LCD Projector	30/8/17	M3.8	
26	3	L8.2	FM demodulation: Balance slope detector, Foster-Seely discriminator, ratio detector	LCD Projector	31/8/17	M3.9	
27	3	L9.1	Phase lock loop(PLL) FM demodulator, amplitude limiting and thresholding	LCD Projector	4/9/17	M3.10	
28	3	L9.2	comparison between FM demodulators, comparison between AM, FM and PM, Applications of FM and PM	LCD Projector	6/9/17	M3.11	
29	4	L9.3	Radio Receivers : TRF, Super-heterodyne receiver,	LCD Projector	7/9/17	M4.1	
31	4	L10.1	receiver parameters, and choice of IF	LCD Projector	11/9/17	M4.2	
32	4	L10.2	AM receiver circuits and analysis, simple AGC, delayed AGC	LCD Projector	12/9/17	M4.3	
33	4	L10.3	forward AGC, and communication receiver	LCD Projector	13/9/17	M4.4	
34	4	L10.4	FM receiver circuits, comparison with AM receiver	LCD Projector	14/9/17	M4.5	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
35	4	L11.1	Single and independent sideband (SSB and ISB) receivers	LCD Projector	18/9/17	M4.6	
36	5	L11.2	Sampling Techniques: Theorem for low pass and band pass signals, proof with spectrum,	LCD Projector	19/9/17	M5.1	
37	5	L11.3	Nyquist criteria	LCD Projector	20/9/17	M5.2	
38	5	L11.4	Sampling techniques, aliasing error, and aperture effect	LCD Projector	21/9/17	M5.2	
39	5	L12.1	Problem Solution relaed to sampling theorem	LCD Projector	25/9/17	M5.3	
40	6	L12.2	Pulse Modulation and Demodulation : PAM, PWM, PPM generation and detection	LCD Projector	26/9/17	M6.1	
41	6	L12.3	Delta modulation, adaptive delta modulation, principle, generation and detection	LCD Projector	3/10/17	M6.2	
42	6	L13.1	TDM and FDM basic concepts and block diagram	LCD Projector	4/10/17	M6.3	
43	6	L13.3	Applications of pulse communication Problems related to FDM,TDM	LCD Projector	5/10/17	M6.4	
44	1-6	L14.1	Revision and Doubt solving	LCD Projector	12/10/17	M 1-6	
45	1-6	L15.1	University paper solving	LCD Projector	16/10/17	M1 -6	
Remark:: Course:		Syllabus Coverage:		Practice Session:		Beyond Syllabus:	
No. of (lectures planned)/(lecture taken): (45) / ( )							

Bridge courses Objective: Bridging of gaps with respect to prerequisites and industry skills or to carryout research in signal processing field**. (20 Hrs / Semester / student)**				
S.No.	**Bridge courses/Technology**	**Duration (Week/hrs)**	**Modes of Learning**	**Recommended Sources**
1	**Advanced course:** Analog Communication (NPTEL Course)	20 Hours	Technology Based learning	https://onlinecourses.nptel.ac.in/noc17_ec11/preview

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:

- Wikipedia
- Google
- https://www.coursera.org/learn

Sd.	**Sd.**	**Sd.**
(Mrs.Rashmita Kumari Mohapatra)	**(Dr. Vinitkumar Dongre)**	**(Dr. R. R. Sedamkar)**
Name & Signature of Faculty	Signature of HOD	Signature of Principal /Dean (Academics)
Date: 19/7/17	Date:19/7/17	Date: 19/7/17

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.