2.1 ADVANCES IN IT

L   P
3   2

RATIONALE

A scripting language or script language is a programming language for a runtime system that automates the execution of tasks that would otherwise be performed individually by a human operator. The purpose of the course is to prepare students for building scripts that control a sequence of program steps such as those used in developing testing and deploying software. Modern scripting languages like Java Script are used as an example of scripting language in this course.

COURSE OUTCOMES

At the end of the course student will be able to
CO1: Describe the need of HTML and its applications in Web Development
CO2: Design and Develop Websites using HTML
CO3: Develop interactive Internet applications
CO4: Create interactive applications in Java script.
CO5: Design Internet Applications using Java Script

DETAILED CONTENTS

UNIT I
HTML Fundamentals
Introduction to HTML- Characteristics of HTML language, Structure of a HTML page. Describing Tags. How to create a HTML document? Viewing HTML document, commonly used web browsers. HTML4 – List of Tags in HTML4, HTML tags: Container elements, empty elements. Using tags, Heading, Paragraph, Changing appearance of text (bold, italics, underline, subscript, superscript), center tag, title tag. Changing font size, text color and background, Changing the background color and background of HTML page, Top margin, left margin, & nbsp,<hr> and its attributes.

UNIT II
Working with HTML

Using list and images: Unordered lists: type attribute. Ordered lists: start attribute, type attribute, value attribute. Nested lists. Inserting images, aligning an image, centering image, adding border to a image, alternate text, setting height and width, adding space around the image. Working with links: Anchor elements, creating hyperlink to a document. Internal linking and external linking.

UNIT III
Designing with HTML

Creating tables: Creating a table, attributes of table tag (BORDER, BORDERCOLOR, BGCOLOR, ALIGN, CELLSPACING, CELLPADING, WIDTH) Attributes of table row <tr> and table data <td> tag (BORDERCOLOR, BGCOLOR, ALIGN, VALIGN, HEIGHT). Row span and Col span.

Working with Frames. Use and creating frames. Introduction to Forms

Steps for developing a Website.

UNIT IV
JAVA Script Overview and Core Language Features

Introduction to Scripting Languages, JavaScript Implementation-ECMAScript-DOM-BOM-Values-Variables-Literals-Constants-Operators and Expressions-Regular Expressions Conditional Branching Statements- Conditional Looping Statements-Functions-Creating Simple Java Script page-Adding JavaScript page into HTML

UNIT V
Document Access

The Document Object Model: Mapping your HTML -Text Nodes-Attribute Nodes Accessing the Nodes you Want: Finding an Element by ID-Finding Elements by Tag Name-Finding Elements by Class Name; Navigating the DOM Tree-Interacting with Attributes - Changing Styles: Changing Styles with Class and Id-Font-Table Layout-Text Properties- Padding, Borders and Margins

PRACTICAL EXERCISES

PART A: HTML
1.   Creating an HTML document
2.   Working with Mark up Tags
3.   Working with Heading-Paragraphs

4.   Working with Text
5.   Working with Lists
6.   Working with Tables and Frames
7.   Working with Hyperlinks
8.   Working with Images and Multimedia
9.   Working with Forms and controls.

PART B: Java Script

1.   Create a HTML form with Name, Password and Confirm Password Write a Java script to validate if Password and Confirm Password field values are same.
2.   Write a Java script to animate a simple Image using set Timeout.
3.   Write a Java script to illustrate auto refreshing in your own Web page.
4.   Develop a simple calculator using Java script.
5.   Write a Java script to illustrate the use of cookies in your own Web page.
6.   Write a Java script to prompt two integer numbers from the user and display the sum of them.
7.   Write a Java script to greet the user with "Good Morning" or "Good Afternoon" or "Good Evening" depending on the current time.
8.   Generate a Digital Clock using Java script.
9.   Write a Java script to change the background color of the image in definite time intervals.

