NOTIFICATION

No. .91 /2018 Date : 09 /08/2018

Subject :- Continuation of Prospectus No. 121741 prescribed for Sem. III & IV B.E. Electronics & Telecommunications (CGS) for the session 2018-2019.

It is notified for general information of all concerned that the Prospectus No.121741 prescribed for Semester III & IV B.E. Electronics & Telecommunications (CGS) for the session 2017-2018 shall be continued for the academic session 2018-2019 and 2019-2020 along with the following substitutions (minor changes /revised syllabi) appended herewith as per **Appendix A** as under :

i) B.E. Sem. IV (Electronics & Telecommunications) - 2018-2019
ii)B.E.Sem. III (Electronics & Telecommunications) - 2019-2020

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Appendix – A

SEMESTER - IV B.E. (Electronics &Telecommunications)

4ET01: SIGNALS & SYSTEMS [w.e.f. 2018-2019]

Unit-1 Signals and Systems: Energy, Power Signal, Signal Operations, Signal Classification, Signal models, Even and Odd functions, System Classification System Stability.

Unit-2 Continuous-Time Signal Analysis -The Fourier Series: Periodic Signal Representation by Trigonometric Fourier Series, Existence and Convergence of Fourier Series, Exponential Fourier Series, LTIC system response to Periodic inputs, Generalized Fourier Series:

Unit-3 Continuous-Time Signal Analysis-The Fourier Transform: Relation between Fourier & Laplace, A periodic Signal Representation by Fourier Integral, Properties of Fourier Transform, Signal Energy, Data Truncation (Window Functions).

Unit-4 Continuous-Time System Analysis Using Laplace Transform: Laplace Transform and properties, Inverse transform, Solution of Differential and Integro-Differential Equations, System Realization.

Unit-5 Time-Domain Analysis of Discrete-Time Signals & Systems: Signal Operations, Classification of Discrete-Time Systems, Discrete-Time System Equations, System response to internal condition, Unit Impulse Response, System response to External Input, Classical Solution of Linear Difference Equations, System Stability.

Unit-6 Fourier Analysis of Discrete-Time Signals: Discrete-Time Fourier Series (DTFS), A periodic Signal Representation by Fourier Integral, Properties of DTFT, LTI-Discrete-Time System Analysis by DTFT, Relationship between DTFT & CTFT, DFT & its properties.

4ET3 - ANALOG ELECTRONICS - I

Course Requisite:
1. (3ET3) Electronic Devices and Circuits

Course Objectives:
1. To analyze the behavior of linear wave shaping circuits using RC Networks, diode and BJT.
2. To learn switching characteristics of semiconductor devices.
3. To understand the basics and internal structure of Op-Amp.
4. To analyze linear and non-linear applications of Op-Amp.
5. To understand and apply the functionalities of PLL.

Course Outcomes:
After successfully completing the course, the students will be able to
1. Analyze different wave shaping circuits.
2. Perform evaluation of the switching behavior of semiconductor devices.
3. Comprehend the knowledge of basic concepts and performance parameters of Op-Amp.
4. Use Op-Amp for implementation of linear and non-linear applications.
5. Comprehend the knowledge of PLL, its applications and data converters.

	Subject: ANALOG ELECTRONICS - I	**L**
Unit-1	Linear wave shaping using RC circuits, analysis and calculations of RC low pass and high pass filters, analysis of clipping and clamping circuits using diodes and transistors	10

Unit-2	Switching characteristics of semiconductor devices : Diode as switch, transistor as a switch, charastistics and analysis, FET as a switch, MOS switch, collector coupled bistable, monostable and astable multivibrators.	08
Unit-3	Operational amplifier, block diagram of Op-Amp, differential amplifier configurations, constant current source, level shifting, transfer characteristics, frequency response, frequency compensation methods, study of ICuA741, Op-Amp parameters, offset nulling and it's importance.	10
Unit-4	Linear applications of Op-Amp: Inverting and non inverting amplifiers, voltage followers, integrator, differentiator, differential amplifier, instrumentation amplifiers, precision rectifiers, V to I and I to V converters, Sinusoidal RC Oscillators.	08
Unit-5	Non linear applications of Op-Amp and filter circuits: Clipping and clamping circuits, comparator, zero crossing detector, Schmitt trigger, peak detector, astable, monostable and bistable multivibrators.	08
Unit-6	PLL: Operation of phase lock loop system, transfer characteristics, lock range and capture range, study of PLL IC LM 565 and its applications as AM detector, FM detector and frequency translator. A to D converters: Successive Approximation & Dual Slope, D to A converters: Weighted Resister & R-2R Ladder.	8
	Total	**52**

Text Books:

1. Jacob Millman & Herbert Taub, "Pulse Digital & Switching Waveforms", McGraw Hill International Book Co.
2. Gayakwad R.A., "Op-Amps and Linear Integrated Circuits", Prentice Hall of India Pvt. Ltd., New Delhi.

