Syllabus and Scheme

Diploma [Computer Science and Engineering]

Academic Year : 2024-25

Department of Computer Science and Engineering

United University

Rawatpur-Jhalwa (Prayagraj)

Uttar Pradesh

University Vision

"To establish a Value based Global University having dynamic learning environment encouraging creativity and innovation, research inspired experimental learning and focusing on topics that are pertinent to the development of the region, the Country and the World. "

University Mission

"

- To provide a dynamic, inspiring, and varied learning environment with global exposure.
- To position the institution as a premier hub for research and experiential learning.
- To develop into an adaptable university meeting the demands of society and business.
- To incorporate Value thinking, integrity, wisdom and passion in professional for their career and life.

Department Vision

The Vision of the Department of Computer Science & Engineering is to be a trailblazing institution that plays a transformative role in the nation's progress by producing exceptional human resources in information technology and related fields, meeting the dynamic demands of the country's IT industry for sustainable development. We envision driving cutting-edge research, advancing the frontiers of computer science and engineering, and making ground-breaking contributions through high-impact research publications and enduring patents. Embracing our social responsibility, we are dedicated to serving the local and national communities, fostering awareness of IT-related products, and emphasizing the critical significance of knowledge management. By nurturing a culture of innovation, inclusivity, and ethical leadership, we strive to shape a brighter future and create a positive and lasting impact on society and the ever-evolving technological landscape.

Department Mission

The Department of Computer Science & Engineering is committed to attain excellence in education, research, and service. We aim to produce highly skilled and motivated graduates through a comprehensive curriculum that fosters problem-solving abilities, teamwork, and a deep understanding of theory and practical applications. Our passion for research drives us to explore fundamental principles and innovative technologies, both within computer science and interdisciplinary fields.

Additionally, we actively serve our communities at local and national levels, while upholding ethical responsibilities to our profession and society. By nurturing a culture of innovation and entrepreneurship, we empower our students to become visionary leaders, driving positive change and making a lasting impact on the ever-evolving world of technology and beyond.

Program Educational Objectives
(Undergraduate)

1. PEOs-1:
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
2. PEOs-2:
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
3. PEOs-3:
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
4. PEOs-4:
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
5. PEOs-5:
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Program Outcomes

On successful completion of the B.Tech in CSE/Computer Application programme the student will be able to:

PO1 - *Engineering knowledge:* Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 - *Problem analysis:* Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 - *Design/development of solutions:* Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 - *Conduct investigations of complex problems:* Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 - *Modern tool usage:* Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 - *The engineer and society:* Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 - *Environment and sustainability:* Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 - *Ethics:* Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 - *Individual and team work:* Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 - *Communication:* Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 - *Project management and finance:* Demonstrate knowledge and understanding of the

engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 - *Lifelong learning:* Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes

PSO 1: Proficient Application of State-of-the-Art Technologies Demonstrate the ability to effectively utilize cutting-edge technologies in the operation and application of computer software and hardware. This includes staying abreast of the latest advancements and incorporating them into practical solutions to address real world challenges.

PSO 2: Expertise in Computer Engineering Systems Maintenance Develop and apply expertise in maintaining and managing computer engineering related software and hardware systems. This entails implementing regular updates, troubleshooting technical issues, and ensuring the optimal performance and reliability of the systems.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SCHEME OF INSTRUCTION

COURSE CATEGORY ABBREVIATIONS

1. Applied Sciences and Humanities-AS&H
2. Program Core-PC
3. Soft Skills-SS
4. Skill Enhancement Course-SEC
5. Compulsory Course-MC
6. Program Elective-PE
7. Open Elective-OE
8. Internship/Project

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE

Diploma Computer Science &Engineering
3 Year (6 Semester) Programme
[Academic Session 2023-24 onwards]

Sr. No.	Course Code	Course Title	Category	Prereq.	Teaching			Credit
					L	T	P	
Semester- I								
1	ETDCAS101T	Mathematics-I	BS	-	3	1	-	4
2	ETDCAS112T	Applied Physics -I	BS	-	2	1	-	3
3	ETDCEE101T	Basic Electrical and Electronics Engineering	BS	-	3	1	-	4
4	ETDCCS111T	Fundamentals of Computers, InformationTechnology and Office Automation Tool	PC	-	2	-	-	2
5	ETDCAS111T	EmergingTechnology for Engineering	BS	-	2	-	-	2
6	PTSPDET13T	Professional Proficiency	HS	-	1	-	2	2
7	ETDCAS112P	Applied Physics Lab -I	BS	-	-	-	2	1
8	ETDCEE101P	Basic Electrical and Electronics Engineering Lab	BS	-	-	-	2	1
9	ETDCCS111P	Fundamentals of Computers, Information Technology and Office Automation Tool Lab	PC	-	-	-	4	2
10	ETDCME113P	Engineering Graphics	BS	-	-	-	2	1
Total					**13**	**3**	**12**	**22**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Semester – II								
1	ETDCAS201T	Mathematics-II	BS	M-I	3	1	-	4
2	ETDCAS202T	Applied Physics -II	BS	AP-I	2	1	-	3
3	ETDCCS201T	Programming and Problem Solving using C Language	PC	-	3	1	-	4
4	ETDCAS213T	Applied Chemistry	BS	-	3	1	-	4
5	ETDCAS205T	Environmental Science	HS	-	2	-	-	1
6	PTSPDET23T	Professional Proficiency	HS	PP	1	-	2	2
7	ETDCAS202P	Applied Physics Lab -II	BS	APL-I	-	-	2	1
8	ETDCAS213P	Applied Chemistry Lab	BS	-	-	-	2	1
9	ETDCCS201P	Programming and Problem Solving using C Language Lab	PC	-	-	-	2	1
10	ETDCME214P	Workshop Practice	BS	-	-	-	2	1
Total					**14**	4	**10**	**22**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Sr. No.	Course Code	Course Title	Category	Prereq.	Teaching			Credit
					L	T	P	
Semester- III								
1	ETDCAS301T	Mathematics-III	BS	M-II	2	1	-	3
2	ETDCCS301T	Multimedia and Animation	PC	PPSCL	3	-	-	3
3	ETDCCS302T	Internet and Web Technology	PC	-	3	-	-	3
4	ETDCCS303T	Data Communication and Computer Networks	PC	-	3	-	-	3
5	ETDCCS304T	Data Structure using C	PC	PPSCL	3	-	-	3
6	ETDCEC301T	Digital Electronics	PC	-	3	-	-	3
7	PTSPDET31T	Professional Proficiency	HS	PP	1	-	2	2
8	ETDCCS301P	Multimedia and Animation Lab	PC	PPSCL	-	-	2	1
9	ETDCCS302P	Internet and Web Technology Lab	PC	-	-	-	2	1
10	ETDCCS303P	Data Communication and Computer Networks Lab	PC	-			2	1
11	ETDCCS304P	Data Structure using C Lab	PC	PPSCL	-	-	2	1
12	ETDCEC301P	Digital Electronics Lab	PC	-			2	1
13		Technical Training	AU	-	-	-	2	0
Total					**18**	1	**14**	**25**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Semester – IV

1	ETDCCS401T	Database Management	PC	DSUC	3	-	-	3
2	ETDCCS402T	Computer Programming using Python	PC	-	3	-	-	3
3	ETDCCS403T	Fundamentals of Operating Systems	PC	-	3	-	-	3
4	ETDCCS404T	Computer Architecture and Hardware Maintenance	PC	-	3	-	-	3
5	ETDCCS405T	Introduction to Software Engineering	PC	FCIT	3	-	-	3
6	ETDCAS401T	Industrial Management and Entrepreneurship Development	HS	-	3	-	-	3
7	PTSPDET41T	Professional Proficiency	HS	PP	1	-	2	2
8	ETDCCS401P	Database Management Lab	PC	DSUC	-	-	2	1
9	ETDCCS402P	Computer Programming using Python Lab	PC	-	-	-	2	1
10	ETDCCS403P	Fundamentals of Operating Systems Lab	PC	-	-	-	2	1
11	ETDCCS404P	Computer Architecture and HardwareMaintenanceLab	PC	-	-	-	2	1
12	ETDCCS407P	Mini Project / Internship Assessment (Dip. CS)–II	PWSI	-	-	-	2	1
13		Technical Training	AU	-	-	-	2	0
Total					**19**	**-**	**14**	**25**

Note- Mini Project or Internship (3-4 weeks) shall be conducted during summer break after IV

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

semester and subsequently assessed in V semester.

Sr. No.	Course Code	Course Title	Category	Prereq.	Teaching			Credit
					L	T	P	
Semester – V								
1	ETDCCS501T	Web Development using PHP	PC	IWT	3	-	-	3
2	ETDCCS502T	Object Oriented Programming	PC	CPP	3	-	-	3
3		Professional Elective-1	PE	-	3	-	-	3
4		Professional Elective-2	PE	-	3	-	-	3
5	ETDCCS501P	Web Development using PHP Lab	PC	IWT	-	-	2	1
6	ETDCCS502P	Object Oriented Programming Lab	PC	CPP	-	-	2	1
7		Professional Elective-1 Lab	PE	-	-	-	2	1
8		Professional Elective-2 Lab	PE	-	-	-	2	1
9	ETDCCS503P	Internship/Industrial Training Assessment– III	PWSI	-	-	-	2	1
10		Major Project-I	PWSI	-	-	-	8	4
11		Technical Training	AU	-	-	-	4	0
Total								**21**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Semester- VI

1	ETDCCS601T	E-Commerce and Digital Marketing	PC	-	3	-	-	3
2		Professional Elective-3	PE	-	3	-	-	3
3		Open Elective-1	OE	-	3	-	-	3
4		Open Elective-2	OE	-	3	-	-	3
5		Open Elective-3	OE	-	3	-	-	3
6		Professional Elective-3 Lab	PE	-	-	-	2	1
7		Major Project-II	PWSI	-	-	-	10	5
8		Technical Training	AU	-	-	-	4	0
Total								**21**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Note:

1. The student should undergo internship and simultaneously he/she should work on a project with well-defined objectives.
2. At the end of the semester the student should submit an internship completion certificate and a project report.
3. If any of our associated company comes forward to offer an emerging course that will be offered as an industry offered course in V, VI or VII semesters under program elective with the approval of BoS.
4. This is incorporated to enhance student skills and employability in cutting edge technologies.

COURSE CODE & NAME: ETDCAS101T/ Mathematics-I

COURSE OUTCOMES

1. Apply Binomial theorem to solve engineering problems
2. Apply determinants properties and Crammer's rule to solve engineering problems
3. Apply dot & cross product of vectors to find the solution of engineering problems
4. Use complex numbers in various engineering problems
5. Apply differential calculus and higher order to solve engineering problems
6. Find velocity, acceleration, errors and approximation in engineering problems with application of derivatives.

UNIT I:

Algebra–I: Series: AP and GP; Sum, nth term, Mean, Binomial theorem for positive, negative and fractional index (without proof). Application of Binomial theorem. Determinants Elementary properties of determinant of order 2 and 3, Multiplication system of algebraic equation, Consistency of equation, Crammer's rule

UNIT II:

Algebra-II: Vector algebra: Dot and Cross product, Scalar and vector triple product. Complex number. Complex numbers, Representation, Modulus and amplitude Demoivre theorem, its application in solving algebraic equations, Mod. function and its prope.

UNIT III:

Trigonometry: Relation between sides and angles of a triangle: Statement of various formulae showing relationship between sides and angle of a triangle.

UNIT IV:

Differential Calculus–I: Functions, limits, continuity, functions and their graphs, range and domain, elementary methods of finding limits (right and left), elementary test for continuity and differentiability.

UNIT V:

Differential Calculus–II: Methods of finding derivatives, Trignometric functions, exponential function, Function of a function, Logarithmic differentiation, Differentiation of inverse trigometric function, Differentiation of implicit functions, Higher order derivatives, Leibnitz theorem (without proof).