RECOMMENDED BOOKS

1.   Nicholas C.Zakas, "Professional JavaScript for Web Developers", Wrox-Wiley Dreamtech, 2005.
2.   Thomas A.Powell, "HTML&XHTML –The Complete Reference", Tata McGraw Hill, 2006
3.   JavaScript: The Definitive Guide-By David Flannagan;2003
4.   John R Vacca, "JavaScript Development", Morgan Kaufmann 2004.
5.   Paul Lomax, Matt Childs, Ran Petrusha, "VBScript in a nutshell", O'Reilly, 2005.
6.   John Pollac, "JavaScript", McGraw Hill, 2005.
7.   Adrian Kingley, "VBScript Programmers Reference", Wrox, 2004.

SUGGESTED WEBSITES

1.   https://nptel.ac.in/courses/117/106/117106113/
2.   https://nptel.ac.in/courses/106/105/106105084/

INSTRUCTIONAL STRATEGY

This is a skill based subject and topics taught in the class should be practiced in the Lab regularly for development of required skills in the students. This subject contains five units of equal weight age.

2.2 APPLIED MATHEMATICS – II

L   P
4   -

RATIONALE

Applied mathematics forms the backbone of engineering students. Basic elements of Differential calculus, Integral calculus and Differential Equations have been included in this course. This will develop analytical abilities to apply in engineering field and will provide continuing educational base to the students.

COURSE OUTCOMES

After undergoing the subject, the students will be able to:

CO1: Formulate the engineering problems into mathematical format with the use of differential equations and differential

C02: Use the differentiation and Integration in solving various Mathematical and Engineering problems.

CO3: Calculate the approximate area under a curve by applying integration and numerical methods.

CO4: Understand the purposes of measures of central tendency and calculate the measures of central tendency (mode, median, mean) for a set of data.

CO5: Learn about basic fundamentals about MATLAB/ SciLab and mathematical calculation with MATLAB/ SciLab software.

DETAILED CONTENTS

UNIT I
Differential Calculus

1.1   Definition of function; Concept of limits (Introduction only) and problems related to four standard limits only.

1.2   Differentiation of x^n, sin x, cos x, e^x by first principle.

1.3   Differentiation of sum, product and quotient of functions.

UNIT II

Differential Calculus and Its Applications

2.1 Differentiation of trigonometric functions, inverse trigonometric functions. Logarithmic differentiation, successive differentiation (upto 2nd order)

2.2 Application of differential calculus in:

    (a) Rate measures   (b) Maxima and minima

UNIT III

Integral Calculus

3.1 Integration as inverse operation of differentiation with simple examples.

3.2 Simple standard integrals and related problems, Integration by Substitution method and Integration by parts.

3.3 Evaluation of definite integrals with given limits.

$$\text{Evaluation of } \int_{0}^{\pi/2} \sin^n x \, dx, \quad \int_{0}^{\pi/2} \cos^n x \, dx, \quad \int_{0}^{\pi/2} \sin^m x \, \cos^n x \, dx$$

using formulae without proof (m and n being positive integers only) using pre-existing mathematical models.

UNIT IV

Application of Integration, Numerical Integration and Differential Equations

4.1 Applications of integration: for evaluation of area under a curve and axes (Simple problems).

4.2 Numerical integration by Trapezoidal Rule and Simpson's $1/3^{rd}$ Rule using pre-existing mathematical models.

Differential Equations

4.3 Definition, order, degree, Type of differential Equations, linearity, Formulation of ordinary differential equation (up to 1st order), solution of ODE (1st order) by variable separation method.

UNIT V

Statistics and Software

Statistics

5.1 Measures of Central Tendency: Mean, Median, Mode

5.2 Measures of Dispersion: Mean deviation, Standard deviation

Software

5.3 SciLab software – Theoretical Introduction.

5.4   Basic difference between MATLAB and SciLab software,

5.5   Calculations with MATLAB or ScilLab - (a) Representation of matrix (2×2 order), (b) Addition, Subtraction of matrices (2×2 order) in MATLAB or SciLab

RECOMMENDED BOOKS

1.   R. D. Sharma, "Applied Mathematics – I & II for Diploma Courses", Dhanpat Rai Publications.

2.   "Mathematics for Class XI", NCERT Publication, New Delhi.

3.   "Mathematics for Class XII", NCERT Publication, New Delhi.