References:

1. Robert F. Coughlin, Frederick F. Driscoll, "Operational Amplifier and Linear Integrated Circuits", Sixth Edition, PHI Pub.
2. T.R. Ganesh Babu, B. Suseela, "Linear Integrated Circuits", Third Edition, Scitech Publications.
3. Rao K., "Pulse & Digital Circuits", Pearson Education.
4. Rao K., "Switching Theory & Logic Design", Pearson Education.
5. Dr. R.S. Sedha, "Textbook of Applied Electronics", S. Chand Publications.

SEMESTER III : [w.e.f. 2019-2020]

3ET2 : OBJECT ORIENTED PROGRAMMING

	Subject: OBJECT ORIENTED PROGRAMMING	**L**
Unit-1	***Principles of object oriented Programming:*** OOP'S paradigm, basic concept of OOP'S, benefits of OOP'S, structure of C++ programming, basic data types, user defined data type, derived data type operator and control statement	8
Unit-2	***Functions classes and object in C++:*** Functions, Function over loading, Friend Functions ***& virtual*** Functions, types of classes and its use, concept of object and its implementation, constructor and destructors	9
Unit-3	***Operator and their definition***: overloading unary and binary operator, rules for overloading operators, overloading binary operators using friends and string manipulation.	8
Unit-4	***Inheritance: Extending Classes:*** Multilevel inheritance, multiple inheritance, Hierarchical inheritance, Hybrid inheritance, Virtual Base Classes, Abstract Classes, Constructors in derived classes, Member classes: Nesting of classes	9
Unit-5	***Introduction to Java programming***: JVM, Java programming constructs: variables, primitive data types, identifier, literals, operators, expressions, precedence rules and associativity, primitive type conversion and casting, flow of control	8
Unit-6	***Classes and Objects:*** Classes, Objects, Creating Objects, Methods, Constructors, Cleaning up unused Objects, Class variable and methods, "this" keyword, Arrays, Command line arguments	8
	TOTAL	**50**

Text Books:

1. E Balagurusamy, "Object Oriented Programming Using C++ and JAVA", Tata McGraw-Hill.
2. E Balagurusamy, "Object Oriented Programming Using C++" ,Tata McGraw-Hill.

3ET3 - ELECTRONIC DEVICES AND CIRCUITS

Course Requisite:

1. (IA2) Engineering Physics

Course Objectives:

1. To provide an overview of the principles and operation of electronic devices.
2. To explore use of electronic devices for various applications in electronic circuits.
3. To analyze various electronic circuits.

Course Outcomes:

After successfully completing the course, the students will be able to

1. Comprehend the knowledge of diode and its applications in rectifier and regulator circuits.
2. Understand basics of BJT, JFET, MOSFET, UJT and their operational parameters.
3. Understand feedback concept, topologies and their applications.
4. Implement and analyze various electronic circuits.

	Subject: ELECTRONIC DEVICES AND CIRCUITS	**L**
Unit-1	**PN diode** : Formation of p-n junction, biasing the diode, current equation and V-I characteristics of diode, static and dynamic resistance, HWR, FWR, theory of C, L, LC and CLC filters and analysis of C-input filter, Zener diodes, its application as voltage regulator, Construction, working & characteristics LED and Photo-diode.	10
Unit-2	**Bipolar Junction Transistors** : Operation of PNP and NPN transistor, CB, CE and CC configurations with characteristics and parameters, transistor as an amplifier, transistor biasing methods, dc load line, operating point, bias stability, analysis of various dc bias circuits, small signal analysis of voltage divider biased CE amplifiers using h-parameter model.	10
Unit-3	**Feedback amplifiers**: Feedback concept, effects of negative feedback, basic feedback topologies. **Sinusoidal oscillators**: Barkhausen's criteria, Hartley, Colpitts, RC Phase shift, Wien bridge and crystal oscillators.	8
Unit-4	**Multistage Amplifiers**: Need of multistage, direct coupled amplifier, RC coupled amplifier, transformer coupled amplifier, emitter follower, Darlington emitter follower, bootstrapping principle,	8
Unit-5	**Power Amplifiers:** Classification, Class A, Transformer coupled Class A, harmonic distortion, Class B, Class AB, crossover distortion, capacitor coupled and direct coupled output stages, modifications to improve power amplifier performance, Class C amplifier and analysis.	8
Unit-6	**JFET:** Theory, construction and characteristics: parameters (μ, gm & rd), biasing of JFET amplifiers. **MOSFET**: Theory, construction and characteristics of enhancement & depletion type MOSFET. **UJT**: Theory, construction and characteristics; UJT as relaxation oscillator.	8
	Total	**52**

Text Books:

1. David Bell: Electronic Devices and Circuits, Oxford University Press, 2010.
2. Milliman and Halkias: Integrated Electronics, Tata McGraw Hill, New Delhi.

References:

1. Robert L.Boylestad, "Electronic Devices and Circuit theory", Publ. Pearson Education.
2. Floyd, "Electron Devices" Pearson Asia 5th Edition, 2001.
3. Donald A Neamen, "Electronic Circuit Analysis and Design" Tata McGraw Hill, 3rd Edition, 2003.

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NOTIFICATION

No. .92 /2018 Date : 09 /08/2018

Subject :- Continuation of Prospectus No. 131712 prescribed for Sem. V & VI B.E. (Electronics & Telecommunications) (CGS) for the session 2019-2020.

