

Sl No	Course Code	Course Title	Credits	Cat
1	ECL 201	Electronic Devices	6	DC
2	ECL 202	Digital Logic Design	6	DC
3	EEL 209	Linear Network Theory	6	DC
4	PHL 203	Electronics Material	6	DC
5	MAL 201	Integral Transform and PDE	6	DC
6	CSL207	Web Technology	6	OC
7	ECP 201	Electronic Devices Lab (ECP 201)	2	DC
8	ECP 202	Digital Logic Design Lab (ECP 202)	2	DC

Course Code & Title – ECL201 :Electronic devices (L-T-P-C:3-0-0-6)

Pre-requisite :

Semiconductor diodes V-I characteristics, Modeling for various circuit applications, rectifier, Clipping and clamping circuits RC filters,

Bipolar junction transistor (BJT), V-I characteristics, Biasing, Small signal low frequency amplifier.

LED photodiode, optocoupler, V-I characteristics, optoelectronic circuits

Power devices, power diode, IGBT, SCR TRIAC, Switching Devices, DIAC, UJT characteristics and applications.

Power amplifiers : Class A, B, AB,C, Efficiency calculations, Push pull complimentary symmetry ,Feedback amplifier, Oscillators.

Text/References:

- Electronic Devices and Circuits :MillmanHalkias, TMH 2007.
- Electronic Devices and Circuits :David A. Bell,PHI (Fourth edition).
- Electronic devices and Circuit Theory :R. Boylestad,Pearson Education (Ninth edition).
- Electron devices :S. Poornachandra, Sasikala,Scitech (senond edition).
- Foundation of Electronics Circuits and Devices : Meade, Thompson (Fourth edition)

Course Code & Title - MAL201 : Integral Transforms & Partial Differential Equations (DC) (L-T-P-C: 3-0-0-6)

Pre-requisite :

- **Laplace Transforms:** Definition of Laplace Transforms, Linearity property, condition for existence of Laplace Transform, first and second shifting properties, transforms of derivatives and integrals, evaluation of integrals by Laplace Transform. Inverse Laplace Transform, convolution theorem, Laplace Transform of periodic functions, unit step function and Dirac delta function. Applications

of Laplace Transform to solve ordinary differential equations.

- **Fourier Series and Fourier Transforms:** Fourier series, half range sine and cosine series expansions, exponential form of Fourier series.
- Fourier integral theorem, Fourier transform, Fourier Sine and cosine Transforms, Linearity, scaling, frequency shifting and time shifting properties, convolution theorem.
- **Z-transform:** Z - transform, Properties of Z-transforms, Convolution of two sequences, inverse Z-transform, Solution of Difference equations.
- **Partial differential equations:** Formation of first and second order equations, Solution of first order linear equations: Lagrange's equation, particular solution passing through a given curve. Higher order equations with constant coefficients, classification of linear second order PDEs, method of separation of variables, Solution of One dimensional wave equation, heat equation, Laplace equation (Cartesian and polar forms), D'Alembert solution of wave equation.

Text/References:

- Advanced Engineering Mathematics : Kreyszig, E, John Wiley & Sons, (Eighth Edition)
- Advanced Engineering Mathematics: Jain, R.K. and Iyengar, S.R.K, Narosa Publishers
- Calculus and Analytic Geometry: Thomas, G.B. and Finney, R.L.; Addison Wesley Longman, Inc .

Course Code & Title: - CSL207 : Web Technology (OC)

(L-T-P-C: 3-0-0-6)

Pre-requisite:

History of the Internet and World Wide Web – HTML 4 protocols – HTTP, SMTP, POP3, MIME, IMAP. Introduction to JAVA Scripts – Object Based Scripting for the web. Structures – Functions – Arrays – Objects.

Introduction – Object refers, Collectors all and Children. Dynamic style, Dynamic position, frames, navigator, Event Model – On check – On load – Onerror – Mouse rel – Form process – Event Bubblers – Filters – Transport with the Filter – Creating Images – Adding shadows – Creating Gradients – Creating Motion with Blur – Data Binding – Simple Data Binding – Moving with a record set – Sorting table data – Binding of an Image and table.

Audio and video speech synthesis and recognition - Electronic Commerce – E-Business Model – E-Marketing – Online Payments and Security – Web Servers – HTTP request types – System Architecture – Client Side Scripting and Server side Scripting – Accessing Web servers – IIS – Apache

web server.

Database, Relational Database model – Overview, SQL – ASP – Working of ASP – Objects – File System Objects – Session tracking and cookies – ADO – Access a Database from ASP – Server side Active-X Components – Web Resources – XML – Structure in Data – Name spaces – DTD – Vocabularies – DOM methods.