4.   H. K Dass, "Applied Mathematics for Polytechnics", CBS Publishers & Distributers.

5.   A Ganesh and G Balasubramanian, "Textbook of Engineering Mathematics –I", CBS Publisher, New Delhi.

6.   A Ganesh and G Balasubramanian, "Textbook of Engineering Mathematics –II", CBS Publisher, New Delhi.

7.   G. B. Thomas, R. L. Finney, "Calculus and Analytic Geometry", Addison Wesley, Ninth Edition.

8.   B S Grewal, "Elementary Engineering Mathematics", Khanna Publishers, Delhi, Thirty-fifth Edition.

9.   R.K. Jain and S.R.K. Iyengar, "Advanced Engineering Mathematics" Narosa Publishing House, New Delhi, Second Edition, 2003.

10.   SS Sabharwal & Dr Sunita Jain, "Applied Mathematics Vol. I & II", Eagle Parkashan, Jalandhar.

11.   S Kohli, "Engineering Mathematics Vol. I & II", IPH, Jalandhar.

12.   Reena Garg & Chandrika Prasad, "Advanced Engineering Mathematics", Khanna Publishing House, New Delhi.

13.   R. Pratap, "Getting Started with MATLAB 7", Oxford University Press, Seventh Edition.

14.   E-books/e-tools/relevant software to be used as recommended by AICTE/HSBTE/NITTTR.

SUGGESTED WEBSITES

1.   https://www.scilab.org

2.   http://swayam.gov.in

INSTRUCTIONAL STRATEGY

This is theoretical subject and contains five units of equal weight age. Basic elements of Differential Calculus, Integral Calculus, and Differential Equations can be taught in the light of their applications in the field of engineering and technology. By laying more stress on applied part, teachers can also help in providing continuing education base to the students. Students need to be taught the skills needed to use software tools built by experts through multiple problem solving based on the topics that the industry requires. For example they need to know how to use mathematical models that use integration as opposed to learning how integration can be used. Useful authenticated software MATLAB or open source software SciLab can be taught theoretically by books/online literatures and basic operations can be shown practically with practical software laboratory or small mobile apps of these software or authentic Trial version of MATLAB/ SciLab software. Diploma students need to know which tools to use and how to do the job.

2.3 APPLIED PHYSICS-II

L   P
2   2

RATIONALE

Applied physics includes the study of a large number of diverse topics all related to things that go on in the world around us. It aims to give an understanding of this world both by observation and by prediction of the way in which objects will behave. Concrete use of physical principles and analysis in various technical fields are given prominence in the course content to prepare students for various technical applications.

COURSE OUTCOMES

At the end of this course, the students will be able to:
CO1:   Differentiate between types of waves and their motion.
CO2:   Illustrate laws of reflection and refraction of light.
CO3:   Demonstrate competency in phenomena of electrostatics and electricity.
CO4:   Characterize properties of material to prepare new materials for various technical applications.
CO5:   Demonstrate a strong foundation on Modern Physics to use at various technical applications.

DETAILED CONTENTS

UNIT I
Wave Motion and its Applications
1.1   Waves: definition, types (mechanical and electromagnetic wave)
1.2   Wave motion- transverse and longitudinal with examples, terms used in wave motion like displacement, amplitude, time period, frequency, wavelength, wave velocity; relationship among wave velocity, frequency and wave length
1.3   Simple harmonic motion (SHM): definition, examples
1.4   Cantilever: definition, formula of time period (without derivation)
1.5   Free, forced and resonant vibrations with examples
1.6   Sound waves: types (infrasonic, audible, ultrasonic) on the basis of frequency, noise, coefficient of absorption of sound, echo

UNIT II

Optics

2.1   Reflection and refraction of light with laws, refractive index

2.2   Lens: introduction, lens formulae (no derivation), power of lens and simple numerical problems

2.3   Total internal reflection and its applications, critical angle and conditions for total internal reflection

2.4   Superposition of waves (concept only), definition of Interference, Diffraction and Polarization of waves

2.5   Introduction to Microscope, Telescope and their applications

UNIT III

Electrostatics and Electricity

3.1   Electric charge, unit of charge, conservation of charge

3.2   Coulomb's law of electrostatics

3.3   Electric field, electric lines of force (definition and properties), electric field intensity due to a point charge