TEXTBOOKS

1. Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi.
2. Engineering Mathematics, Vol I & II by SS Sastry, Prentice Hall of India Pvt. Ltd.,

REFERENCE BOOKS

1. Applied Mathematics-I by Chauhan and Chauhan, Krishna Publications, Meerut.
2. Applied Mathematics-I (A) by Kailash Sinha and Varun Kumar; Aarti Publication, Meerut

COURSE CODE & NAME: ETDCAS112T/ Applied Physics -I

COURSE OUTCOMES

1. Identify the use of S.I. system of measurement with accuracy and applications of dimensional analysis.
2. Represent physical quantities as scalars and vectors, applying the physical laws and concepts of linear and circular motion in everyday life.
3. Analyze and design banking of roads/railway tracks and apply conservation of momentum principle to Explain rocket propulsion, recoil of gun etc.
4. Derive work, power and energy relationship and solve problems about work and power.
5. Define work, energy and power and their units.
6. Describe conservation of energy and its applications
7. Understand the concept of rotational motion of a rigid body and its applications
8. Describe the concept of Coulomb's law of Electrostatics, Electric field and Electric potential.
9. Define Capacitance and its units, explain the function of capacitors in simple circuits, and solve simple problems.
10. Explain the concept of electric current, series and parallel combination of resistances, Kirchhoff's law and its application to solve simple electrical circuits. .
11. Understand the concept of elasticity, surface tension, pressure and the laws governing movement of fluids.
12. Distinguish between conduction, convection and radiation, identify the different methods for reducing heat losses
13. Understand the laws of thermodynamics, Carnot cycle and theirapplications.

UNIT I:

Units and Dimensions: Need of measurement in engineering and science, unit of physical quantities, fundamental and derived units, systems of units (FPS, CGS and SI units). Dimension and dimensional formulae of physical quantities, Principle of homogeneity of dimensions. Dimensional equations and their applications, conversion of numerical values of physical quantities from one system of units into another, checking the correctness of physical equations and deriving relations among various physical quantities. Limitations of dimensional analysis.

Force and Motion: Scalar and vector quantities –examples, representation of vector, types of vectors, Addition and Subtraction of Vectors, Triangle and Parallelogram law(Statement only), Scalar and Vector Product, Resolution of Vectors. Force, Momentum, Statement and Derivation of Conservation of linear momentum. Circular motion (Uniform and Non-uniform), definition of angular displacement, angular velocity, angular acceleration, frequency, time period. Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical), Expression and Applications of Centripetal and Centrifugal forces. Principle of centrifugation.

UNIT II:

Work, Power and Energy:

Work and its units, examples of zero work, positive work and negative work, conservative and non-conservative force, Friction: modern concept, types, laws of limiting friction, Coefficient of friction and its Engineering Applications, Work done in moving an object on horizontal and inclined plane for rough and plane surfaces with its applications Energy and its units: Kinetic energy and potential energy with examples and their derivation, work energy theorem.

Principle of conservation

of mechanical energy for freely falling bodies, examples of transformation of energy. Power and its units, calculation of power in numerical problems.

UNIT III:

Electrostatics and Current Electricity:

Coulomb's Law, Electric field, Electric field due to a point charge, Electric lines of forces and Electric Flux. Electric potential, Electric potential due to a point charge, Potential, Capacitor, Energy of a charged capacitor, Effect of dielectric on capacitors.

Electric current and its units, Direct and alternating current, Resistance and its units, Specific resistance, Conductance, Series and parallel combination of resistances, Factors affecting resistance of a wire, Ohm's Law and its applications, Kirchhoff's Laws, Wheatstone bridge and its applications, problem solving.

UNIT IV:

Properties of Matter:

Stress and Strain, Elastic limit and Hook's law, Young's Modulus, Bulk Modulus and Modulus of Rigidity, Poisson's Ratio. Surface Tension and Surface energy, Cohesive and Adhesive Force, Angle of Contact, Capillarity and Expression for Surface Tension, Streamline and Turbulent Flow, Reynold Number, Viscosity and Coefficient of Viscosity, Stoke's law and Terminal velocity.

UNIT V:

Heat and Thermodynamics:

Modes of heat transfer (Conduction, Convection and Radiation), Coefficient of thermal conductivity, Isothermal and adiabatic process. Zeroth, First, Second law of Thermodynamics and Carnot Cycle, Heat Engine (concept only).

TEXTBOOKS/ REFERENCE BOOKS

1. Text Book of Physics for Class XI and Class XII (Part-I, Part-II); N.C.E.R.T.,Delhi
2. Concepts in Physics by HC Verma, Vol. I &II, Bharti Bhawan Ltd. NewDelhi
3. Comprehensive Practical Physics, Vol, I & II, JN Jaiswal, Laxmi Publications (P) Ltd., NewDelhi
4. B.Sc. Practical Physics by C L Arora, S. ChandPublication.

COURSE CODE & NAME: ETDCEE101T / Basic Electrical and Electronics Engineering

COURSE OUTCOMES

1. Understand the meaning of basic electrical quantities such as voltage, current, power etc.
2. Use working principle of transformer.
3. Use basic Network Theorem and Kirchoff's laws.
4. Understand the concept of Junction Diode, transistor and field effect transistor.

UNIT I:

Application and Advantages of Electricity: Difference between ac and dc, various applications of electricity, advantages of electrical energy over other types of energy.
Basic Electrical Quantities: Definition of voltage, current, power and energy with their units, name of instruments used for measuring above quantities, connection of these instruments in an electric circuit.

UNIT II:

AC Fundamentals: Electromagnetic induction-Faraday's Laws, Lenz's Law; Fleming's rules, Principles of a.c. Circuits; Alternating emf, Definition of cycle, frequency, amplitude and time period. Instantaneous, average, r.m.s and maximum value of sinusoidal waveform factor and Peak Factor. Concept of phase and phase difference. Concept of resistance, inductance and capacitance in simple a.c. circuit. Power factor and improvement of power factor by use of capacitors. Concept of three phase system; star and delta connections; voltage and current relationship (no derivation).

UNIT III:

Transformers: Working, principle and construction of single phase transformer, transformer ratio, emf equation, losses and efficiency, cooling of transformers, isolation transformer, CVT, auto transformer (brief idea), applications.

UNIT IV:

D.C. Circuits: Ohm/s law, resistivity, effect of temperature on resistance, heating effect of electric current, conversion of mechanical units into electrical units. Kirchoff's laws, application of Kirchoff's laws to solve, simple d.c. circuits Thevenin's theorem, maximum power transfer theorem, Norton's theorem and superposition theorem, simple numerical problems.

UNIT V:

Basic Electronics: Basic idea of semiconductors – P and N type; diodes, zener diodes and their applications, Introduction to BJT: NPN and PnP transistors, other symbols and mechanism of current flow, explanation of fundamental current relations. Comparison of CB, CE and CC configuration

transistor as amplifier in CE configuration. Field Effect Transistor (FET): Construction, Operation and Characteristics of Junction FET, Comparison of SFET, MOSFET & CMOS.

TEXTBOOKS/ REFERENCE BOOKS

1. Basic Electrical Engineering by PS Dhongal; Tata McGraw Hill Publishers, New Delhi
2. A Text Book of Electrical Technology, Vol. I and II by BL Thareja; S Chand and Co., New Delhi
3. Basic Electricity by BR Sharma; Satya Prakashan, New Delhi
4. Basic Electrical Engineering by JB Gupta, S Kataria and Sons, Delhi
5. Experiments in Basic Electrical Engineering by SK Bhattacharya and KM Rastogi, New Age International Publishers Ltd., New Delhi

COURSE CODE & NAME: ETDCCS111T/ Fundamentals of Computers, Information Technology and Office Automation Tool

COURSE OUTCOMES

1. Use technology ethically, safely, securely, and legally.
2. Identify and analyze computer hardware, software, and network components.
3. Design basic business web pages using current HTML/CSS coding standards.
4. Install, configure, and remove software and hardware.
5. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems.

UNIT I:

Fundamentals of Computer: Historical evolution of computers, Generations of computers, Classification of computers - based on size, processor, Usefulness of Computers. Applications of computers, Block Diagram along its components and characteristics, Interaction between the CPU, Memory Input/output devices, function of CPU and major functional parts of CPU. Types of Memory- RAM ROM, Monitor, Mouse, Keyboard, Disk, joysticks, Storage Devices, floppy disk, CD, DVD, Pen drive, trackballs, Printers Types of printers, Scanner, Modem, Video, Sound cards, Speaker

UNIT II:

Data Representation: Definition Of Information, difference between data and information ,importance of Binary Number System, various number systems, Conversion from Decimal to Binary, Conversion from Binary to Decimal, binary number into hexadecimal number, hexadecimal number into binary number System, Memory Addressing and its Importance, ASCII and EBCDIC coding System

UNIT III:

DOS & Windows Operating Systems: Hardware and Software, Types of Software, Introduction and need of operating system, Types of operating system, dos operating system, Types of DOS Commands, operating system as a resource manager; BIOS, control panel, disk defragmentation installation and un installation of the application software.

UNIT IV:

Fundamentals of Internet; Concepts of computer Network, Client Server Model, Peer to Peer Model, Networking Devices: Switch, Router, Hub, Bridge, Gateway, LAN, MAN, WAN, Topology, Internet, Intranet, Extranet, internet service provider and its relevance, role of the modem in accessing the internet, purpose of web browser software, URL,URI, URN, WWW, Telnet, Email, process of sending and receiving e-mail, transmission modes, IP address and its format, MAC Address, DNS, search engines, social network sites, internet security.

TEXTBOOKS/ REFERENCE BOOKS

1. Fundamentals of Computer by E Balagurusamy, Tata McGraw Hill EducationPvt. Ltd, New Delhi.
2. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi.
3. Computer Fundamentals by RS Salaria; Khanna Book Publishing Co. (P) Ltd., New Delhi.
4. Computers Today by SK Basandara, Galgotia publication Pvtltd. Daryaganj, New Delhi.

COURSE CODE & NAME: ETDCAS111T/ Emerging Technology for Engineering

COURSE OUTCOMES

1.Understand the fundamentals of AI.
2.Understand fundamentals of cloud computing.
3.Understand the fundamentals of IoT and its societal benefits.
4.Understand the basics of Robotics add its industrial applications.
5.Understand the future Trends in Engineering and Technology.

UNIT I:

Artificial Intelligence: Foundations, Scope, Problems, and Approaches of AI. Introduction to AI, History of AI, Course Logistics, Roadmap, and Industry Applications of AI.

UNIT II:

Cloud Computing: Introduction and Evolution of computing paradigms, Brief history and Evolution. History of Cloud Computing, Evolution of Cloud Computing, Traditional vs. Cloud computing, Cloud Deployment models 9Public, Private, Hybrid and Community Cloud), Benefits and challenges of Cloud Computing

UNIT III:

Internet of Things: The IoT today, IoT vision, Physical Design of IoT, Logical Design of IoTIoT enabling technology devices.IoT devices vs. Computer, Societal Benefits of IoT, Risks, Privacy, and Security Application.

UNIT IV:

Robotics and Automation: Automation and Robotics, Robot Anatomy, Basic Structure of Robots, Resolution, Accuracy and Repeatability, Classification and Structure of robots, Point to Point and Continuous path Systems. Components of Robotic System, Industry Applications.

UNIT V:

Future Trends:5G Technology and futher. History, objective and global scenario of 5G Telecom and its applications. Fundamentals of Quantum Computing, Julia Programming Language, Benefits of Julia Language over other programming languages.

TEXTBOOKS/ REFERENCE BOOKS

1. Artificial Intelligence dummies by John Paul Mueller and Luca Massron.
2. Fundamentals of Robotics Engineering by Harry, H. Poole.

COURSE CODE & NAME: PTSPDET12T/ Professional Proficiency

COURSE OUTCOMES

1. Better representation of himself/herself in terms of communication skills, overall personality development and aptitude building required for jobs.
2. This program will help students employable and ready for Industries /corporate and other Public and Private Sector jobs.

UNIT I:
HARD SKILLS

Hard skill includes Basic Grammar, Vocabulary ,Articles, Tenses, Construction of Sentences and Reading Comprehension etc.

UNIT II:
COMMUNICATION SKILL

Efforts should be made to overcome the initial hesitation of speaking English of students and hence improve their fluency in English. Suggested methods include:

- Follow only English language in the class.
- Class should be interactive and students should always be engaged in some kind of conversation.
- Each student should speak 5 minutes, 3-4 times in 1st semester on topics of his choice selected from Social, Environmental, Sports, Business and Economics, Medicines and Health Care, Science and Technology ,Politics, World Affairs and Religion etc.

In the above process students should be regulated towards better Vocabulary and Pronunciation.

