INSTITUTE OF ADVANCED STUDIES IN EDUCATION(DEEMED UNIVERSITY) GANDHI VIDYA MANDIR SARDARSHAHR

Detailed Syllabus

of

DIPLOMA IN COMPUTER ENGINEERING

COURSE PERIOD:-3YEARS (SIX SEMESTER)   TOTAL MARKS- 2900

FIRST SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
COMMUNICATION SKILLS-1	DCS-110 DCS-110P	50	50	100
APPLIED MATHEMATICS	DCS-120	100	00	100
ENGINEERING PHYSICS	DCS-130 DCS-130P	50	50	100
INTRODUCTION OF IT	DCS-140 DCS-140P	50	50	100

SECOND SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
COMMUNICATION SKILLS-II	DCS-210 DCS-210P	50	50	100
APPLIED MATHEMATICS-II	DCS-220	100	00	100
BASIC ELECTRICAL ENGINEERING	DCS-230 DCS-230P	50	50	100
BASIC ELECTRONICS	DCS-240 DCS-240P	50	50	100
COMPUTER FUNDAMENTALS & PROGRAMMING IN C	DCS-250 DCS-250P	50	50	100

THIRD SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
OBJECT ORIENTED PROGRAMIMG	DCS-310 DCS-310P	50	50	100
DIGITAL ELECTRONICS	DCS-320 DCS-320P	50	50	100
COMPUTER ARCHITECTURE	DCS-330	100	00	100
OPERATING SYSTEM	DCS-340 DCS-340P	50	50	100
COMPUTER WORKSHP-1	DCS-350P	00	100	100

FOURTH SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
PROGRAMINMG IN VISUAL BASIC	DCS-410 DCS-410P	50	50	100

		THEORY	PRACTICAL	TOTAL
DATE STRUCTURE	DCS-420 DC-420P	50	50	100
DATABASE MANAGEMENT SYSTEM	DCS-430	50	50	100
SYSTEM ANALYSIS AND DESIGN	DCS-440	100	00	100
MICROPROCESSROS	DCS-450 DCS-450P	50	50	100

FIFTH   SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
INDUSTRIAL MANAGEMNT	DCS-510	100	00	100
PROGRAMMIMG IN FOXPRO	DC-520P	00	100	100
E-COMMERCE	DCS-530 DCS-530P	50	50	100
COMPUTER NETWORKS	DCS-540 DCS-540P	50	50	100
COMPUTER WORKSHOP-II	DCS-550P	00	100	100

SIXTH   SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
COMPUTER GRAPHICS	DCS-610 DCS-610P	50	50	100
PC ORGNIZATION	DCS-620 DCS-620P	50	50	100
INSTALLATION AND MAINTENANCE OF COMPUTERS	DCS-630 DCS-630P	50	50	100
SOFTWARE PROJECT WORK	DCS-640P	00	200	200

Note:

Theory Paper: 30% Continuous Internal Assessment and 70 % University examination.
Practical Paper: 30 % Continuous Internal Assessment and 70 % University examination.

Continuous Internal Assessment:

1) Two or three tests out of which minimum Two will be considered for Assessment	**60% of Continuous Internal Assessment**
2) Seminars/Assignments/Quizzes	**30% of Continuous Internal Assessment**
3) Attendance, class participation And behavior	**10% of Continuous Internal Assessment**

SEMESTER-I

DCS--110   **COMMUNICATION SKILLS-1**

Maximum Time :   **3 Hrs.**   **University Examination : 35 Marks**
Total Marks :   **50**   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Corresponding : (Official, Business And Personal)
One Letter from each category (Official, Business and Personal) may be set in the examination paper and the students be asked to write one of them.

SECTION B
2. Grammar
A brief review of easy form of tenses. Conversion of direct narration into indirect form of narration and vice versa (only simple sentences). Punctuation.

SECTION C
3. Essay
Preferably on scientific topic from the given outlines. The paper setter may be instructed to give a choice of attempting one out of three topics. The question paper may provide the outlines. The essay will be of 250 to 300 words. The examiner may select three topics one from each of the following.
(i) Science
(ii) Technology
(iii) General.

SECTION D
Written Communication
report, notices, agenda notes, business correspondence preparation of summery & prices.

DCS—110P   **COMMUNICATION SKILLS-1**

Maximum Time :	3 Hrs.	**University Examination : 35 Marks**
Total Marks :	50	**Continuous Internal Assessment : 15 Marks**

Minimum Pass Marks :40%

1. Locate a particular book in the library.
2. Find out some words in the dictionary.
3. Prounciation, stress and intonation.
4. Give abbreviations of particular words and vice versa
5. Give meaning of some words.
6. Spell some words.
7. Practice of handling some communication systems like telephone and noting down and conveying messages.

DCS—120   **APPLIED MATHEMATICS**

Maximum Time :	3 Hrs.	**University Examination :70 Marks**
Total Marks :	100	**Continuous Internal Assessment : 30 Marks**

Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will com prise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

1. AlGEBRA
Application of Quadratic equations simultaneous equations (one linear and other Quadratic equation) in two variables to engineering problems.

Arthmetic Progression, its nth term and sum of n terms with their applications to engineering problems. Geometrical Progression, its nth term and sum of n terms and to infinity with application to engineering problems.

Partial fractions (excluding repeated quadratic factors) formally introduction of permutations & combinations, applications of formulae for npr ncr

Binomial theorem (expansion without proof) for positive integral index (expansion and general term).

Binomial theorem for any index (expansion without proof only). First and second binomial approximation with application to engineering problems.

SECTION B

2. TRIGNOMETRY
Concept of angles, measurement of angles in degrees, grades and radians and their conversions. Trignometrical ratios and their relations.