3.4   Definition of electric flux, Gauss law (statement and formula)

3.5   Capacitor and capacitance (with formula and unit)

3.6   Electric current and its SI Unit, direct and alternating current

3.7   Resistance, conductance (definition and unit)

3.8   Series and parallel combination of resistances

3.9   Ohm's law (statement and formula)

UNIT IV

Classification of Materials and their Properties

4.1   Definition of energy level, energy bands

4.2   Types of materials (conductor, semiconductor, insulator and dielectric) with examples, intrinsic and extrinsic semiconductors (introduction only)

4.3   Introduction to magnetism, type of magnetic materials: diamagnetic, paramagnetic and ferromagnetic materials with examples

4.4   Magnetic field, magnetic lines of force, magnetic flux

4.5   Electromagnetic induction (definition)

UNIT V

Modern Physics

5.1 Laser: introduction, principle, absorption, spontaneous emission, stimulated emission, population inversion

5.2 Engineering and medical applications of laser

5.3 Fibre optics: introduction to optical fibers (definition, principle and parts), light propagation, fiber types (mono-mode, multi-mode), applications in medical, telecommunication and sensors

5.4 Nanotechnology: introduction, definition of nanomaterial's with examples, properties at nanoscale, applications of nanotechnology (brief)

PRACTICAL EXERCISES

1. Familiarization with apparatus (resistor, rheostat, key, ammeter, voltmeter, telescope, microscope etc.)

2. To find the time period of a simple pendulum.

3. To study variation of time period of a simple pendulum with change in length of pendulum.

4. To determine and verify the time period of Cantilever.

5. To verify Ohm's laws by plotting a graph between voltage and current.

6. To study colour coding scheme of resistance.

7. To verify laws of resistances in series combination.

8. To verify laws of resistance in parallel combination.

9. To find resistance of galvanometer by half deflection method.

10. To verify laws of reflection of light using mirror.

11. To verify laws of refraction using glass slab.

12. To find the focal length of a concave lens, using a convex lens.

RECOMMENDED BOOKS

1. "Text Book of Physics for Class XII (Part-I, Part-II)", N.C.E.R.T., Delhi.

2. Dr. HH Lal, "Applied Physics, Vol. I & II", TTTI Publications, Tata McGraw Hill, Delhi.

3. AS Vasudeva, "Applied Physics –II", Modern Publishers, Jalandhar.

4. R A Banwait, "Applied Physics – II", Eagle Prakashan, Jalandhar.

5. N Subrahmanyam, Brij Lal and Avadhanulu, "A text book of OPTICS", S Chand Publishing, New Delhi.

6.   E-books/e-tools/relevant software to be used as recommended by AICTE/ HSBTE/ NITTTR.

7.   M H Fulekar, "Nanotechnology: Importance and Applications", IK International Publishing House (P) Ltd., New Delhi.

8.   C. L. Arora, "Practical Physics", S Chand Publication.

SUGGESTED WEBSITES

1.   http://swayam.gov.in

INSTRUCTIONAL STATREGY

This is hands-on practice based subject and topics taught in the class should be practiced in the Lab regularly for development of required skills in the students. This subject contains five units of equal weight age. Teacher may use various teaching aids like models, charts, graphs and experimental kits etc. for imparting effective instructions in the subject. Students need to be exposed to use of different sets of units and conversion from one unit type to another. Software may be used to solve problems involving conversion of units. The teacher should explain about field applications before teaching the basics of mechanics, work, power and energy, rotational motion, properties of matter etc. to develop proper understanding of the physical phenomenon. Use of demonstration can make the subject interesting and develop scientific temper in the students. Teachers should give examples of engineering/technology applications of various concepts and principles in each topic so that students are able to appreciate learning of these concepts and principles. In all contents, SI units should be followed. Working in different sets of units can be taught through relevant software.

