DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

COURSE COVERAGE SUMMARY

FOR

II B.TECH II SEMESTER-R18
(2019 – 20)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Sponsored by CMR Educational Society)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2008 Certified)

Maisammaguda, Dhulapally (Post Via Hakimpet), Secunderabad – 500100

ANALOG COMMUNICATIONS

(R18A0407)

COURSE COVERAGE SUMMARY

UNIT	Title of the unit	Topics of the unit	Name of the Text Book	Chapter No.	Page No
I	**AMPLITUDE MODULATION & DSB-SC**	AMPLITUDE MODULATION: Introduction to communication system, Need for modulation, Frequency Division Multiplexing , Amplitude Modulation: Definition, Time domain and frequency domain description, single tone modulation, power relations in AM waves, Generation of AM waves: square law Modulator, Switching modulator, Detection of AM Waves: Square law detector, Envelope detector.	COMMUNICATION STSTEMS 3rd Edition, Simon Haykin	3	121-132&152
		DSB-SC modulation: Double side band suppressed carrier modulation, time domain and frequency domain description, Generation of DSBSC Waves: Balanced Modulators, Ring Modulator, Detection of DSBSC waves: Coherent detection, COSTAS Loop. Radio Transmitters- Classification of Transmitters.AM Transmitter block diagram and explanation of each block.	COMMUNICATION STSTEMS 3rd Edition, Simon Haykin	3	132-144
II	**Single Side Band & Vestigial Side Band**	SSB MODULATION: Frequency domain description, Frequency discrimination method for generation of AM SSB Modulated Wave, Hilbert Transform & its Properties, Time domain description, Phase discrimination method for generating AM SSB Modulated waves. Demodulation of SSB Waves.	COMMUNICATION STSTEMS 3rd Edition, Simon Haykin	2&3	79-83 & 147-153
		Vestigial side band modulation: Frequency description, Generation of VSB Modulated wave, Time domain description, Envelope detection of a VSB Wave plus Carrier, Comparison of AM Techniques, Applications of different AM Systems.	COMMUNICATION STSTEMS 3rd Edition, Simon Haykin	3	144-147
III	**ANGLE MODULATION**	Basic concepts, Frequency Modulation: Single tone frequency modulation, Spectrum Analysis of Sinusoidal FM Wave, Narrow band FM, Wide band FM, Constant Average Power, Transmission bandwidth of FM Wave. Generation of FM Waves: Indirect FM, Direct FM: Varactor Diode and Reactance Modulator. Detection of FM Waves: Balanced Frequency discriminator, Zero crossing detector, Phase locked loop, Comparison of FM & AM. Pre-emphasis & de-emphasis, FM Transmitter block diagram and explanation of each block.	COMMUNICATION STSTEMS 3rd Edition, Simon Haykin	3	154-180&181
IV	**NOISE**	Noise in communication System, White Noise, Narrowband Noise –In phase and Quadrature phase components. Noise Bandwidth, Noise Figure, Noise Temperature, Noise in DSB& SSB System Noise in AM System, Noise in Angle Modulation System, and Threshold effect in Angle Modulation System.	COMMUNICATION STSTEMS 3rd Edition, Simon Haykin	5	313-351

V	**RECEIVERS & PULSE MODULATION**	RECEIVERS: Radio Receiver, Receiver Types: Tuned radio frequency receiver, Superhetrodyne receiver- RF section, Frequency mixers, tracking, Intermediate frequency, AGC. Receiver Parameters & Characteristics, FM Receiver and its comparison with AM Receiver.	Analog Communications AP Godse	9	9.1-9.44
		PULSE MODULATION: Types of Pulse modulation, PAM: Generation (Single polarity, double polarity) and Demodulation. PWM: Generation & demodulation of PWM, PPM, Generation and demodulation of PPM.	COMMUNICATION STSTEMS 3rd Edition, Simon Haykin	6	351-372