UNIT III:

APTITUDE BUILDING
QUANTITATIVE APTITUDE

1. Basic Calculations : BODMASS rule, Square and square root, Cube and cube root, Different types of numbers, Divisibility rule, Fraction and comparison of fraction
2. Number System: Multiples, Factors Remainder, Remainder Theorem, Unit Place, Number formation, Factorial, LCM and HCF Finding and its application.
3. Percentage: Basics of percentage and it's calculation, Comparison of percentage, How to use in data interpretation, Venn diagram

LOGICAL REASONING

1. Coding and decoding.
2. Number Series.
3. Blood Relation.

COURSE CODE & NAME: ETDCAS112P/ Applied Physics Lab-1

COURSE OUTCOMES

1. Identify the use of S.I. system of measurement with accuracy and applications of dimensional analysis.
2. Represent physical quantities as scalars and vectors, applying the physical laws and concepts of linear andcircular motion in everydaylife.
3. Analyze and design banking of roads/railway tracks andapply conservation of momentum principle to Explain rocket propulsion, recoil of gun etc.
4. Derive work, power and energy relationship and solve problems about work andpower.
5. Define work, energy and power and theirunits.
6. Describe conservation of energy and itsapplications
7. Understand the concept of rotational motion of a rigid body and itsapplications
8. Describe the concept of Coulomb's law of Electrostatics, Electric field and Electric potential.
9. Define Capacitance and its units, explain the function of capacitors in simple circuits, and solve simple problems.
10. Explain the concept of electric current, series and parallel combination of resistances, Kirchhoff's law and its application to solve simple electrical circuits. .
11. Understand the concept of elasticity, surface tension, pressure and the laws governing movement offluids.
12. Distinguish between conduction, convection and radiation, identify the different methods for reducing heatlosses
13. Understand the laws of thermodynamics, Carnot cycle and theirapplications.

List of Experiments:

1 To measure the thickness of the given glass plate using Screw Gauge.
2 To measure the length and diameter of the given solid cylinder using Vernier calipers.
3 To find the value of acceleration due to gravity on the surface of earth by using a simple
4 pendulum.
5 To determine the Radius of curvature of (i) convex mirror, (ii) concave mirror by Spherometer.
6 To find the Moment of Inertia of a flywheel about its axis ofrotation
7 To determine the viscosity of glycerin by Stoke'smethod.
8 To determine force constant of spring using Hookslaw.
9 To determine Coefficient of Viscosity of water by Capillary Flow Method (Poiseuille's method).

TEXTBOOKS/ REFERENCE BOOKS

1 Text Book of Physics for Class XI and Class XII (Part-I, Part-II); N.C.E.R.T.,Delhi
2 Concepts in Physics by HC Verma, Vol. I &II, Bharti Bhawan Ltd. NewDelhi
3 Comprehensive Practical Physics, Vol, I & II, JN Jaiswal, Laxmi Publications (P) Ltd., NewDelhi
4 B.Sc. Practical Physics by C L Arora, S. ChandPublication.

COURSE CODE & NAME: ETDCEE101P/ Basic Electrical and Electronics Engineering Lab

Course Outcome:

1. Understand the meaning of basic electrical quantities such as voltage, current, power etc.
2. Use working principle of transformer.
3. Use basic Network Theorem and Kirchoff's laws.
4. Understand the concept of Junction Diode, transistor and field effect transistor.

List of Experiments:

1. To change the speed and direction of rotation of d.c. shunt motor by
   (a) Armature control method. (b) Field control method.
2. To change the speed and direction of rotation of d.c. compound motor by
   (a) Armature control method. (b) Field control method.
3. To measure the terminal voltage with variation of load current of
   (a) D.C. shunt generator. (b) D.C. compound generator.
4. To perform load test on a single phase transformer and determine its efficiency.
5. To start and run a induction motor by
   (a) Star Delta Starter. (b) Auto Transformer Starter.
6. To measure slip of an induction motor by direct loading.
7. To start and change the direction of rotation of an induction motor.
8. To measure transformation ratio of a single phase transformer.
9. To measure power and P.F. in a single phase circuit by Ammeter, Voltmeter and Wattmeter.
10. To measure power and P.F. in a 3 phase/A.C. circuit by two wattmeter method.
11. To calibrate a single phase energy meter at different P.F.'s an different loads.
12. To locate the faults in an electrical machine by a megger.
13. To connect a fluorescent tube and note its starting and running current.
14. To draw characteristics od Silicon Controlled Rectifier (SCR).
15. Testing of electrical devices - Zenor, Diode, Transistor, FET, UJT, SCR.
16. Use of operational amplifier as adder, substractor, comparator, differentiator and integrators.
17. Repair and maintenance

REFERENCES

1. Basic Electrical Engineering by PS Dhongal; Tata McGraw Hill Publishers, New Delhi
2. A Text Book of Electrical Technology, Vol. I and II by BL Thareja; S Chand and Co., New Delhi
3. Basic Electricity by BR Sharma; Satya Prakashan, New Delhi
4. Basic Electrical Engineering by JB Gupta, S Kataria and Sons, Delhi
5. Experiments in Basic Electrical Engineering by SK Bhattacharya and KM Rastogi, New Age International Publishers Ltd., New Delhi

COURSE CODE & NAME: ETDCCS111P/ Fundamentals of computers, Information Technology and Office Automation Tool Lab

Course Outcome:

1. Use technology ethically, safely, securely, and legally.
2. Identify and analyze computer hardware, software, and network components.
3. Design basic business web pages using current HTML/CSS coding standards.
4. Install, configure, and remove software and hardware.
5. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems.

List of Experiments:

1. . Familiarization with Computer System and its peripheral devices
2. Familiarization with Operating System
3. Practice of internal and external commands of DOS
4. Working practice on windows operating system : creating file, folder. Copying, moving, deleting file, folder
5. Installing and uninstalling of new software using control panel.
6. Installation and uninstallation of new hardware drivers using control panel. Installation of Operating Systems
7. Disk defragmentation using system tool
8. Procedure of disk partition and its operation (Shrinking, Extending, Delete, Format).
9. . Changing resolution, colour, appearances, and screensaver option of the display also Changing System Date and Time.
10. User Account creation and its feature on Windows Operating System
11. Email Account creation, reading, writing and sending emails with attachments.
12. Internet browsing using browsers.
13. Using of Search Engine to get information from internet

OFFICE AUTOMATION:-

MS WORD

Tools to be used: Microsoft office/ Libre Office / Open Office / G Suite

a. Creating a document using different font, changing font size and color, changing the appearance through bold/italic/underline.
b. Creating a document using subscript and superscript, justification of the document.
c. Create a document using Bullets and Numbering.
d. Create a document using page number, header and footer.
e. Create a document using inserting page breaks and column break, line spacing.
f. How to use mail merge and macro in MS Word.
g. Creating table, formatting cells, use of different border styles, shading in tables, merging of cells, and partition of cells,
h. inserting and deleting a row in a table in MS word

i. Apply spelling checker, grammar mistakes, thesaurus in a document.
j. Create a Boucher using templates, page setup and print preview, and then print that document.

MS EXCEL

a. Working on spreadsheet like adding, deleting, merging cells, layout and style.
b. Create a table and perform operation using predefined function on it.
c. In MS Excel procedure to switching between different spreadsheets and workbook.
d. Create a spreadsheet and print selected as well as full workbook.
e. Create a spreadsheet with LOOKUP/VLOOKUP features.
f. Create different charts in excel and implement formulas(automatic and use defined).

POWER POINT

a. Create a Power Point presentation using slide template.
b. Create a Power Point presentation using animation.
c. Create a Power Point presentation using transition
d. Create a Power Point Presentation with Adding movie and sound.
e. Create a Power Point Presentation with Adding tables and chart etc.
f. Changing slide color scheme in presentation.
g. Viewing the presentation using slide navigator.
h. Create, Save, Run and Print the Power Point Presentation.
i. Create a database table using predefined template.
j. Create and share Google docs.

REFERENCES

1. Fundamentals of Computer by E Balagurusamy,Tata McGraw Hill EducationPvt. Ltd, New Delhi.
2. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi.
3. Computer Fundamentals by RS Salaria; Khanna Book Publishing Co. (P) Ltd., New Delhi.
4. Computers Today by SK Basandara, Galgotia publication Pvtltd. Daryaganj, New Delhi.

COURSE CODE & NAME: ETDCME113P/ Engineering Graphics

COURSE OUTCOMES

1. Identify and use of different grades of pencils and other drafting instruments which are used in engineering field.
2. Draw free hand sketches of various kinds of objects.
3. Use different types of scales and their utilization in reading and reproducing drawings of objects and maps.
4. Draw 2 - dimensional view of different objects viewed from different angles (orthographic views)
5. Draw and interpret complete inner hidden details of an object which are otherwise not visible in normal view
6. To make projections of Solid
7. Generate isometric (3D) drawing from different 2D (orthographic) views/sketches
8. Identify conventions for different engineering materials, symbols, sections of regular objects and general fittings used in Civil and Electrical household appliances
9. Use basic commands of AutoCAD.
10. Draw and learn different types of wooden joints used in furniture.
11. Draw the assembly from part details of objects
12. Identify and draw different types of screw threads used in various machines and assemblies as per domestic and international standards
13. Draw different types of nuts, bolts and washers
14. Draw various locking devices and foundation bolts
15. Draw different section of various types of keys and cotter joints
16. Draw various riveted joints
17. Draw various types of couplings used in power transmission.
18. Prepare drawing of given joints/couplings using AutoCAD

Lab No	Content	Sheets
1	**Introduction to engineering drawing:** Introduction to drawing instruments, materials, layout and sizes of drawing sheets and drawing boards. Different types of lines in engineering drawing as per BIS specifications. Practice of vertical, horizontal and inclined lines, geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagonal, pentagon with the help of drawing instruments. Free hand and instrumental lettering (Alphabet and numerals) – upper case (Capital Letter), single stroke, vertical and inclined at 75 degree, series of 5,8,12 mm of free hand and instrumental lettering of height 25 to 35 mm in the ratio of 7:4 **DimensioningTechnique:** Necessity of dimensioning, method and principles of dimensioning (mainly theoreticalinstructions) Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., counter sunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches	**04 (sheets)**

2 **Scales:** Scales –their needs and importance (theoretical instructions), type of scales, definition of R.F. and length ofscale Drawing of plain and diagonalscales **08 (sheets)**

OrthographicProjection: Theory of orthographic projections (Elaborate theoreticalinstructions)

- Projection of Points in differentquadrant
- Projection of Straight Line (1st and 3rdangle)
  - Line parallel to both theplanes
  - Line perpendicular to any one of the referenceplane
  - Line inclined to any one of the referenceplane.
- Projection of Plane – Different lamina like square, rectangular, triangular and circle inclined to one plane, parallel and perpendicular to another plane in 1st angleonly

- Three views of orthographic projection of different objects. (At least one sheet in 3rdangle)
- Identification ofsurfaces

3 **Projectionof Solid:** Definition and salient features ofSolid, Types of Solid (Polyhedron and Solid ofrevolution). To make projections, sources, Top view, Front view and Side view of various types ofSolid. **04 (sheets)**

Sections: Importance and salientfeatures, Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removedsections.

Convention sectional representation of various materials, conventional breaks for shafts, pipes, rectangular, square, angle, channel, rolledsections, Orthographic sectional views of differentobjects.

4 **IsometricViews** **02(sheets)**

a. Fundamentals of isometric projections and isometricscale.
b. Isometric views of combination of regular solids like cylinder, cone, cube and prism.

5 **Common Symbols and Conventions usedinEngineering** **04(sheets)**

a. Civil Engineering sanitary fittingsymbols
b. Electrical fitting symbols for domestic interiorinstallations

IntroductiontoAutoCAD: Basic introduction and operational instructions of various commands in AutoCAD. At least two sheets on AutoCAD of cube, cuboid, cone, pyramid, truncated cone and pyramid, sphere and combination of abovesolids.

Auto CAD drawing will be evaluated internally by sessional marks and not by final theory paper.