2.4 ANALOG ELECTRONICS

L P
2 4

RATIONALE

This course will introduce circuit realizations with components such as diodes, BJTs and transistors studied earlier to give understanding of various types of amplifier circuits such as small signal, cascaded, large signal and tuned amplifiers. It will familiarize the Concept of feedback in amplifiers so as to differentiate between negative and positive feedback.

COURSE OUTCOMES

After undergoing the subject, student will be able to:

CO1: Design and analyze small signal amplifier circuits applying the biasing techniques learnt earlier.

CO2: Cascade different amplifier configurations to obtain the required overall specifications like Gain, Bandwidth, Input and Output interfacing Impedances.

CO3: Design and realize different classes of Power Amplifiers and tuned amplifiers useable for audio and Radio applications.

CO4: Utilize the Concepts of negative feedback to improve the stability of amplifiers and positive feedback to generate sustained oscillations.

DETAILED CONTENTS

UNIT I

Semiconductors and Diodes: Electrons- free and valence. Conductors, Insulators, and Semiconductors- definition & energy band diagrams. Properties of semiconductors. Meaning of Hole current, electron-hole pairs, recombination, doping, acceptor and donor impurities. Intrinsic and Extrinsic, N and P type semiconductors. Diode- formation, depletion region, VI Characteristics, ratings, types and applications. Zener diode- reverse bias characteristics, voltage regulation, shunt voltage regulator, and applications. Varistor and Thermistor working and applications.

UNIT II

Transistors and MOSFETs: Transistors- definition, terminals, types, symbols, formation of NPN and PNP, ratings. Transistor biasing- definition, importance, list types, stabilisation, thermal runaway, heat sink, and voltage divider method. List configurations and applications. Alpha and Beta- definitions, relation. CE input and output characteristics- cut off, saturation, and active regions. Transistor as a switch. List applications. FET- definition, types. MOSFET- definition, types, symbols. N type enhancement mode- construction, working, characteristics, switch. List applications and ratings. Differentiate BJT and MOSFET.

UNIT III

Rectifiers, filters and regulators: Regulated power supply- block diagram and applications. Rectifiers- definition, half wave, centre tapped and bridge full wave rectifier, efficiency, ripple factor, PIV, ratings. Filters- definition, necessity, C and PI filters, Regulator-definition, working of 7805, operating voltages- 7809, 7812, 7905, 7912.

UNIT IV

Amplifiers and Oscillators: Amplifier- definition, faithful amplification, classification based on configuration, power, and frequency. Transistor CE amplifier with biasing. Working of class A, B, C, and Push pull amplifier. Two stage RC coupled amplifier working, gain in dB, frequency response. Feed back- definition, types, advantages and disadvantages, applications. Oscillators-definition, classification, LC tank circuit, criteria. RC phase shift and crystal oscillator- working, applications. CRT- construction, working and applications.

UNIT V

OP-AMP and Timers: OPAMP– definition, block diagram, operation, characteristics, applications, μA 741 pin diagram. Definitions of virtual ground, CMRR and Slew rate. OPAMP applications– inverting, integrator, differentiator, summer, voltage follower, and comparator. Filters- definition, Working- low pass, high pass passive and active filters, applications. Timers– block diagram, pin diagram of 555, duty cycle, time constant, applications. Multi-vibrators-Astable and monostable using 555.

PRACTICAL EXERCISES

1. Familiarity with working knowledge of the following Instruments. (a) CRO (b) Multimeter (c) Function generator (d) Regulated power supply (e) Active passive components (f) Bread Board
2. Study of V-I Characteristics of a Diode.

3.   Study and draw the characteristics of half wave and full wave rectifiers.
4.   Study and draw the characteristics of rectifier filter circuit.
5.   Study of Clipping & Clamping circuit.
6.   Study zener diode characteristics.
7.   Study zener diode as voltage regulator.
8.   Study the characteristics of transistor in Common Base configuration.
9.   Plot and study the input and output characteristics of BJT in common emitter configuration.
10.   Graphical determination of small signal hybrid parameter of BJT.
11.   Study and draw the characteristics of FET in common source configuration
12.   Study characteristics of SCR.
13.   Study of characteristics of DIAC.
14.   Plot V-I characteristic of TRIAC.
15.   Study and draw the characteristics of FET in common drain configuration.
16.   Study the Series and Shunt Voltage Regulator.
17.   Study of frequency response of active filters HP, LP & BP.