Introduction – Servlet Overview Architecture – Handling HTTP Request – Get and post request – redirecting request – multi-tier applications – JSP – Overview – Objects – scripting – Standard Actions – Directives.

Text / References :

1. Internet and world wide web – How to Program :Deitel&Deitel, Goldberg , Pearson Education Asia, 2001.
2. Using HTML 4, XML and JAVA : Eric Ladd, Jim O' Donnel , Prentice Hall of India – QUE , 1999
3. Web Programming: Desktop Management : Aferganatel, PHI, 2004
4. Web Technology: Rajkama , Tata McGraw-Hill, 2001

Course Code & Title: - ECL207 DigitalLogicDesign (L-T-P-C: 3-0-0-6)

Pre-requisite:

Motivation for Digital System-logic and Boolean algebra,propositions,truth table, minimization of combinational circuits.

Karnaugh maps and tabulation procedure,implementation of sum of product and product of sum in hardware.

Decoders,multiplexers,and code converters,adders:ripple and carry look-ahead addition.

Storage Elements,flip-flops and latches:D,T,J/K flip-flops,shift register ,counter.

Asynchronous and synchronous –design using state and excitation tables,FSM implementation.

Overview of VLSI design process.PAL,CPLD,FPGA,ASIC Structure overview,Introduction to hardware description language for digital circuit implementation

Text / References :

- Switching & finite Automata Theory :KohaviZvi,TMH.
- Digital Design :M.Morris Mano,Pearson Education.
- Fundamentals of Digital Logiuc with VHDL Design : Stephen Brown, Vranesic Z,TMH.
- VHDL Primer :Bhaskar J,B.S. Publication.

ECP202:Digital Logic Design Lab. (0-0-2-2)

Syllabus based on above mentioned course.

PHL 203: Electronics Material (3-0-0-6):

Dielectric properties of insulators in static field, Polarisation, Dielectric behavior of materials, Ferroelectric, Piezoelectric and Pyroelectric materials,

Dielectric properties of insulator in alternative field, Complex dielectric constant, Dipolar relaxation, Dielectric loss, Loss tangent, Dielectric break down, Different types of capacitor, Multilayer capacitor, Ferroelectric polymer.

Conductivity of pure metal and alloys, Temperature coefficient of resistivity, High conductivity materials, Fixed and variable resistor used in electronic circuits,

Magnetic material classification, Soft and hard Magnetic material, Magnetic cores of transformers, Relays, Memory elements, Magnetic resistors and Magnetic tapes multi ferroic materials, Superconductivity, Type-I and Type-II superconductor, High temprature superconductivity, Applications of superconductivity.

Text / Reference:-

1. Dekkar A.J.; Electrical Engineering Materials; Prentice Hall of India Publication, 1992
2. Seth S.P.; A course in Electrical Engineering Materials; (Third edition) Dhanpatrai Publication, 2003
3. Pillai S.O.; Solid states of Physics; New Age Publication,1999
4. Joshi M.A.; Electronic components and materials; SPD Publication
5. Kasap S.O.; Principles Of Electronic Materials and Devices: Tata-Mcgraw-Hill, 2002

EEL209 : LINEAR NETWORK THEORY (3-0-0-6)

Contents :

Node and Mesh Analysis: Node and mesh equation, matrix approach of complicated network containing voltage and

current sources, and reactances, source transformation and duality.

Network theorem: Superposition, reciprocity, Thevenin's, Nortons, Maximum power Transfer, compensation and

Tallegen's theorem as applied to AC. circuits.

Trigonometric and exponential Fourier series: Discrete spectra and symmetry of waveform, steady state response of a network to non-sinusoidal periodic inputs, power factor , effective values, Fourier transform and continuous spectra, three phase unbalance circuit and power calculation.

Laplace transforms and properties: Partial fraction, singularity functions, waveform synthesis, analysis of RC, RL,

and RLC networks with and without initial conditions with laplace transforms evaluation of initial conditions.

Two four port network and interconnections, Behaviour of series and parallel resonant circuits, Introduction to band

pass, low pass, high pass and band reject filters.

Transient behaviour, concept of complex frequency, Driving points and transfer functions poles and zeros of

immittance function, their properties, sinusoidal response from pole-zero locations, convolution theorem and

integral solutions.

Two four port network and interconnections, Behaviour of series and parallel resonant circuits, Introduction to band

pass, low pass, high pass and band reject filters.

Reference Books

1. Van, valkenburg.; Network analysis; Prentice hall of India, 2000
2. Sudhakar, A., Shyammohan, S. P.; Circuits and Network; Tata Mcgraw-Hill New Delhi, 1994

ECP 201: Electronic Devices Lab

Syllabus based on above mentioned course

ECP 202: Digital Logic Design Lab.

Syllabus based on above mentioned course