6 **Detail andAssemblyDrawing:** Principle and utility of detail and assemblydrawings Wooden joints i.e. corner mortice and tenon joint, Tee halving joint, Mitre faced corner joint, Tee bridle joint, Crossed wooden joint, Coggedjoint, Dovetail joint, Through Mortice and. Tenon joint, furniture drawing - freehand and with the help of drawinginstruments **05 (sheets)**

ScrewThreads: Thread Terms andNomenclatureTypes of threads-External andInternal

threads, Right and Lefthand threads (Actual and Conventional representation), single and multiple start threads. Different Forms of screw threads-V threads (B.S.W threads, B.A thread, American National and Metric thread), Square threads (square, Acme, Buttress and Knucklethread)

7 **NutsandBolt:** Different views of hexagonal and square nuts. Square and hexagonal headedbolt Assembly of Hexagonal headed bolt and Hexagonal nut withwasher. Assembly of square headed bolt with hexagonal and withwasher. **04 (sheets)**

LockingDevices: Different types of locking devices-Lock nut, castle nut, split pin nut, locking plate, slotted nut and springwasher. Foundations bolts-Rag bolt, Lewis bolt, curved bolt and eyebolt. Drawing of various types ofstuds

8 **KeysandCotters:** Various types of keys and cotters - their practical application, drawings of various keys and cotters showing keys and cotters inposition. **03 (sheets)**

- Various types ofjoints Spigot and socketjoint
- Gib and cotter joint
- Knucklejoint

9 **Rivets andRivetedJoints:** Types of general purpose-rivetsheads Caulking and fullering of rivetedjoint Types of rivetedjoints **04 (sheets)**

- Lap joint-Single riveted, double riveted (chain and zig-zagtype)
- Single riveted, Single cover plate buttjoint
- Single riveted, double cover plate buttjoint
- Double riveted, double cover plate butt joint(chain and zig-zag type)

10 **Couplings:** Introduction to coupling, their use andtypes **04 (sheets)**

- Flange coupling (protected)
- FlexibleCoupling

Use ofCADsoftware: Draw any two joints/coupling using CAD software from the following:

- Sleeve and cotterjoint
- Knucklejoint
- Spigot and socketjoint
- Gib and cotterjoint
- Flangecoupling
- Muffcoupling

TEXTBOOKS/ REFERENCE BOOKS

1. Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi
2. Engineering Mathematics, Vol I & II by SS Sastry, Prentice Hall of India Pvt. Ltd.,
3. Applied Mathematics-II by Chauhan and Chauhan, Krishna Publications, Meerut.
4. Applied Mathematics-I (B) by Kailash Sinha and Varun Kumar; Aarti Publication, M

COURSE CODE & NAME: ETDCAS201T/ Mathematics-II

COURSE OUTCOMES

1. Calculate simple integration by methods of integration
2. Evaluate the area under curves, surface by using definite integrals.
3. Calculate the area and volume under a curve along areas
4. Solve the engineering problems with numerical methods.
5. Understand the geometric shapes used in engineering problems by co-ordinate geometry.

UNIT I:

Integral Calculus–I

Methods of Indefinite Integration:-Integration by substitution. Integration by rational function. Integration by partial fraction. Integration byparts .Integration of special function

UNIT II:

Integral Calculus–II

Meaning and properties of definite integrals, Evaluation of definite integrals. Application Length of simple curves, Finding areas bounded by simple curves Volume of solids of Revolution, centre of mean of plane areas.

UNIT III:

Numerical Methods

Simpson's 1/3rd and Simposns3/8th rule and Trapezoidal Rule: their application in simple cases. Numerical solutions of algebraic equations; Bisections method, Regula-Falsi method, Newton-Raphson's method (without proof), Numerical solutions of simultaneous equations; Gauss elimination method (withoutproof).

UNIT IV:

Co-ordinate Geometry

(2Dimension) Circle Equation of circle in standard form. Centre - Radius form, Diameter form, Two intercept Coordinate Geometry.

UNIT V:

Co-ordinate Geometry

(3Dimension):- Straight lines and planes inspace. Distance between two points in space, direction cosine and direction ratios, Finding equation of a straight line (without proof)

TEXTBOOKS/ REFERENCE BOOKS

1. Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi
2. Engineering Mathematics, Vol I & II by SS Sastry, Prentice Hall of India Pvt. Ltd.,
3. Applied Mathematics-II by Chauhan and Chauhan, Krishna Publications, Meerut.
4. Applied Mathematics-I (B) by Kailash Sinha and Varun Kumar; Aarti Publication, Meerut

COURSE CODE & NAME: ETDCAS202T/ Applied Physics -II

COURSE OUTCOMES

1. Understand the concept of magnetism, magnetic field, magneticforce and electromagnetic induction.
2. Describe refractive index of a solid or liquid or a solid and will be able to explain conditions for TIR.
3. Understand the concept of rotational motion of a rigid body and itsapplications
4. Apply the physical laws and concepts of gravity, its variation with longitude and latitude and its uses in spacesatellite etc. .
5. Understand the concept of waves, propagation of progressive waves, Superposition principle of waves and stationary waves.
6. Understand the concept of photo Electric Effect, laser and their applications in various fields.
7. Describe the concept of Nuclear force, Radioactivity and Law of Radioactive Disintegration.

UNIT I: Electromagnetism:

Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and units, magnetization. Concept of electromagnetic induction, Faraday's Law, Lorentz force (force on moving charge in magnetic field). Force on current carrying conductor, force on rectangular coil placed in magnetic field. Moving coil galvanometer: principle, construction and working, Conversion of a galvanometer into ammeter and voltmeter.

UNIT II:

Optics:

Nature of Light, Laws of Reflection and Refraction, Snell's Law, Interference (Constructive and Destructive), Diffraction and Polarization (concept only).

Introduction to Fibre Optics:

Critical angle, Total internal reflection, Principle of fibre optics, Optical fibre, Pulse dispersion in step-index fibres, Graded index fibre, Single mode fibre.

UNIT III:

Rotational Motion:

Concept of translatory and rotatory motions with examples, Definition of torque with examples, Angular momentum, Conservation of angular momentum (quantitative) and its examples, Moment of inertia and its physical significance, Concept of Radius of gyration, Theorems of parallel and perpendicular axes

(statements only), Moment of inertia of rod, disc, ring, cylinder, lamina and sphere (hollow and solid) (Formulae only). Concept of Fly wheel. Rotational Kinetic energy, Rolling of sphere on the slant plane.

Gravitation and Satellites:

Gravitational force, Acceleration due to gravity and its variationwith respect to height and depth from earth, Kepler's law, Escape and Orbital velocity, Time period of satellite, Geo-stationary satellite, Polar satellites (concept only).

UNIT IV:

Sound waves:

Velocity of sound waves, Newton's formula, Laplace correction, Factors affecting velocity of sound waves, Propagation of Progressive waves, Velocity and acceleration of a particle during propagation of wave, Superposition of waves, Stationary waves (without mathematical analysis), Resonance tube.

UNIT V:

Modern Physics: Photo Electric Effect, Einstein's Equations, Photo Cells, Lasers, Stimulated Emission and Population Inversion, Types of Laser – Helium Neon and Ruby Laser, Applications of Laser (brief idea only), Material Processing, Lasers in Communication, Medical Applications. **Nuclear Physics:**Idea of Nuclear force, Mass-Defect and Binding Energy, Nuclear Reactions, Natural and Artificial Radioactivity, Law of Radioactive Disintegration, Half life and Mean life.

TEXTBOOKS/ REFERENCE BOOKS

1. Text Book of Physics for Class XI and Class XII (Part-I, Part-II); N.C.E.R.T.,Delhi
2. Concepts in Physics by HC Verma, Vol. I &II, Bharti Bhawan Ltd. NewDelhi
3. Comprehensive Practical Physics, Vol, I & II, JN Jaiswal, Laxmi Publications (P) Ltd., NewDelhi
4. B.Sc.Practical Physics by C L Arora, S. ChandPublication..

COURSE CODE & NAME: ETDCCS201T/ Programming and Problem Solving using C Language

COURSE OUTCOMES

1. Identify the problem and formulate an algorithm for it.
2. Identify various control structures and implement them.
3. Identify various types of variables.
4. Use pointer in an array and structure and use structures and union for handling data.
5. Explain the concepts of C programming language and implement the language constructs concepts
6. Install C software on the system and debug the programme. Explain and execute member functions of C in the programme
7. Describe and implement array concept and pointers in C programme
8. Expose File System using File Handling.

UNIT I:

Algorithm and Programming Development: Steps in development of a program, algorithm development, concept of flowcharts,programming and use of programming, various techniques of programming,Structured Programming, Preprocessors, Debugging, Compiling.

Program Structure: Structure of C program, Writing and executing the first C program, Translator: Assembler, Interpreter, Compiler, I/O statement, assign statement, Keywords, constants, variables and data types, storage classes, operators and expressions, Unformatted and Formatted IOS, Data Type Casting.

UNIT II:

Control Structures: Introduction, decision making with IF – statement, IF – Else and Nested IF, Ladderif-else, Loop: While, do-while, for, Break, Continue, goto and switch statements.

UNIT III:

Functions: Introduction to functions, Global and Local Variables, Function Declaration, Function Call and Return, Types of Functions, Standard functions, Parameters and Parameter Passing, Call - by value/reference, recursive function, function with array, function with string.

UNIT IV:

Arrays and Strings: Introduction to Arrays, Array Declaration, Length of array, Manipulating array elements, Single and Multidimensional Array, Arrays of characters, Passing an array to function, Introduction of Strings, String declaration and definition, String Related function i.e. strlen, strcpy, strcmp.

Pointers: Introduction to pointers, Static and dynamic memory allocation, Address operator and pointers, Declaring and initializing pointers, Single pointer, Pointers to an array

UNIT V:

Structures and Union: Declaration of structures, Accessing structure members, Structure Initialization, array of structure variable, Pointer to a structures, Union, Declaration of Union.

File Handling: Basics of File Handling, opening and closing of File, reading and writing character from a file.

TEXTBOOKS/ REFERENCE BOOKS

1. Schum‟s Outline of Programming with C by Byron Gottfried, McGraw-Hill
2. The C programming by Kernighan Brain W. and Ritchie Dennis M., Pearson Education.
3. Computer Basics and C Programming by V.Rajaraman , PHI Learning Pvt. Limited, 2015.
4. Computer Concepts and Programming in C, R.S. Salaria, Khanna Publishing House

COURSE CODE & NAME: ETDCAS213T / Applied Chemistry

COURSE OUTCOMES

1. Classify various substances based on state of aggregation
2. Substantiate the laws and principles on which structure of atom is established.
3. Explain and predict properties of substances.
4. Explain sources of water and various characteristics of water (quantitatively).
5. Explain cause and factors which can adversely affecting natural water quality and remedial measures available for water purification
6. Think critically, develop and adapt water conservation techniques.

UNIT I:

Atomic Structure, Periodic Table and Chemical Bonding

Fundamental particles- mass and charges of electrons, protons and neutrons with names of the scientists who discovered these fundamental particles.Bohr's model of atom and successes and limitations of atomic theory (qualitative treatmentonly).Atomic number, atomic mass number isotopes andisobars. Definition of orbit and orbitals, shapes of s and p orbitals only, quantum numbers and theirsignificance,Aufbau's principle, Pauli's exclusion principle and Hund's rule electronic configuration of elements with atomic number (Z) = 30 only. (Electronic configurations of elements with atomic number greater than 30 areexcluded).

Modern periodic law and periodic table, groups and periods, classification of elements into s, p, d and f blocks (periodicity in properties -excluded) Chemical bonding and cause of bonding and types such as ionic bond in NaCl sigma (σ) and pi (π) covalent bonds in H_2, HCl, Cl_2, elementary idea of hybridization in $BeCl_2$, BF_3, CH_4, NH_3 and H_2O, VSEPR, Molecular orbital Theory States of Matter: Solid, Liquid & Gas, Metallic bonding- explanation with the help of electron gas (sea)model.

UNIT II:

Fuels and Lubricants

Definition of fuel, classification of fuels, characteristics of good fuel, relative merits of gaseous, liquid and solidfuelsCalorific value-higher calorific value, lower calorific value, determination of calorific value of solid or liquid fuel using Bomb calorimeter and numerical examples. Coal - types of coal and proximate analysis ofcoal Fuel rating – Octane number and Cetane number, fuel-structural influence on Octane and Cetanenumber Gaseous fuels – chemical composition, calorific value and applications of natural gas (CNG), LPG, producer gas, water gas andbiogas. Elementary ideal on – hydrogen as future fuels, nuclearfuels.Lubricants: Definition and properties, mechanism, industrial application and its function inbearings. Synthetic lubricants and cuttingfluids.

UNIT III:

Water : Demonstration of water resources on Earth using piechart. Classification of water – soft water and hard water, action of soap on hard water, types of hardness, causes of hardness, units of hardness – mg per liter (mgL^{-1}) and part per million (ppm) and simple numerical, pH and buffer solutions and their

applications. Disadvantages caused by the use of hard water in domestic and boiler feed water. Primming and foaming and caustic embrittlement inboilers. Removal of hardness –Permutit process and Ion-exchangeprocess. Physico-Chemical methods for Water QualityTesting Determination of pH using pH meter, total dissolved solids(TDS) Testing and Estimation of- alkalinity, indicator their types and application total hardness by EDTA method and O'Hener's Method. (chemical reaction of EDTA method are excluded). Understanding of Indian Water Quality standards as perWHO Natural water sterilization by chlorine and UV radiation and reverseosmosis. Municipality waste water treatment. Definition of B.O.D andC.O.D.

UNIT IV:

Electrochemistry

Redox Reaction, Electrode Potential, Nernst equation, Electrochemical cell (Galvanic and Electrobytes); Nernst equation.