RECOMMENDED BOOKS

1.   Electronics Principles and applications by Charles A Schuler and Roger L Tokhiem, Sixth Edition, Mc. Graw Hill , 2008.
2.   Electronics Principles by Malvino, Mc. Graw Hill, Third edition. 2000.
3.   Electronics Devices and Circuits by Allan Mottershed, PHI Learning Pvt. Ltd., First Edition.
4.   Electronics Analog and Digital by I. J. Nagrath, PHI Learning Pvt. Ltd., 2013 Edition.
5.   Linear Integrated Circuits by Ramakant A. Gayakwad, PHI Learning Pvt. Ltd., Fourth Edition.

SUGGESTED WEBSITES

1.   http://swayam.gov.in

INSTRUCTIONAL STRATEGY

This is a skill based subject and topics taught in the class should be practiced in the Lab regularly for development of required skills in the students. This subject contains five units of equal weight age.

2.5 ENGINEERING GRAPHICS

L   P

-   6

RATIONALE

Drawing is the language of engineers and technicians. Reading and interpreting engineering drawings is their day to day responsibility. The subject is aimed at developing basic graphic skills in the students so as to enable them to use these skills in preparation of engineering drawings, their reading and interpretation. The emphasis, while imparting instructions, should be to develop conceptual skills in the students following BIS SP 46 – 1988.

COURSE OUTCOMES

After undergoing the subject, the students will be able to:

CO1: Draw Orthographic views of different objects viewed from different angles..

CO2: Draw and interpret sectional views of an object which are otherwise not visible in normal view.

CO3: Draw Isometric views of different solids and develop their surfaces.

CO4: Identify conventions for different engineering materials, symbols, sections of regular objects and general fittings used in Civil and Electrical household appliances /fittings.

CO5: Draw orthographic views of different objects by using basic commands of AutoCAD.

DETAILED CONTENTS

UNIT I

1. Introduction to Engineering Drawing and Graphics

1.1 Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.

1.2 Symbols and conventions-

  a) Conventions of Engineering   Materials, Sectional Breaks and Conventional lines.

  b) Civil Engineering Sanitary fitting symbols

  c) Electrical fitting symbols for domestic interior installations.

1.3 Geometrical construction-geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagons, pentagons bisecting a line and arc , division of line and circle with the help of drawing instruments.

2. Technical Lettering of Alphabet and Numerals

Definition and classification of lettering, Free hand (of height of 5,8,12 mm) and instrumental lettering (of height 20 to 35 mm): upper case and lower case, single and double stroke, vertical and inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4.

3. Dimensioning

3.1 Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions).

3.2 Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches.

4. Scales

4.1 Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.

4.2 To draw/construct plain and diagonal scales.

UNIT II

1 Orthographic Projections

1.1 Theory of orthographic projections (Elaborate theoretical instructions).

1.2 Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle.

1.3 Projection of Points in different quadrant

1.4 Projection of Straight Line (1st angle)

    i. Line parallel to both the planes.

    ii. Line perpendicular to any one of the reference plane and parallel to others

    iii.Line inclined to any one of the references and parallel to another plane.

1.5 Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT).

1.6 Identification of surfaces.

2. Sectioning

2.1 Importance and salient features

2.1 Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only).

2.3 Orthographic sectional views of different objects.

UNIT III

1. Introduction of projection of right solids such as prism & pyramid (square, Pentagon, Hexagonal) cube, cone & cylinder (Axes perpendicular to H.P and parallel to V.P.)

2. Introduction of sections of right solids - Section planes, Sections of Hexagonal prism, pentagon pyramid, cylinder and cone (Section plane parallel to anyone reference planes and perpendicular to V.P. and inclined to H.P.)

3. Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)

UNIT IV

Isometric Views

1. Fundamentals of isometric projections and isometric scale.

2. Isometric views of different laminas like circle, pentagon and hexagon.

3. Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism.