It is notified for general information of all concerned that the Prospectus No.131712 prescribed for Semester V & VI B.E. (Electronics & Telecommunications) (CGS) for the session 2017-2018 shall be continued for the academic session **2019-2020** for the examination of Semester V B.E. (Electronics & Telecommunications) along with following substitutions (minor changes /revised syllabi) appended herewith as per **Appendix A** as under :

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Appendix – A

SEMESTER - V B.E. (Electronics &Telecommunications)

5ET1- ANALOG ELECTRONICS – II

Course Requisites:
1. (3ET3) Electronic Devices and Circuits
2. (4ET3) Analog Electronics- I

Course Objectives:
1. To understand and design concepts of voltage regulators.
2. To study concepts of Op-Amp in designing the circuits for linear and non-linear applications.
3. To study and synthesize the waveform generators using IC 8038, 566, 555 and IC 565.
4. To demonstrate applications of Op-Amp in temperature monitoring.

Course Outcomes:
After completing the course, the students will be able to:
1. Acquire and apply knowledge for design of voltage regulator circuits using ICS and discrete components.
2. Analyze and design electronic circuits for various linear and non-linear applications.
3. Design waveform generator circuits using different ICs.
4. Design temperature monitoring system using Op-Amp and sensors.

	Subject: ANALOG ELECTRONICS – II	**L**
Unit-1	Series Voltage Regulator using transistor, overload protection, Short Circuit Protection, voltage regulators using IC 723, LM 317, dual tracking regulators using 78xx and 79xx series.	08
Unit-2	Design of scaling, summing, differential amplifier, design of integrator and differentiator, sinusoidal RC oscillators; RC-phase shift, Wein bridge oscillator using IC 741.	10
Unit-3	Design of Op-amp IC 741 based comparator, zero-crossing detector, window detectors, Schmitt trigger, astable multivibrator as square and triangular wave generator, monostable multivibrator, IC 8038, IC 566 VCO as waveform generators.	10
Unit-4	IC 555 based design of astable, monostable multivibrator and their applications, PLL IC 565 based designs.	08
Unit-5	Design of Butterworth first and second order low pass, high pass, band pass, band stop filters, all pass filter, design of UJT based relaxation oscillator and triggering circuit.	08
Unit-6	Design of instrumentation amplifier, bridge amplifier, temperature controller /indicator using thermocouple, RTD, thermo sensors AD590, LM35.	08
	Total	**52**

Text Book:
1. R.A. Gayakwad, “OP-AMP and Linear Integrated Circuits”, Prentice Hall/ Pearson Education Publications.

References:
1. Sergio Franco, “Design with Linear Integrated Circuits & Op-Amps”, TMH Publications.
2. Gray and Meyer, “Analysis and Design of Analog Integrated Circuits”, Wiley Intl. Publication.
3. Paul Horowitz, W. Hill, “The art of Electronics”, Cambridge Publications.
4. S.N. Talbar, Dr. T.R. Sontakke, “Electronic Circuit Design”.

FE5ET5 FREE ELECTIVE – I

(ii) SATELLITE & OPTICAL FIBRE COMMUNICATIONS

Unit I : LIGHT RAY THEORY:
Propogation of light, Snells law, propogation of light in an optical fiber, Basic strucure and optical path of an Optical Fiber, Acceptance angle and acceptance cone, Numerical aperture (NA) (General), Modes of propogation Number of modes and cut-off parameters of fibers. (8 Lectures)

Unit II : LOSSES AND DISPERSION IN OPTICAL FIBER:
Attenuation in Optic fibers, Materials losses, Absorption loss, Linear scattering losses, Bending losses, Dispersion in optical fiber: Intermodal dispersion, Material chromatic dispersion. (8 Lectures)

Unit III : LIGHT SOURCES FOR OPTICAL FIBER:
Major requirments for an Optical fiber source, Absorption and emission, LED (Light Emitting Diode), power and efficiency, Fiber LED Coupling, LASERS : Threshold condition for laser oscillation, double-heterojunction, Distributed feedback lasers. (8 Lectures)

Unit IV : LIGHT DETECTORS FOR OPTICAL FIBER:
Introduction, Charasteristics of photo detectors (General, Photoconductive and photo voltanic devices, PN junction type, PIN photo diode, Optical detection principles, Absorption, Quantum efficiency, Responsivity, Semi-conductor photodiodes with internal gain (APD). (8 Lectures)

Unit V : OPTICAL FIBER PREPARATION AND CONNECTION:
Preparation of Optical fibers, Liquid-phase (melting) techniques, Vapor-phase deposition techniques, Fiber alignment and joint loss, Fiber splices, Fiber connectors. (8 Lectures)

Unit VI : INTRODUCTION TO SATELLITE COMMUNICATION:
Satellite frequency bands, Satellite types- LEO, MEO, GEO, HEO, Kepler's laws, Satellite orbits, Geo-stationary Satellite, Orbital aspects of Satellite Communication : Orbital period and velocity, (8 Lectures)

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