Corrosion anditsControl

Definition of corrosion and factors affecting corrosionrate. Theoriesof Dry (chemical) corrosion- Pilling Bedworthrule Wet corrosion in acidic atmosphere by hydrogen evolutionmechanism Definition of passivity and galvanicseries.

Corrosioncontrol:

Metal coatings – Cathodic protection, Cementation on Base Metal Steel – Application of Metal Zn (Sheradizing),Cr (Chromozing) and Al (Calorizing), Sacrificial protection and impressed currentvoltage Inorganic coatings – Anodizing andphosphating, Organic coatings - use of paints varnishes andenamels. Internal corrosion preventive measures- alloying (with reference to passivating, neutralizing and inhibition) and heat treatment (quenching, annealing).

UNIT V:

Organic compounds, Polymers and Plastics

Classification of organic compounds and IUPACNomenclature Definition of polymer, monomer and degree of polymerization Brief introduction to addition and condensation polymers with suitable examples (PE, PS, PVC, Teflon, Nylon -66 andBakelite) Definition of plastics, thermo plastics and thermo setting plastics with suitable examples, distinctions between thermo and thermo settin plastics Applications of polymers in industry and dailylife

TEXTBOOKS/ REFERENCE BOOKS

1. Chemistry in Engineering by J.C. Kuricose & J. Rajaram, Tata McGraw Hill, Publishing Company Limited, New Delhi.
2. Engineering Chemistry by P.C. Jain & Monika Jain, Dhanapat Rai Publishing Company, New Delhi.
3. Eagle's Applied Chemistry - I by S. C. Ahuja & G. H. Hugar, Eagle Prakashan, Jalandhar.
4. Engineering Chemistry – A Text Book by H. K. Chopra & A. Parmar, Narosa Publishing House, New Delhi.

COURSE CODE & NAME: ETDCAU205T / Environmental Science

COURSE OUTCOMES

1. Comprehend the importance of ecosystem and sustainable
2. Demonstrate interdisciplinary nature of environmental issues
3. Identify different types of environmental pollution and control measures.
4. Adopt cleaner productive technologies
5. Identify the role of non-conventional energy resources in environmental protection.
6. Analyse the impact of human activities on the environment

UNIT I:

Introduction to Environmental Studies: Multidisciplinary nature of environmental studies; Scope and importance; Concept of sustainability and sustainable development. Ecosystems: Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological pyramids. Nutrient cycle (carbon cycle, nitrogen cycle, Sulphur cycle, water cycle, oxygen cycle).

UNIT II:

Renewable and non-renewable energy resources, Land resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impact due to mining dam building on environment. Flood and drought.

UNIT III:

Environmental Pollution: air pollution, water pollution, thermal pollution, noise pollution, soil pollution; Solid Waste Management; Environmental Impact Assessment.

UNIT IV:

Biodiversity and Conservation: Levels of biological diversity: genetic, species and ecosystem diversity; hot spots; threats to biodiversity; Conservation of biodiversity: in-situ and ex -situ conservation of biodiversity.

UNIT V:

Impact of energy usage on environment: Global warming, Climate change, Depletion of ozone layer, Acid rain. Environmental ethics, Role of NGOs, Environmental Laws: Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection. Act. Forest Conservation Act.

TEXTBOOKS/ REFERENCE BOOKS

1. Environmental and Pollution Awareness by Sharma BR; Satya Prakashan, New Delhi.
2. Environmental Protection Law and Policy in India by Thakur Kailash; Deep and Deep Publications, New Delhi.
3. Environmental Pollution by Dr. RK Khitoliya; S Chand Publishing, New Delhi
4. Environmental Science by Deswal and Deswal; Dhanpat Rai and Co. (P) Ltd. Delhi.

COURSE CODE & NAME: Professional Proficiency/ PTSPDET23T

COURSE OUTCOMES

1. Better representation of himself/herself in terms of communication skills, overall personality development, and aptitude building required for jobs.
2. This program will help students become employable and ready for Industries/corporate and other Public and Private Sector jobs.

UNIT I:

Hard Skills: Transformation of sentences (from affirmative to negative) degree of Adjective ,Preposition,vocabulary.

The goal is to teach Grammar implicitly through reading comprehensions. A short story/paragraph should be given for the students to identify the parts of speech and the other topics mentioned above. The classes should be learner centric and the students should be able to apply the lessons learnt in their daily conversations.

UNIT II: Soft Skills:

Types of communication 7C's ascent, Tone,Etiquettes, Time management.

The aim should be to enable the students to express themselves in the language and gain proficiency and confidence in speaking the language. They should develop skills to be able to better present their ideas and openly express their thoughts and opinions. They should develop independent and critical thinking. They should be immersed in the language so thatthey are able to grasp it better.

UNIT III: Professional Training:

Management of work & Time , Introduction of different IT'S giants

UNIT IV: Quantitative Aptitude & Logical Reasoning

- **Analogy & classification**
- **Average**
- **LCM & HCF**

COURSE CODE & NAME: ETDCCS201P/ Programming and Problem Solving using C Language

COURSE OUTCOMES

1. Identify the problem and formulate an algorithm for it.
2. Identify various control structures and implement them.
3. Identify various types of variables.
4. Use pointer in an array and structure and use structures and union for handling data.
5. Explain the concepts of C programming language and implement the language constructs concepts
6. Install C software on the system and debug the programme. Explain and execute member functions of C in the programme
7. Describe and implement array concept and pointers in C programme
8. Expose File System using File Handling.

List of Experiments:

1. Programming exercises on executing and editing a C program.
2. Programming exercises on defining variables and assigning
3. Programming exercises on arithmetic, logical and relational operators.
4. Programming exercises on arithmetic expressions and their evaluation.
5. Programming exercises on formatting input/output using printf and scanf and their return type values.
6. Programming exercises using if statement.
7. Programming exercises using if – Else.
8. Programming exercises on switch statement.
9. Programming exercises on while and do – while statement.
10. Programming exercises on for – statement.
11. Simple programs using functions and recursive function.
12. Programs on one-dimensional array.
13. Programs on two-dimensional array.
14. (i) Programs for concatenation two strings together.
    (ii) Programs for comparing two strings.
15. Simple programs using pointers.
16. Simple programs using structures.
17. Simple programs using union.
18. Simple programs for File H

TEXTBOOKS/ REFERENCE BOOKS

1. Schum‟s Outline of Programming with C by Byron Gottfried, McGraw-Hill
2. The C programming by Kernighan Brain W. and Ritchie Dennis M., Pearson Education.
3. Computer Basics and C Programming by V.Rajaraman , PHI Learning Pvt. Limited, 2015.
4. Computer Concepts and Programming in C, R.S. Salaria, Khanna Publishing House

COURSE CODE & NAME: ETDCAS301T/ Mathematics-III

COURSE OUTCOMES

1. Understand matrix operations and uses of matrix in different problems. Apply elementary row and column operations in finding inverse of a matrix. Find Eigen values, Eigen vectors of a matrix and their different properties.
2. Understand the concept of partial differentiation. Application of Vector Differentiation and Integration
3. Understand degree/order of differential equations and their solution techniques. Use differential equations in engineering problems of different areas.
4. Find Fourier series expansion of a function. Apply Laplace transform and their applications in solving engineering problems.
5. Understand the concepts of probability distribution and their applications.

UNIT I:

Matrices

Algebra of Matrices,Types of Matrices,Determinant ofa matrix. DefinitionandComputationofinverseofamatrix. InverseandRankofamatrix by elementary transformation. computingrankthroughdeterminants, Linear dependence/independence of vectors,Consistencyof linear equations. Eigen Values, Eigen Vectors and Cayley-HamiltonTheorem (without Proof).

UNIT II:

Differential Calculus

Function of two variables, Partial Differentiation, Partial derivatives, Chain rule, Higher order derivatives, Euler's theorem for homogeneous functions, Jacobians. Vector function, differentiation and integration of vector functions, gradient, divergence and curl.

UNIT III:

Differential Equation

Formation of differential equations, Order and Degree of a differential equation, Linear and nonlinear differential equation. Methods for solving linear Differential Equations of first Order and first degree. Higher Order Linear differential equation with constant coefficients. Simple Applications of Ordinary Differential equation

UNIT IV:

Integral Calculus-II

Introduction to double and triple integral, Beta and Gamma Functions, Fourier Series, Laplace Transform, Definition, Basic theorem and properties, Unit step and Periodic functions, inverse laplace transform, Solution of ordinary differential equations.

UNIT V:

Probability and Statistics

Introduction, Addition and Multiplication theorem of probability and simple problem.

Discrete and continuous probability distribution, Binomial Distribution, Poisson distribution, Normal Distribution.

TEXTBOOKS/ REFERENCE BOOKS

1. Applied Mathematics-III by Chauhan and Chauhan, Krishna Publications, Meerut**.**
2. Applied Mathematics-III by Kailash Sinha and Varun Kumar; Aarti Publication, Meerut.
3. Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi
4. Engineering Mathematics, Vol I & II by SS Sastry, Prentice Hall of India Pvt. Ltd.

COURSE CODE & NAME: ETDCCS301T / Multimedia & Animation

COURSE OUTCOMES

1. Demonstrate knowledge of the fundamental requirement of Art and design.
2. Demonstrate basic graphics and web design techniques.
3. Explore the modelling and lighting concepts
4. Mastering the concepts of digital cinematography.
5. Understand the concept of various visual effects and compositing techniques.

UNIT I:

Introduction: Multimedia, Text, Images, Sound, Video, Animation.Elements of multimedia and their use.

UNIT II:

Multimedia Systems: Design Fundamentals, Back ground of Art, Color theory overview, Sketching & illustration, Storyboarding, different tools for animation.

UNIT III:

Multimedia Projects: Multimedia Skills, Hardware, Use of Graphics in Multimedia, Overview of Vector and Raster Graphics, Basic software tools, Multimedia Authoring Tools, Planning and Costing, Designing and Producing, Contents and talent, Delivering, Enhancing and Testing Multimedia Projects.

UNIT IV:

Tools of Multimedia: Paint and Draw Applications, Graphic effects and techniques, Image File Format, Antialiasing, Morphing, Multimedia Authoring tools, professional development tools.

UNIT V:

Animation: Principles of Animations, Elements of animation and their use, Power of Motion, Animation Techniques, Animation File Format, Making animation for Rolling Ball, making animation for a Bouncing Ball, Animation for the web, GIF, Plugins and Players, Animation tools for World Wide Web.

TEXTBOOKS/ REFERENCE BOOKS

1. Vaughan T., “Multimedia, Making IT Work”,Tata McGraw Hill.
2. KoegelBuford J.F., “Multimedia Systems”, Addison Wesley.
3. Li Ze-Nian andDrewMark S., “Fundamentals of Multimedia”, Pearson Education.
4. AndleighP. K. and Thakrar K., “Multimedia Systems Design”, PHI Learning Private Limited, Delhi India.
5. Elsom-Cook M., “Principles of Interactive Multimedia”,Tata McGraw Hill.

COURSE CODE & NAME: ETDCCS302T/ Internet and Web Technology

COURSE OUTCOMES

1. The course provides students with an understanding of the importance of technology on which organizations depend**.**
2. Students examine how information systems functions contribute to an organization's competitiveness and improve decision-making process.
3. They explore complex issues related to technology and how they can be managed.
4. Topics encompass, Project Management, Product Innovation, and Change Management.

UNIT I:

Introduction to Web and Hyper Text Markup Language: Internet, Intranet, WWW, Static and Dynamic Web Page; Web Clients; Web Servers; Client Server Architecture: Single Tier, Two-Tier, Multi-Tier; HTTP: HTTP Request and Response; URL, Client Side Scripting, Server Side Scripting, Web 1.0, Web 2.0.

UNIT II:

Introduction to HTML; Elements of HTML Document; HTML Elements and HTML Attributes, Headings, Paragraph, Division, Formatting: b, i, small, sup, sub; Spacing: Pre, Br; Formatting Text Phrases: span, strong, tt; Image element; Anchors; Lists: Ordered and Unordered and Definition; Tables; Frames; Forms: Form Elements, ID attributes, Class Attributes of HTML Elements; Meta Tag, Audio, Video, Canvas, Main, Section, Article, Header, Footer, Aside, Nav, Figure Tags; HTML Events: Window Events, Form Element Events, Keyboard Events, Mouse Events.