ANALOG CIRCUITS

COURSE COVERAGE SUMMARY

UNIT NO	TITLE OF THE UNIT	TOPICS OF THE UNIT	TITLE OF THE TEXT BOOK	CHAPTER NO	PAGE NO
1	BJT Amplifiers-Frequency Response	Frequency response of an amplifier	Electronic Circuit Analysis Technical Publication Author : A.P.Godse U.A.Bakshi	CHAPTER-3	PG- 3.2
		Analysis at low and High Frequencies			PG- 3.4 TO 3.6, 3.9 TO 3.12
		Hybrid-pi (π) common emitter transistor model			PG- 3.14 & 3.15
		validity of hybrid- π model			PG- 3.16
		variation of hybrid – π parameters			PG- 3.16 TO 3.22
		Millers theorem and its dual			PG- 1.59 TO 1.61 PG-3.9
		The CE short circuit current gain			PG-3.24 TO 3.29
		Current gain with resistive load,			PG-3.31 TO 3.36
		Gain-bandwidth product			PG-3.37 TO 3.38
	MULTISTAGE AMPLIFIERS	Distortion in amplifiers	Electronic Circuit Analysis Technical Publication Author : A.P.Godse U.A.Bakshi	CHAPTER-2	PG-1.3 & 1.4
		Analysis of cascaded BJT amplifier			PG-2.2 TO 2.7
		Two Stage RC Coupled Amplifier			PG-2.8 TO 2.9
		Darlington pair			PG-2.19 TO 2.25
		Coupling schemes-RC coupled amplifier			PG-2.37
		Transformer coupled amplifier			PG-2.39
		Direct coupled Amplifier			PG-2.42
2	FEEDBACK AMPLIFIERS	Concept of Feedback and types	Electronic Circuit Analysis Technical Publication Author : A.P.Godse U.A.Bakshi	CHAPTER-5	PG-5.2 TO 5.10
		Effects of negative feedback on amplifiers characteristics			PG-5.10 TO 5.16
		voltage series			PG-5.17 & 5.22-5.23
		current series			PG-5.19 & 5.26-5.27
		current shunt			PG-5.20 & 5.25-5.26
		Voltage shunt feedback			PG-5.21 & 5.24-

		amplifiers.			5.25
	OSCILLATORS	Classification of oscillators	Electronic Circuit Analysis Technical Publication Author : A.P.Godse U.A.Bakshi	**CHAPTER-6**	PG-6.7 & 6.8
		Barkhausen criterion			PG-6.5 & 6.6
		RC phase shift oscillator			PG-6.9 TO 6.15
		Wein-bridge oscillator			PG-6.22 TO 6.25
		LC oscillators			PG-6.28 TO 6.33
		Hartley oscillator			PG-6.33 TO 6.35
		Colpitts oscillator			PG-6.40 TO 6.41
3	**LARGE SIGNAL AMPLIFIERS**	Classification	Electronic Circuit Analysis Technical Publication Author : A.P.Godse U.A.Bakshi	**CHAPTER-7**	PG-7.4 TO 7.9
		Distortion in amplifiers			PG-7.33
		Class A large signal amplifiers			PG-7.9 TO 7.13 & 7.18 TO 7.24
		Efficiency of class A amplifier			PG-7.14 TO 7.15 & 7.24 TO 7.25
		Class B power amplifier			PG-7.45
		Efficiency of class B amplifier			PG-7.49
		Class B push pull amplifier			PG-7.45 TO 7.47
		Complementary symmetry class B push pull amplifiers			PG-7.57 & 7.58
		class AB push pull amplifier			PG-7.65
4	**MULTIVIBRATORS**	Transistor as a switch	Pulse And Digital Circuits Author : A.Anand Kumar	**CHAPTER-3**	PG-202
		switching times of a transistor			PG-203 & 204
		Analysis of Bistable		**CHAPTER-4**	PG-224 TO 227
		Analysis of Monostable			PG-279 TO 286
		Analysis of Astable Multivibrators			PG-298 TO 303
		Schmitt trigger using transistors			PG-260 TO 267
5	**TIME BASE GENARATORS**	General features of a Time Base Signal	Pulse And Digital Circuits Author : A.Anand Kumar	**CHAPTER-5**	PG-332 TO 334
		Methods of Generating Time Base Wave forms			PG-334 TO 338
		Basic Principles of Transistor Miller			PG-351 & 355-356
		Bootstrap Time Base Generator			PG-350 & 353-355 & 356-359
		Current Time Base Generator			PG-373 TO 379

CONTROL SYSTEMS

(R18A0209)