4. Isometric views from given different orthographic projections(front, side and top view)

UNIT V

Introduction to AutoCAD

Basic introduction and operational instructions of various commands in AutoCAD. At least two sheets of different objects on AutoCAD (given pictorial/isometric view of a block). AutoCAD skill of student is evaluated in internal assessment only not in external exam.

RECOMMENDED BOOKS

1. A Text Book of Engineering Drawing by Surjit Singh; Dhanpat Rai & Co.,Delhi

2. Engineering Drawing by PS Gill; SK Kataria & Sons, New Delhi

3. Elementary Engineering Drawing in First Angle Projection by ND Bhatt;Charotar Publishing House Pvt. Ltd.,Anands

4. Engineering Drawing and Graphics using AutoCAD by T. Jeyapoovan,Vikas Publishing House Pvt, Ltd Noida.

5. A Text Book of Engineering Drawing by S.R.Singhal and O.P.Saxena, Asian Publisher, Delhi

6. Engineering Drawing by RB Gupta, Satya Prakashan, New Delhi

INSTRUCTIONAL STRATEGY

Teacher should show model of realia of the component/part whose drawing is to be made. Emphasis should be given on cleanliness, dimensioning and layout of sheet. Focus should be on proper selection of drawing instruments and their proper use. First angle projection is to be followed. Minimum of 20 sheets to be prepared and at least 2 sheets on AutoCAD**.** Instructions relevant to various drawings may be given along with appropriate demonstrations, before assigning drawing practice to students. This subject contains five units of equal weight age.

2.6 MULTIMEDIA APPLICATIONS

L   P
2   4

RATIONALE

This course introduces how multimedia can be used in various application areas. It provides a solid foundation to the students so that they can identify the proper applications of multimedia, evaluate the appropriate multimedia systems and develop effective multimedia applications. It gives a detailed view of various classification, audio technologies, texts, and animations.

COURSE OUTCOMES

At the end of the course student will be able to

CO1: Develop a well-designed, interactive Web site with respect to current standards and practices

CO2: Demonstrate in-depth knowledge in an industry-standard multimedia development tool and its associated scripting language

CO3: Determine the appropriate use of interactive verses standalone Web applications

CO4: Design time-based and interactive multimedia components

CO5: Identify issues and obstacles encountered by Web authors in deploying Web-based application

DETAILED CONTENTS

UNIT I
Definitions and Classification
Multimedia Hardware- Multimedia Software–Meetings the analog signals – Search of Digital recording – CD ROMs.

UNIT II
Digital Audio Technologies
Sound Cards – Playback and Recording – MIDI – working with MIDI.

UNIT III
Multimedia texts
Coloring – Digital Imaging Fundamentals – Digital Image Development and Editing.

UNIT IV
Animation fundamentals
Animation Software tools – Animation Techniques – Digital video fundamentals – Digital video production techniques.

UNIT V
M/M Project Design Concepts
Authoring – Project Planning and Costing – Multimedia team.

PRACTICAL EXERCISES

2D Animation software (Adobe Flash)
Study of Adobe Flash Tools; Frame by Frame Animation; Motion Tweening; Simple Tweening; Using Guide Layer; Shape Tweening; Simple Tweening; Shape Hint; Masking; Single Layer Masking; Double Layer Masking; Movie Clip; Buttons; Publishing of Flash Movie
Action Scripts
1. Simple functions: Stop, Play, Go to, Get URL, Call
2. Properties - _x, _y, _x Scale, _y Scale, _alpha
3. Event handling
Image Editing Software (Adobe Photoshop)
Study of Adobe Photoshop tools
2. Image editing
3. Applying special effects.

RECOMMENDED BOOKS

1.   Multimedia Magic – S.Gokul - BPB Publications, 2008.
2.   Multimedia – Making it work – T. Vaughan – Osborne McGraw Hill - 2005.
3.   Fundamentals of Multimedia – Drew – Pearson Education – 2006.
4.   Multimedia Systems – Buford – Pearson Education – 2007.