UNIT III:

Cascading Style Sheets: Introduction; Cascading Style Sheets (CSS); CSS Syntax; Inserting CSS: Inline, Internal, External, ID and Class Selectors; Colors; Backgrounds; Borders; Text; Font; List; Table; CSS Box Model; Normal Flow Box Layout: Basic Box Layout, Display Property, Padding, Margin; Positioning: Relative, Float, Absolute; CSS3 Borders, Box Shadows, Text Effects and shadow; Basics of Responsive Web Designs; Media Queries, Introduction to Bootstrap

UNIT IV:

Client Side Scripting with JavaScript: Structure of JavaScript Program; Variables and Data Types; Statements: Expression, Keyword, Block; Operators; Flow Controls, Looping, Functions; Popup Boxes: Alert, Confirm, Prompt; Objects and properties; Constructors; Arrays; Built-in Objects: Window, String, Number, Boolean, Date, Math, RegExp, Form, DOM; User Defined Objects

UNIT V:

Server Side Scripting using PHP:

PHP Syntax, Variables, Data Types , Strings, Constants, Operators, Control structure, Functions, Array, Creating Class and Objects, PHP Forms, Accessing Form Elements, Form Validation, Events, Cookies and Sessions.

TEXTBOOKS/ REFERENCE BOOKS

1. Web Enabled Commercial Application Development using HTML, JavaScript, DHTML and PHP' by Ivan Bayross, 4th Edition, BPB Publications.
2. Learning web designing: a beginner's guide to HTML, CSS, JavaScript,and web graphics' by Niederst Robbins, 4th Edition, Oreilly Publication
3. Web Enabled Commercial Application Development using HTML, JavaScript, DHTML and PHP' by Ivan Bayross, 4th Edition, BPB Publications.
4. The Complete Reference HTML & XHTML' by Thomas Powell, 5th Edition, Tata McGraw-Hill Company Limited.
5. HTML 4.0' by E. Stephen Mack, Janan Platt, Anaya Multimedia publication.
6. Mastering HTML, CSS & JAVAScript Web Publishing' by Laura Lemay, Rafe Coburn, Jennifer Kyrnin, 7th edition, SAMS publication.

COURSE CODE & NAME: ETDCCS303T/Data Communication and Computer Networks

COURSE OUTCOMES

1. Understand the terminology and concepts of the OSI reference model and the TCP/IP reference model.
2. Apply the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.

UNIT I:

Introduction Concepts: Goals and Applications of Networks, Network structure and architecture, The OSI reference model, services, Network Topology Design,

Physical Layer: Transmission Media, Line coding scheme, switching methods (circuit switching, Packet switching), TDM.

UNIT II:

Data link layer: Design issues, framing, Error detection and correction. Elementary data link protocols: simplex protocol, A simplex stop and wait protocol for an error-free channel, A simplex stop and wait protocol for noisy channel. Sliding Window protocols: A one-bit sliding window protocol, A protocol using Go-Back-N, A protocol using Selective Repeat, Example data link protocols. Brief introduction to Medium Access sub layer

UNIT III:

Network Layer: Design issues, Routing algorithms: shortest path routing, Flooding, Hierarchical routing, Broadcast, Multicast, distance vector routing, Congestion Control Algorithms, Quality of Service

UNIT IV:

Transport Layer: Transport service, elements of transport protocol, Simple Transport Protocol, Internet transport layer protocols: UDP and TCP.

UNIT V:

Application Layer: Domain name system, electronic mail, World Wide Web: architectural overview, http and https. Application Layer Protocols: Simple Network Management Protocol, File Transfer Protocol, Simple Mail Transfer Protocol, Telnet

TEXTBOOKS/ REFERENCE BOOKS

1. A. S. Tanenbaum (2003), Computer Networks, 4th edition, Pearson Education/ PHI, New Delhi, India.
2. Behrouz A. Forouzan (2006), Data communication and Networking, 4th Edition, Mc Graw-Hill, India.
3. Kurose, Ross (2010), Computer Networking: A top down approach, Pearson Education, India.

COURSE CODE & NAME: ETDCCS304T/ Data Structure using C

COURSE OUTCOMES

1. Understanding Data Structures: Students will gain a comprehensive understanding of fundamental data structure concepts, including basic terminology, elementary data organization, algorithms, and the efficiency of algorithms.
2. Implementation and Analysis of Arrays: Students will learn about arrays, their definitions, and representations (row major order and column major order). They will be able to apply arrays effectively and explore their usage in handling sparse matrices.
3. Linked List Manipulation: Students will be proficient in dynamically implementing singly linked lists, doubly linked lists, and circularly linked lists. They will learn how to perform various operations such as insertion, deletion, and traversal, as well as applications like polynomial representation and addition.
4. Stacks and Recursion: Students will be skilled in utilizing stacks and understanding primitive stack operations. They will learn both array and linked implementations of stacks in C. Additionally, they will explore applications of stacks, such as evaluating postfix expressions and solving the Tower of Hanoi problem.
5. Graphs and Graph Traversal: Students will acquire knowledge about graphs, their representations (adjacency matrices, adjacency list, and adjacency multi-lists), and terminologies. They will be proficient in graph traversal techniques, such as Depth-First Search (DFS) and Breadth-First Search (BFS). They will also understand connected components, spanning trees, and algorithms like Prim's and Kruskal's for minimum cost spanning trees.

UNIT I:

Introduction to Data Structure: **Introduction: Basic Terminology, Elementary Data Organization, Algorithm, Efficiency of an Algorithm, Abstract Data Types (ADT)**

Arrays: Definition, Single and Multidimensional Arrays, Representation of Arrays: Row Major Order, and Column Major Order, Application of arrays, Sparse Matrices and their representations.

UNIT II:

Linked lists: Dynamic Implementation of Singly Linked Lists, Doubly Linked List, Circularly Linked List, Operations on a Linked List. Insertion, Deletion, Traversal, Polynomial Representation and Addition, Generalized Linked List.

UNIT III:

Stacks: Primitive Stack operations: Push & Pop, Array and Linked Implementation of Stack in C, **Application of stack:** Prefix and Postfix Expressions, Evaluation of postfix expression, Recursion, Tower of Hanoi Problem

Operations on Queue: Create, Add, Delete, Full and Empty, Circular queues, Array and linked implementation of queues in C

UNIT IV:

Graphs: Terminology, Sequential and linked Representations of Graphs: Adjacency Matrices, Adjacency List, Adjacency Multi list, Graph Traversal: Depth First Search and Breadth First Search, Connected Component, Spanning Trees, Minimum Cost Spanning Trees: Prims and Kruskal algorithm.

Trees: Basic terminology, Binary Trees, Binary Tree Representation: Array Representation and Dynamic Representation, Complete Binary Tree, Algebraic Expressions, Array and Linked Representation of Binary trees, Tree Traversal algorithms: Inorder, Preorder and Postorder.

UNIT V:

Searching: Sequential search, Binary Search, Comparison of searching algorithms

Sorting: Insertion Sort, Selection, Bubble Sort, Quick Sort, Merge Sort

TEXTBOOKS/ REFERENCE BOOKS

1. Aaron M. Tenenbaum, Yedidyah Langsam and Moshe J. Augenstein, "Data Structures Using C and C++", PHI Learning Private Limited, Delhi India
2. Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.
3. Lipschutz, "Data Structures" Schaum's Outline Series, Tata McGraw-hill Education (India) Pvt. Ltd.
4. Thareja, "Data Structure Using C" Oxford Higher Education.

COURSE CODE & NAME: ETDCEC301T/ Digital Electronics

COURSE OUTCOMES

1. Design and analyse combinational logic circuits.
2. Design and analyse modular combinational circuits with MUX / DEMUX, Decoder &Encoder

UNIT I:

Introduction to Semiconductors end PN Junction Diode: Properties of semiconductors, Intrinsic and extrinsic semiconductors, P and N type of impurities and doping, Charge densities and potential barrier, Draft and diffusion currents, PN junction work tug and characteristics, It's applications as Rectifier: Half wave, Full wave. Bridge Rectifier and their calculation for ripple, Efficiency and PIV; Clipper, Clamper and voltage doublets. Zener and Avalanche breakdown diodes, Tunnel diode, Varactor diode.

UNIT II:

Number system and Logic Gates: Introduction of number systems, Radix, Radix Interco versions. Radix Complement, Diminished radix complement .Basic theorem of Boolean algebra. Boolean function and minimization, Karnaugh map, combinational circuits and their analysis. Universal Gates, Realization of Primary gates using Universal gates only.

UNIT III:

Combinational logic circuits: Binary adder and Subtractor circuits, Magnitude comparator, Decoders, Encoders, Multiplexer and demultiplexer, Realization of switching expressions by decoders, encoders, multiplexer and Demultiplexer, Programmable logic circuits, Tri-state logic, Memory Elements

UNIT IV:

Sequential Logic Circuits: Sequential circuits, latches and Flip Flops. Analysis of clocked sequential circuits. State reduction and assignment, design of synchronous circuits, shift registers,

UNIT V:

Digital Integrated Circuits: Characteristics of digital ICs, Introduction to logic families-RTL, DTL, TTL, ECL. MOS and CMOS circuits and comparison

TEXTBOOKS/ REFERENCE BOOKS

1. Digital Design: M. Morris Mario (PHI)
2. Digital circuits & logic design: S. C. Lee (PHI)
3. Digital electronics: W. H. Gothmann (PHI)
4. Switching theory: A. K. Gautam (Katsons)
5. R.P. Jain, "Modern Digital Electronics," Tata McGraw Hill, 4th edition, 2009.
6. A. Anand Kumar, "Fundamental of Digital Circuits," PHI 4th edition, 2018.
7. W. H. Gothmann, "Digital Electronics- An Introduction to Theory and practice," PHI, 2Nd edition, 2006.
8. D.V. Hall, "Digital Circuits and Systems," Tata McGraw Hill, 1989.
9. A. K. Singh, "Foundation of Digital Electronics & Logic Design," New Age Int. Publishers.
10. Subrata Ghosal, "Digital Electronics," Cengage publication, 2nd edition, 2018

COURSE CODE & NAME: PTSPDET31T/ Professional Proficiency

COURSE OUTCOMES

1. Better representation of himself/herself in terms of communication skills, overall personality development, and aptitude building required for jobs.
2. This program will help students become employable and ready for Industries/corporate and other Public and Private Sector jobs.

Unit	Content	Hours
	Idioms & Phrases, modal verbs Phrasal verb , para jumble, spot the error ,sentence - making using idioms & phrasal verb, focussing on legal study.	15
Hard Skills	The goal is to teach Grammar implicitly through reading comprehensions. A short story/paragraph should be given for the students to identify the parts of speech and the other topics mentioned above. The classes should be learner centric and the students should be able to apply the lessons learnt in their daily conversations. Presentation, type and deliverance, stress management, team work, motivating skills, dressing etiquettes	
Soft Skills	The aim should be to enable the students to express themselves in the language and gain proficiency and confidence in speaking the language. They should develop skills to be able to better present their ideas and openly express their thoughts and opinions. They should develop independent and critical thinking. They should be immersed in the language so that they are able to grasp it better.	**10**
	Quantitative Aptitude & Logical Reasoning ● Blood Relation ● Direction and Distance ● Percentage ● Inequality ● Practice sheet having 25 question cover all topic till III semester to be distributed every week	20

COURSE CODE & NAME: ETDCCS401T/Database Management

COURSE OUTCOMES

1. Understand the basic concepts and the applications of database systems. The course emphasizes the
2. understanding of the fundamentals of relational systems including data models, database architectures,
3. Database Design, Normalization and database manipulations.
4. Master the basics of SQL and construct queries using SQL.
5. Familiar with the basic issues of transaction processing and concurrency control

UNIT I:

Databases and Database Users: Introduction, Characteristics of the Database Approach, Actors on the Scene, Workers behind the scene, Advantages of the using the DBMS Approach.
Database System Concepts and Architecture: Data Models, Schemas and Instances, Three Schema architecture and Data Independence, Database Languages and Interfaces, Centralized and Client/Server Architecture for DBMS, Classification of Database Management Systems.

UNIT II:

Data Modeling Using the ER Model: Conceptual Data models, Entity Types, Entity Sets, Attributes and Keys, Relationship types, Relationship sets, roles and structural Constraints, Weak Entity types, Relationship Types of Degree Higher than Two, Refining the ER Design for the COMPANY Database. Specialization and Generalization

UNIT III:

Database Design & Normalizations: Informal Design Guidelines for Relation Schemas, Functional dependencies, Normal Forms Based on Primary Keys, General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form.

UNIT IV:

Database Implementations: Introduction to SQL, DDL aspect of SQL, DML aspect of SQL update, insert, delete & various form of SELECT- simple, using special operators, aggregate functions, group by clause, sub query, joins, co-related sub query, union clause

UNIT V:

Transaction & Concurrency Control: Transaction Concepts, transaction states, Transaction properties, Serializability, Testing of Serializability. Need of Concurrency Control, Need of Recovery, Lock Based Protocol, Two Phase locking protocol.