COURSE COVERAGE SUMMARY

UNIT NO.	Title of the Unit	Topics of the unit	Name of The Text Book	Chapter No.	Page no.
I	**Introduction to Control system**	Concept of control system, Classification of control systems - Open loop and closed loop control systems, Differences, Examples of control systems- Effects of feedback, Feedback Characteristics.	Control Systems – A. Anand Kumar, PHI	**1**	**1 to 11**
	Transfer Function Representation	Blockdiagram algebra, Determining the Transfer function from BlockDiagrams, Signalflow Graphs (SFG) - Reduction using Mason's gain formula- Transfer function of SFG's.	Control Systems - A. Anand Kumar, PHI	**3**	**101 to 118**
II	**Time Response Analysis**	Standard test signals, Time response of first order systems, Characteristic Equation of Feedback control systems, Transient response of second order systems - Timedomain specifications,Steady state response, Steady state errors and error constants.PID controllers: Effects of proportional derivative, proportional	Control Systems – A. Anand Kumar, PHI	**4**	**177 to 197,** **238 to 250**

III	**Stability Analysis in S-Domain**	The concept of stability – Routh-Hurwitz's stability criterion – qualitative stability and conditional stability – Limitations of Routh-Hurwitz's stability.	Control Systems – A. Anand Kumar, PHI	**5**	**283 to 294**
	Root Locus Technique	Concept of root locus - Construction of root locus.	Control Systems - A. Ananad Kumar, PHI	**6**	**345 to 365**
IV	**Frequency Response Analysis**	Introduction, Frequency domain specifications, Bode plot diagrams-Determination of Phase margin and Gain margin, Stability analysis from Bode plots, Polar plots.	Control Systems – A. Anand Kumar, PHI	**7**	**461 to 472, 479, 450**
V	**State Space Analysis of Continuous Systems**	Concepts of state, state variables and state model, Derivation of state models from block diagrams, Diagonalization, Solving the time invariant state equations, State Transition Matrix and its properties, Concepts of Controllability and observability.	Control Systems – A. Anand Kumar, PHI	**10**	**636-654, 680-691, 719-730**

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

COURSE COVERAGE SUMMARY
of
Data Structures Using Python Programming

FOR

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COURSE COVERAGE SUMMARY

UNIT NO.	Title of the unit	Topics of the unit	NAME OF THE TEXT BOOK	CHAPTER no.	Page no
I	**Introduction to python Programming**	Introduction to python Program Installation and Working with Python, Understanding Python variables, Python basic Operators, Understanding python blocks, Python Data Types: Declaring and using Numeric data types: int, float, complex, Using string data type and string operations. ming,	Core Python Programming by R. Nageshwara Rao	**1**	**1-93**
II	Control Flow and Looping	if, if-elif-else, loops ,For loop using ranges, string ,Use of while loops in python, Loop manipulation using pass, continue, break and else, Programming using Python conditional and loops block, Python arrays.	Core Python Programming by R. Nageshwara Rao	**2**	**117-205**

III	Functions	Calling Functions, Passing Arguments, Keyword Arguments, Default Arguments, Variable-length arguments, Anonymous Functions, Fruitful Functions(Function Returning Values), Scope of the Variables in a Function - Global and Local Variables. Powerful Lamda function in python.	Core Python Programming by R. Nageshwara Rao	**3**	**237-280**
IV	Data Structures (python)	List Operations, Slicing, Methods; Tuples, Sets, Dictionaries, Sequences. Comprehensions,Dictionary manipulation, list and dictionary in build functions	Core Python Programming by R. Nageshwara Rao	**4**	**283-336**
V	Data Structures	BubbleSort, SelectionSort, InsertionSort, Mergesort, Quicksort, LinkedLists, Stacks,Queues	Core Python Programming by R. Nageshwara Rao	**5**	**499-514**

ELECTROMAGNETIC FIELDS &WAVES (R18A0406)

COURSE COVERAGE SUMMARY

UNIT NO.	Title of the Unit	Topics of the unit	Name of The Text Book	Chapter No.	Page no.
I	**Vector Analysis & Co-ordinate system**	Vector analysis-Representation, operations-Dot product and cross product, Basics of coordinate system-rectangular, cylindrical and spherical co-ordinate systems.	Elements of Electromagnetics - Matthew N. O. Sadiku, 3rd edition	**1,2,3**	**1 to 86**
	Electrostatics-I:	Coulomb's Law, Electric Field Intensity - Fields due to Different Charge Distributions, Electric Flux Density; Illustrative Problems.	Elements of Electromagnetics - Matthew N. O. Sadiku, 3rd edition	**4**	**103 to 122**
II	**Electrostatics-II:**	Gauss Law and Applications, Electric Potential, Relations Between E and V, Maxwell's Equations for Electrostatic Fields, Dielectric Constant, Isotropic and Homogeneous Dielectrics, Continuity Equation, Relaxation Time, Poisson's and Laplace's Equations, Boundary conditions-conductor-Dielectric and Dielectric-Dielectric; Illustrative Problems.	Elements of Electromagnetics - Matthew N. O. Sadiku, 3rd edition	**4,5 ,6**	**124 to 149** **161 to 175** **199 to 201**