SUGGESTED WEBSITES

1.   https://nptel.ac.in/courses/117/105/117105083/
2.   https://nptel.ac.in/courses/106/106/106106200/

INSTRUCTIONAL STRATEGY

This is a skill based subject and topics taught in the class should be practiced in the Lab regularly for development of required skills in the students. This subject contains five units of equal weight age.

2.7 ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT

	L	P
	2	-

RATIONALE

A diploma holder must have knowledge of different types of pollution caused due to industrial and construction activities so that he/she may help in balancing the ecosystem and controlling pollution by various control measures. The course is intended to provide a general concept in the dimensions of environmental pollution and disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human activities with emphasis on disaster preparedness, response and recovery.

COURSE OUTCOMES

After undergoing the subject, the student will be able to:
CO1: Comprehend the importance of sustainable ecosystem
CO2: Demonstrate interdisciplinary nature of environmental issues
CO3: Implement corrective measures for the abatement of pollution.
CO4: Identify the role of non-conventional energy resources in environmental protection.
CO5: Manage various types of disasters

DETAILED CONTENTS

UNIT I
Introduction
1.1   Basics of ecology, eco system- concept, and sustainable development, Sources, advantages, disadvantages of renewable and nonrenewable energy.
1.2   Rain water harvesting
1.3   Deforestation – its effects & control measures

UNIT II
Air and Noise Pollution
2.1   Air Pollution: Source of air pollution. Effect of air pollution on human health, economy, Air pollution control methods.

2.2   Noise Pollution: Source of noise pollution, Unit of noise, Effect of noise pollution, Acceptable noise level, Different method of minimizing noise pollution.

UNIT III
Water and Soil Pollution

3.1   Water Pollution: Impurities in water, Cause of water pollution, Source of water pollution. Effect of water pollution on human health, Concept of DO, BOD, COD. Prevention of water pollution- Water treatment processes, Sewage treatment. Water quality standard.

3.2   Soil Pollution :Sources of soil pollution, Effects and Control of soil pollution, Types of Solid waste- House hold, Industrial, Agricultural, Biomedical, Disposal of solid waste, Solid waste management E-waste, E – waste management

UNIT IV
Impact of Energy Usage on Environment

Global Warming, Green House Effect, Depletion of Ozone Layer, Acid Rain. Eco-friendly Material, Recycling of Material, Concept of Green Buildings, Concept of Carbon Credit & Carbon footprint.

UNIT V
Disaster Management

A. Different Types of Disaster:

Natural Disaster: such as Flood, Cyclone, Earthquakes and Landslides etc.

Man-made Disaster: such as Fire, Industrial Pollution, Nuclear Disaster, Biological Disasters, Accidents (Air, Sea Rail & Road), Structural failures(Building and Bridge), War & Terrorism etc.

B.Disaster Preparedness:

Disaster Preparedness Plan

Prediction, Early Warnings and Safety Measures of Disaster

Psychological response and Management (Trauma, Stress, Rumour and Panic)

RECOMMENDED BOOKS

1.   Environmental Studies by S.C. Sharma & M.P. Poonia, Khanna Publishing House, New Delhi

2.   Environmental and Pollution Awareness by Sharma BR; Satya Prakashan, New Delhi.

3.   Environmental Pollution by Dr. RK Khitoliya; S Chand Publishing, New Delhi

4.   Environmental Studies by Erach Bharucha; University Press (India) Private Ltd., Hyderabad.

5.   Environmental Engineering and Management by Suresh K Dhamija; S K Kataria and Sons, New Delhi.

6.   E-books/e-tools/relevant software to be used as recommended by AICTE/BTE/NITTTR, Chandigarh.

7.   Disaster Management by Dr. Mrinalini Pandey, Wiley India Pvt. Ltd.

8.   Disaster Science and Management by Tushar Bhattacharya, McGraw Hill Education (India) Pvt. Ltd.

INSTRUCTIONAL STRATEGY

In addition to theoretical instructions, different activities pertaining to Environmental Studies and Disaster Management like expert lectures, seminars, visits etc. may also be organized This subject contains five units of equal weight age.