TEXTBOOKS/ REFERENCE BOOKS

1. Elmasri, Navathe, “Fundamentals Of Database Systems”, Pearson Education New Delhi India.
2. Date C J, “An Introduction To Database System”, Addision Wesley
3. Korth, Silbertz, Sudarshan, “Database Concepts”, Tata Mcgraw-hill Education (India) Pvt. Ltd.

COURSE CODE & NAME: ETDCCS402T/ Computer Programming using Python

COURSE OUTCOMES

1. Understanding basic programming skills using Python programming language.
2. Understanding the notion of data types and complex data types such as lists, tuples etc.
3. Understanding the concept of decision making and iterative control structure in python.
4. Understanding the concepts of functions and file handling in Python

UNIT I:

Introduction to Python Language: Introduction to Python: Python variables, Python basic Operators, Understanding python blocks. Python Data Types, Declaring and using Numeric data types: int, float etc.

UNIT II:

Control Structures: Python Program Flow Control Conditional blocks: if, else and else if, Simple for loops in python, For loop using ranges, string, list and dictionaries. Use of while loops in python, Loop manipulation using pass, continue, break and else. Programming using Python conditional and loop blocks.

UNIT III:

Strings, Lists, Tuples and Dictionaries,: Python Complex data types: Using string data type and string operations, Defining list and list slicing, Use of Tuple data type. String, List and Dictionary, Manipulations Building blocks of python programs, string manipulation methods, List manipulation. Dictionary manipulation, Programming using string, list and dictionary in-built functions. Python Functions, Organizing python codes using functions.

UNIT IV:

Functions & Modules: Defining a function, Calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables. Importing module, Math module, Packages and their composition

UNIT V:

File Handling: Python File Operations: Reading files, Writing files in python, Understanding read functions, read(), readline(), readlines(). Understanding write functions, write() and writelines() Manipulating file pointer using seek Programming, using file operations.

COURSE CODE & NAME: ETDCCS403T/ Fundamentals of Operating Systems

COURSE OUTCOMES

UNIT I:

Introduction: Definition and types of operating system, Evolution, Batch Processing System, Multiprogramming, Time Sharing, Parallel System, Real Time System, Distributed System, Network System, Operating System Structure, Components of Operating System, services, functions, System Calls, System programs, Kernel and its types, Virtual Machines

UNIT II:

Process Management: Concept of Process, process queues, process Scheduling, Cooperating Process, Threads, Inter-Process Communication, CPU scheduling Criteria, Scheduling algorithms, Multiple Processor Scheduling, Real Time Scheduling, Algorithm Evaluation.

UNIT III:

Process Synchronization and Deadlock: The Critical Section Problem, Synchronization Hardware, Semaphores, Monitors, Classical Problems of Synchronization, Critical Region, Deadlock System Model, Characterization, Deadlock Prevention, Detection and Avoidance, Recovery from Deadlock, Combined approach to handle Deadlock, Banker's Algorithm

UNIT IV:

Memory Management: Logical and Physical Address Space, Swapping, Contiguous Allocation, Dynamic Memory Allocation, Fragmentation, Memory Freeing, Virtual Memory Concepts and Its Implementation, Demand Paging and its Performance, Page Replacement Algorithms, Allocation of Frames, Thrashing, Page size and other consideration, Demand Segmentation.

UNIT V:

File Management and Security: File System, Secondary Storage structure, Concept of File, Access Methods, Directory Implementation, Efficiency and Performance, Recovery**Security:** Safeguards, Penetration, Access and Information Flow control, Protection Problems, Formal Model of Protection

TEXTBOOKS/ REFERENCE BOOKS

1. A. Silberschatz, P. B. Galvin, and G. Gagne, Operating System Principles, 9/e, John Wiley, 2013.
2. A. S. Tanenbaum, Modern Operating Systems, 4/e, Pearson Education, 2017.
3. G. J. Nutt, Operating Systems - A Modern Perspective, 3/e, Pearson Education, 2009.
4. W. Stallings, Operating Systems: Internals and design Principles, 7/e, Pearson Education, 2012.

COURSE CODE & NAME: ETDCCS404T/ Computer Architecture and Hardware Maintenance

COURSE OUTCOMES

1. Comprehensive Understanding of Computer Systems: Students will develop a thorough understanding of the structure and components of digital computer systems, including the Von Neumann architecture.
2. Proficiency in Data Representation and Arithmetic Operations: Students will become proficient in representing numbers in different number systems and understand the significance of complements.
3. Familiarity with CPU Organization and Instruction Formats: Students will gain insight into the organization of the central processing unit (CPU) and its general register organization. They will understand the role of the stack in CPU operations and become skilled in interpreting and working with different instruction formats.

UNIT I:

Introduction and Hardware Organisation: Structure of Digital Computer System, Von Neumann Computers, Basic Organization of a Computer, Historical Perspective, Performance Benchmarking.

UNIT II:

Data Representation and Arithmetic Operations: Number System, Complements: (r-1)'s complement, (r's) complement, Fixed point representation, Floating point representation, IEEE754 representation,

Arithmetic Operations: Addition, Subtraction, Multiplication and Division algorithm.

UNIT III:

Central Processing Unit: General Register organization, Stack Organization, Instruction Formats,

Addressing Modes: Immediate, Register, Direct, Indirect, Relative, Indexed.

UNIT IV:

Input-Output Organization: Peripheral Devices, Input Output Interface, Asynchronous Data Transfer, Modes of Transfer.

UNIT V:

Memory Organization: Characteristics of Memory Systems, Classification of Memory, Memory Hierarchy, Performance Considerations, Cache Memory with mapping, Virtual memory.

TEXTBOOKS/ REFERENCE BOOKS

1. Computer Organization and Design: The Hardware/Software Interface, David A Patterson, John L.Hennessy, 4th Edition, Morgan Kaufmann, 2009
2. Computer Architecture and Organization by William Stallings, PHI Pvt. Ltd., Eastern Economy Edition,Sixth Edition, 2003

3. Structured Computer Organization by Andrew S Tanenbaum, PHI/Pearson, 4th Edition
4. Computer Organization by V Carl Hamacher, Zvonks Vranesic, SafeaZaky, McGraw Hill, Vth Edition
5. Computer System Architecture by M Morris Mano, Prentice Hall of India, 2001
6. Computer Architecture and Organization by John P Hayes, 3rd Ed. McGraw Hill, 2002.
7. Computer Organization and Architecture by V. Rajaraman, T Radhakrishnan, PHI

COURSE CODE & NAME: ETDCCS405/ Introduction to Software Engineering

COURSE OUTCOMES

1. Apply the principles of engineering processes in software development.
2. Demonstrate software project management activities such as planning, scheduling, and estimation.
3. Model the requirements for the software projects.
4. Design and test the requirements of the software projects.
5. Implement the software development processes activities from requirements to validation and verification.
6. Apply and evaluate the standards in process and in the product

UNIT I:

Introduction: Introduction and overview of Software Engineering, Software Crisis, Scope and necessity of software engineering, Software Engineering Processes, Software Development Life Cycle (SDLC) model: Water Fall Model, Prototype Model, Spiral Model.

UNIT II:

Software Requirement Analysis & Specification: Requirement Engineering, Problem Analysis: Data Flow Diagram, Data Dictionaries, ER Diagram, Approaches to Problem Analysis, SRS Document. Software Quality Assurance (SQA): Verification and Validation.

UNIT III:

System Design: Conceptual and Technical Design, Objectives of Design, Modularization, Design Structure Charts, Pseudo Codes, Flow Charts, Coupling and Cohesion Measures, Design Strategies: Function versus Object Oriented Design, Top-Down, and Bottom-Up Design.

UNIT IV:

Software Testing: Software verification & validation, Strategic Approach to Software Testing, Testing Fundamentals Test Plan, Test Design, Test Execution, Reviews, Inspection Auditing, Alpha and Beta Testing of Products.

UNIT V:

Software Maintenance and Software Project Management: Software Maintenance, Types of Maintenance, Overview of RE-engineering Reverse Engineering, Software Configuration Management.

TEXTBOOKS/ REFERENCE BOOKS

1. Roger Pressman, Software Engineering: A Practitioner's Approach, 7th Edition, McGraw Hill
2. Ian Sommerville, Software Engineering, 9th Edition, Addision-Wesley, 2016
3. PankajJalote, A Concise Introduction to Software Engineering, Springer, 2008
4. William E. Lewis , Software Testing and Continuous Quality Improvement, Third Edition, Auerbach Publications, 2008

COURSE CODE & NAME: ETDCAS401T/ Industrial Management and Entrepreneurship Development

COURSE OUTCOMES

1. Understand the basic concept of entrepreneurship
2. Understand Challenges before entrepreneurship in modern era
3. Understand how to start new venture
4. Introduction to life Skills
5. Understand various Types of skill

UNIT I:

The World of Entrepreneurship: Definition, Evolution & Concept of Entrepreneurship, The nature and Importance of Entrepreneurship, Entrepreneurial Environment, The Benefits and Drawbacks of Entrepreneurship Failure, The Individual Entrepreneurial Mind-Set and Personality. Who is an Entrepreneur Examples, Characteristics of Successful Entrepreneurs.

UNIT II:

Importance, Functions, Qualities and Types. Advantages of Becoming an Entrepreneur. Challenges Before Entrepreneurship in the Modern era. Factors Motivating Entrepreneurship, Obstacles in Entrepreneurship.

UNIT III:

Starting New Venture, Idea Generation- Meaning of Idea Generation, Methods of Idea Generation- Brainstorming and Creativity. Start-ups-Needs and Relevance to the Society. Difference Between Start-ups and Entrepreneurship. Major Successful Start-ups of last Decade. Reason of Major Failures of Start-ups. Important Government Incentives and Schemes for the Development of Start-ups. Marketing Lessons from Successful Entrepreneurs such as JRD Tata- Tata, Dharu Bhai Ambani- Reliance, Bill Gates- Microsoft Steve Jobs- Apple etc.

UNIT IV:

Basic Concept and Awareness of Skill Development. Skill development-Necessity, Relevance, and Impact on the Society. Skill Development and job Opportunities. Skill Development in India: Issues and challenges. Impact of Skill Development on Indian Rural Economy.

UNIT V:

Skill Development: - Unfolding, Polishing, and Sharpening of skills. Skill learning, Analysis, and Assessment. Major Elementary Skills. Major skills Needed for Micro and Small-Scale Industries.
Skills involving High Technologies Relevant to Engineering and other Professions. Importance of Developing Innovative skills Relevant to Engineering. Skill Development Creating Job Opportunities in Rural India.

TEXTBOOKS/ REFERENCE BOOKS

1. Dynamics of Entrepreneurial Development & Management - By Vasant Desai.
2. Udyojakata - By Prabhakat Deshmukh

3. Entrepreneurship Development in India - By C.B. Gupta & N.P. Shrinivasan
4. Project preparation Appraisal, implementation - By Prasanna Chandra
5. Entrepreneurship and small Business management - By Shukla M. B

COURSE CODE & NAME: PTSPDET41T/ Professional Proficiency

COURSE OUTCOMES

1. Better representation of himself/herself in terms of communication skills, overall personality development, and aptitude building required for jobs.
2. This program will help students become employable and ready for Industries/corporate and other Public and Private Sector jobs.

Unit	Content	Hours
	Revision of basic grammar, cloze test, comprehension (passage from case study), sentence correction .	15
Hard Skills	The goal is to teach Grammar implicitly through reading comprehensions. A short story/paragraph should be given for the students to identify the parts of speech and the other topics mentioned above. The classes should be learner centric and the students should be able to apply the lessons learnt in their daily conversations. Listening & reading skills, leadership, decision making, presentation in court (body language , dressing sense, use of formal language.	
Soft Skills	The aim should be to enable the students to express themselves in the language and gain proficiency and confidence in speaking the language. They should develop skills to be able to better present their ideas and openly express their thoughts and opinions. They should develop independent and critical thinking. They should be immersed in the language so that they are able to grasp it better.	10
3.	Quantitative Aptitude & Logical Reasoning ● Order and Ranking ● Ratio and Proportion ● Time and Work ● Practice sheet having 25 question cover all topic till IV semester to be distributed every week	20

COURSE CODE & NAME: ETDCC5501T/Web development using Python

COURSE OUTCOMES

1. Students will demonstrate a strong understanding of PHP programming concepts, including basic syntax, variables, constants, data types, operators, and expressions. They will be able to write PHP code to perform various operations and manipulate data effectively.
2. Upon completion of the course, students will be proficient in implementing decision-making structures and loop constructs in PHP. They will be able to design and develop algorithms to solve real-world problems, making informed decisions and performing repetitive tasks with ease.
3. Students will showcase their ability to create and work with functions in PHP. They will understand the concepts of call by value and call by reference, and they will be able to write recursive functions for solving complex problems. Additionally, students will be skilled in string manipulation using PHP string functions.
4. Upon successful completion of the course, students will have a strong grasp of arrays in PHP. They will be able to create and work with both indexed and associative arrays efficiently. Students will demonstrate competence in using loops to access and manipulate array elements effectively.
5. By the end of the course, students will be capable of integrating PHP with HTML forms and handling form submissions. They will demonstrate proficiency in capturing form data, dealing with multi-value fields, and implementing file uploading and downloading functionalities.