III	**Magneto statics:**	Biot - Savart's Law , Ampere's Circuital Law and Applications, Magnetic Flux Density, Maxwell's Equations for Magneto static Fields, Magnetic Scalar and Vector Potentials, Ampere's Force law **,** Faraday's Law, Displacement Current Density, Maxwell's Equations for time varying fields, Illustrative Problems.	Elements of Electromagnetics - Matthew N. O. Sadiku, 3rd edition	**7,8,9**	**261 to 290** **304 to 316** **369 to 389**
IV	**EM Wave Characteristics-I**	Wave Equations for Conducting and Perfect Dielectric Media, Uniform Plane Waves - Definition, Relation Between E & H, Wave Propagation in Lossless and Conducting Media, Wave Propagation in Good Conductors and Good Dielectrics, Illustrative Problems.	Elements of Electromagnetics - Matthew N. O. Sadiku, 3rd edition	**10**	**410 to 425**
V	**EM Wave Characteristics – II**	Reflection and Refraction of Plane Waves – Normal incidence for both perfect Conductors and perfect Dielectrics, Brewster Angle, Critical Angle and Total Internal Reflection, Surface Impedance, Poynting Vector and Poynting Theorem – Applications, Illustrative Problems.	Electromagnetic Field Theory and Transmission Lines-By GSN Raju,	**5**	**285-294** **296-303** **310-320** **333-333**

COURSE COVERAGE SUMMARY

Subject: MEFA **Branch : ECE**

Units	Topic Description	Name of the text book	Chapter No	Page No
I	Introduction to Managerial Economics: Definition, Nature and scope of Managerial Economics-Demand Analysis: Demand Determinants, Law of Demand and exceptions. Elasticity Of Demand: Definition, Types, Measurement and Significance of elasticity of Demand. Demand Forecasting, Factors governing demand Forecasting, methods of demand Forecasting	Managerial Economics & Financial Analysis	I, II	1.3-4.6
II	Production & Cost Analysis : Production Function- Isocosts and Isoquants MRTS, Least Cost Combination of Inputs, Cobb-Douglas Production function, Laws of Returns, Internal and External Economies of Scale. Cost Analysis: Cost concepts. Break-even Analysis (BEA)-Determination of Break-Even Point (simple problems) - Managerial Significance.	Managerial Economics & Financial Analysis	III	5.3 – 7.13
III	Markets & New Economic Environment: Types of competition and Markets, Features of Perfect competition, Monopoly and Monopolistic Competition. Price-Output Determination in case of Perfect Competition and Monopoly. Objectives and Policies of Pricing- Methods of Pricing. Business: Features and evaluation of different forms of Business Organisation: Sole Proprietorship, Partnership, Joint Stock Company, Public Enterprises and their types.	Managerial Economics & Financial Analysis	IV	8.3 – 9.30
IV	Capital and Capital Budgeting: Capital and its significance, Types of Capital, Estimation of Fixed and Working capital requirements, Methods and sources of raising finance Accounting: Definition, Accounting Concepts and Conventions (GAAP), Accounting cycle; Formats for preparation of Trial Balance- Final Accounts (Trading Account, Profit and Loss Account and Balance Sheet).	Managerial Economics & Financial Analysis	VI, VII	11.3 – 11.31, 13.3 - 13.42
V	Investment Decision: Capital Budgeting, Features of capital, objectives and Methods of Capital Budgeting: Payback Method, Accounting Rate of Return (ARR) and Net Present Value Method (simple problems), advantages and disadvantages. Financial Analysis: Analysis and Interpretation of Liquidity Ratios, Activity Ratios, and Capital structure Ratios and Profitability ratios. (simple problems)	Managerial Economics & Financial Analysis	VI, VIII	12.1-12.24 14.3 – 14.18

Text Book References:

1. A.R.Aryasri: Managerial Economics and Financial Analysis, McGraw-Hill, 2011