UNIT I:

Introduction to PHP (Hypertext Pre-processor): Basic Syntax, Variables, Constants, Data Types: strings, integers, floats, Booleans, arrays, etc.; Operators, and Expressions

UNIT II:

Decisions and Loops: Conditional Constructs- if, else, elseif, switch.

Loops- for, while, do-while, and for each. Embedding PHP code with HTML to mix logic and presentation.

Functions: function keyword, call by value and call by reference parameter passing. Recursive functions, String functions in PHP for string manipulation.

UNIT III:

Arrays: indexed arrays, associative arrays (key-value pairs), functions to work with arrays

Handling HTML Form with PHP: capture form data using $_POST or $_GET super globals. Dealing with multi-value fields (checkboxes, multiple selects) and handle file uploads from forms

UNIT IV:

Working with Files and Directories: open, close, copy, rename, and delete files; create and delete folders; file uploading and downloading functionality.

Session and Cookie: Concept of sessions, cookies. Handling cookies to manage sessions.

UNIT V:

Database Connectivity with MySQL: connecting PHP to MySQL databases, insert, delete, update, join and select data from the database.

Exception Handling: Handling errors and exceptions in code using try, catch, and throw.

TEXTBOOKS/ REFERENCE BOOKS

1. "PHP and MySQL Web Development" by Luke Welling and Laura Thomson:
2. "Learning PHP, MySQL & JavaScript" by Robin Nixon
3. "Modern PHP: New Features and Good Practices" by Josh Lockhart:
4. "PHP Objects, Patterns, and Practice" by Matt Zandstra
5. "Head First PHP & MySQL" by Lynn Beighley and Michael Morrison

COURSE CODE & NAME: ETDCCS502T/ Object Oriented Programming

COURSE OUTCOMES

1. Understand the concepts & principles of OOPs. Ability to develop Object oriented programs in java.
2. Understand the concept of package, interface and handling the exceptions, multithreading in Java, & Java applets.
3. To implement the GUI using AWT, Swings and event handling, concepts of networking and database access using JDBC.
4. To understand the concepts of RMI & Java Beans.

UNIT I:

OOPS concept & Java Language Basics: Object oriented approach. Basic terms and ideas Abstraction, Encapsulation. Inheritance & Polymorphism. Structured vs. Object Oriented Programming. Benefits of Object oriented programming.

Introduction To Java: Basic features, Java Virtual Machine Concepts, java environment. Primitive data types, tokens, variables constants & Java keywords. Java Operators. Java program structure. A simple Java program. Expressions, Statements, Control Statements, Selection Statements, Iterative Statements, Jump Statements. Arrays, Vector. String handling & wrapper classes.

UNIT II:

OOP Package & Multithreading: Classes and Methods- Implementing & designing classes, constructors, polymorphism & inheritance. Interfaces. Interface: defining Interface, Extending Interface, implementing Interface & Accessing Interface Variable Package: System packages, using system package, import. Adding a class to a package, Hiding classes.

UNIT III:

Exception Handling: Concepts of Exceptions, types of exceptions, try; catch & finally keywords, throwing exceptions & nested try and catch. Multithreaded Programming: Life cycle of a Thread, creating Threads, extending Threads class, Stopping& blocking a thread, using thread methods, thread exceptions, thread priority, and synchronization.

UNIT IV:

Graphics & GUI: Working with Windows Graphics and Text. Using AWT Controls, Layout Managers, Event Handling & Menus. Swing based GUI

UNIT V:

JDBC: JDBC- Overview, JDBC implementation, Connection class & Statements. Catching Database Results, handling database Queries.

TEXTBOOKS/ REFERENCE BOOKS

1. E. Balagunisamy. “Programming in Java”, TMH Publications.
2. Java The Complete Reference, Herbert Schildt 7th Edition. Tata McGraw- Hill Edition.
3. S. Horstmann, Gary Cornell – “Core Java 2 Volume II – Advanced Features” Addison Wesley.

COURSE CODE & NAME: ETDCCS501P/ Web Development using PHP

COURSE OUTCOMES

1. Students will demonstrate a strong understanding of PHP programming concepts, including basic syntax, variables, constants, data types, operators, and expressions. They will be able to write PHP code to perform various operations and manipulate data effectively.
2. Upon completion of the course, students will be proficient in implementing decision-making structures and loop constructs in PHP. They will be able to design and develop algorithms to solve real-world problems, making informed decisions and performing repetitive tasks with ease.
3. Students will showcase their ability to create and work with functions in PHP. They will understand the concepts of call by value and call by reference, and they will be able to write recursive functions for solving complex problems. Additionally, students will be skilled in string manipulation using PHP string functions.
4. Upon successful completion of the course, students will have a strong grasp of arrays in PHP. They will be able to create and work with both indexed and associative arrays efficiently. Students will demonstrate competence in using loops to access and manipulate array elements effectively.
5. By the end of the course, students will be capable of integrating PHP with HTML forms and handling form submissions. They will demonstrate proficiency in capturing form data, dealing with multi-value fields, and implementing file uploading and downloading functionalities.

List of Experiments:

1. Basic PHP Syntax and Variables:
    a. Write a PHP script to print "Hello, World!" on the web page.
    b. Create a PHP program to calculate and display the area of a circle given the radius as a variable.
2. Decision-making and Looping:
    a. Write a PHP script that determines whether a given number is even or odd using if-else statements.
    b. Implement a PHP program to display the first 10 even numbers using a for loop.
3. Functions and String Manipulation:
    a. Create a PHP function to check if a given string is a palindrome (reads the same backward as forward).
    b. Write a PHP script that takes a string as input and counts the number of vowels using a custom function.
4. Array Manipulation:
    a. Write a PHP program to find the sum and average of an array of numbers.
    b. Implement a PHP script to search for a specific element in an associative array and display its value.
5. Handling HTML Forms with PHP:
    a. Create a PHP form that takes user input for a username and password and validates them against predefined values.
    b. Build a file upload form that allows users to upload an image and displays the uploaded image on the web page.
6. File and Directory Operations:
    a. Write a PHP program to read the contents of a text file and display them on the web page.

   b. Create a PHP script that copies and renames a file from one directory to another.
7. Sessions and Cookies:
   a. Implement a PHP login system using sessions and cookies. Validate the user's credentials and allow access to a restricted area.
   b. Create a PHP program that uses cookies to remember and display a user's last visited page.
8. Database Connectivity with MySQL:
   a. Set up a MySQL database and establish a connection to it using PHP.
   b. Create a PHP program to insert user data into a database table and retrieve and display it on a web page.
9. Exception Handling:
   a. Write a PHP script that demonstrates exception handling by attempting to divide a number by zero and catching the exception.
   b. Implement a PHP program that reads data from a non-existing file and handles the file-not-found exception.
10. Integration of PHP and JavaScript:
   a. Create a PHP form that uses JavaScript validation to ensure all required fields are filled before submission.
   b. Develop a PHP and JavaScript-based quiz application that displays questions one by one and provides a final score at the end.

COURSE CODE & NAME: ETDCCS502P/Object Oriented Programming

COURSE OUTCOMES

1. Understand the concepts & principles of OOPs. Ability to develop Object oriented programs in java.
2. Understand the concept of package, interface and handling the exceptions, multithreading in Java, & Java applets.
3. To implement the GUI using AWT, Swings and event handling, concepts of networking and database access using JDBC.
4. To understand the concepts of RMI & Java Beans.

LIST OF EXPERIMENTS

1. To write programs to illustrate the uses of decision control structures: if, nested if, switch case etc.
2. To write programs to illustrate the uses of loop control structures: do, while, for etc.
3. To write programs to illustrate the uses of array, Vector & String.
4. To write programs to illustrate the uses of creating and working with class and object.
5. To write programs to illustrate the uses of OOPs concepts: data abstraction, data hiding, encapsulation, inheritance & polymorphism (method overloading and overriding).
6. To write programs to illustrate the uses of Interfaces and packages.
7. To write programs using Multithreading & exceptions handling mechanism.
8. To write GUI programs using AWT controls.
9. To write GUI programs to implement various layouts
10. To write GUI programs to handle mouse & key events.
11. To write programs to retrieve data from data base using JDBC drivers.

TEXTBOOKS/ REFERENCE BOOKS

1. E. Balagunisamy. “Programming in Java”, TMH Publications.
2. Java The Complete Reference, Herbert Schildt 7th Edition. Tata McGraw- Hill Edition.
3. S. Horstmann, Gary Cornell – “Core Java 2 Volume II – Advanced Features” Addison Wesley.

COURSE CODE & NAME: ETDCCS601T/ E-Commerce and Digital Marketing

COURSE OUTCOMES

1. Understand the Fundamentals of E-commerce: Students will gain a comprehensive understanding of e-commerce, its meaning, and its significance in the modern business landscape.
2. Explore Different Business Models of E-commerce: Students will learn about various e-commerce business models, including Business to Business (B2B), Business to Customers (B2C), Customers to Customers (C2C), Business to Government (B2G), and Business to Employee (B2E).
3. Comprehend Marketing and Digital Marketing: Students will be introduced to marketing concepts and understand the difference between sales and marketing. They will explore the nature, scope, and importance of marketing in the context of e-commerce.
4. Learn Market Segmentation and Marketing Strategies: Students will understand the importance of market segmentation and explore different bases for segmenting markets. They will study market targeting strategies and the design and management of marketing channels.
5. Develop Understanding of Electronic Payment Systems and Legal/Ethical Issues: Students will learn about various online payment systems, such as prepaid and postpaid systems, e-cash, e-cheque, smart cards, credit cards, debit cards, and electronic purses.

UNIT I:

Introduction to E–commerce: Meaning and concept, E– commerce v/s Traditional Commerce, E– Business & E– Commerce, History of E– Commerce, EDI, Importance, features & benefits of E– Commerce, Impacts, Challenges & Limitations of E– Commerce, Supply chain management & E – Commerce, E – Commerce infrastructure.

Business models of E – Commerce: Business to Business, Business to customers, Customers to Customers, Business to Government, Business to Employee, E – Commerce strategy, Influencing factors of successful E– Commerce.

UNIT II:

Introduction to Marketing and Digital Marketing: Meaning, Definition, Nature, Scope, Importance, difference between sales and marketing, The Holistic marketing, Target marketing.

Marketing Environment: Components of modern marketing information system, analysing the marketing environment- Micro and Macro, Demand forecasting –need and techniques

UNIT III:

Consumer markets, Factors influencing consumer behaviour, buying decision process, analysing business markets the procurement process

Market Segmentation: Bases for Market Segmentation, Market Targeting Strategies,designing and managing marketing channels, marketing mix.

UNIT IV:

Marketing strategies & E – Commerce: Components of website for E– Commerce, Corporate Website, Portal, Search Engine, Internet Advertising, Emergence of the internet as a competitive advertising media, Models of internet advertising, Weakness in Internet advertising, Mobile Commerce

UNIT V:

Electronic Payment System : Introduction – Online payment systems – prepaid and postpaid payment systems – e– cash, e– cheque, Smart Card, Credit Card , Debit Card, Electronic purse – Security issues on electronic payment system – Solutions to security issues – Biometrics – Types of biometrics. Legal and ethical issues in E– Commerce: Security issues in E– Commerce, Regulatory framework of E– commerce

TEXTBOOKS/ REFERENCE BOOKS

1. Turban, Efraim, and David King, "Electronic Commerce: A Managerial Perspective", 2010, Pearson Education Asia, Delhi.
2. Kalakota, Ravi, "Frontiers of Electronic Commerce", 2004, Addison – Wesley, Delhi.
3. Rayport, Jeffrey F. and Jaworksi, Bernard J, "Introduction to E–Commerce", 2003, Tata McGraw Hill, New Delhi.
4. Smantha Shurety, "E–Business with Net Commerce", Addison – Wesley, Singapore. Philip Kotler - Marketing Management
5. J.C. Gandhi - Marketing Management
6. William M. Pride and O.C. Ferrell – Marketing