Review of ratios of some standard angles (0,30,45,60,90 degrees), T-Ratios of Allied angles (without proof), Sum, difference formulae and their applications (without proof).

Product formulae (Transformation of product to sum, difference and vice versa).T-Ratios of multiple angles, sub-multiple angles (2A, 3A, A/2).

Area of a triangle, Hero's formulae, solution of triangles with direct applications of cosine formulae, sine formulae, Napier's analogy only.

SECTION C

3. CO-ORDINATE GEOMETRY
Cartesian coordinates (two dimensions), Distance between two points, Internal and External division formulae, Application of area formulae (without proof).

Area of triangle when its vertices are given, coordinates of centroid, incentre of a triangle when the vertices are given, using the formulaes, simple problems on locus.

Application of equation of straight line in various standard forms, intersection of two straight lines, angle between two lines. Perpendicular distance formulae.

General equation of a circle and its characteristics. To find the equation of a circle given (i) Center and radius (ii) Three points on it (iii) Co-ordinates of end points of a diameter.

SECTION D

Plotting of curves y = (f(x), f(x) being algebraic function of x (maximum upto 2nd degree).

Definition of conic section. Standard equation of parabola, To find equations of parabola when its focus and directrix are given, Given the equation of a parabola, determination of its focus, vertex axis, directrix and lactus rectum.

Ellipse and hyberbola (standard equations without proof), given the equation in the standard form, determination of focus , directrix , lactus rectum. Axes, eccentricity and center.

Concept of Polar coordinates & their conversion to Cartesian coordinates & vice versa, cylinder,cone,3D

DCS—130   ENGENEERING PHYSICS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks : 40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A

MECHANICS

1. UNITS AND DIMENSIONS
Fundamental and derived units in SI System,
Dimensions of Physical Quantitites,
Principle of homogeneity
Dimensional equation,
Applications of dimensional analysis: Checking the correctness of physical equations,
Derivation of simple physical relations, Limitation of Dimensional Analysis, significant figures and Error Analysis.

2. FORCE AND MOTION
Scalars and Vectors,
Velocity & acceleration,
Equations of motion,
Newton's law of motion,
Force & its derivation from Newton's laws of motion,
Composition and resolution of forces,
Parabolic Motion
Horizontal projection and projection at an angle, time of flight,
Horizontal range and maximum horizontal range,
Simple Problems,
Centripetal acceleration, centripetal and centrifugal forces,
Concept of friction and its application.
Application to banking of roads
SECTION B

3. WORK, POWER AND ENERGY
Work and its Units,
Work done on bodies moving on horizontal and inclined planes (consider frictional forces also).
Concept of Power and its units,
Calculations of power (simple cases).

Concept of Kinetic energy and potential energy
Expressions for P.E and K.E,
Conservation of energy in the case of freely falling bodies,
Principle of conservation of energy.

4. ROTATIONAL AND SIMPLE HARMONIC MOTIONS
Definition of moment of inertia,
Moment of inertia of disc, ring & sphere,
Torque and angular momentum and their inter relation,
Principles of conservation (angular momentum and its applications).
Kinetic energy of rolling body,
S.H.M – derivation of displacement, velocity, acceleration, time period and frequency,
Motion of cantilever, Free, forced and resonant vibrations (No derivation).

SECTION C

HEAT

1. TEMPERATURE AND ITS MEASUREMENT
Concept of heat and temperature on the basis of K.E. of molecules.
Unit of heat
Basic Principles of measurement of temperature,
Thermocouple,
Bimetallic and resistance,
Pyrometers and Thermometers
Criteria for the selection of thermometers.

2. EXPANSION OF SOLIDS

Coefficient of linear,
Surface and cubical expansions and relation amongst them,
Thermal stresses (qualitative only) and their applications.

SECTION D

3. HEAT TRANSFER

Three modes of transfer of heat,
Coefficient of thermal conductivity, its determination by Searle's method and Lee's disc method.
Conduction through compound media (Series and parallel for two materials only),
Heat radiation, Characteristics of heat radiations,
Prevost's theory of heat exchange,
Black body radiations,
Emissivity and absorbtivity
Kirchoff's law and stefan's law of radiation.

DCS—130P   **ENGENEERING PHYSICS**

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. To determine the density of a cylinder using vernier calipers and balance.
2. To determine area of cross section of wire using screw guage.
3. To determine the thickness of glass piece using spherometer.
4. Calculation and verfication of period of vibration of a cantilever (use graph)
5. Verify Parallelogram law of forces.
6. Measurement of K.E. gained by a body dropped through height h.
7. To find the coefficient of linear expression of given rod.
8. Caliberation of Thermocouple.

DCS--140   **INTRODUCTION TO IT**

Maximum Time :   3 Hrs.   **University Examination : 70 Marks**
Total Marks :   100   **Continuous Internal Assessment : 30 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A

information concepts & processing

definition of information, data Vs information, introduction to information system, information representation digital media, images, graphics, animation, audio, video etc. Need a value & quality of information the concept of information entropy & numericals.

SECTION B

Computer appreciation

definition of electronic computer, history, generation, characteristics & application of computers, classification of computers, RAM,ROM, computer hardware, CPU, various I/O devices, peripherals , storage media, software definition and concepts.

SECTION C

Data communication & networks

computer networks , networking of computers, introduction to LAN, WAN, MAN, network topologies , basic concepts in computers computer networks, introduction to GPRS, CDMA,GSM & FM technologies.

SECTION D

Introduction to internet technologies

HTML, DHTML,WWW,FTP, TELENET, web browser, net surfing , search engines, e-mail, ISP, e-commerce, public key, private key, safety of business transaction on web.

Concepts in operation system

Elementary concepts in operation system, GUI, introduction to DOS, MS windows,

DCS—140P   INTRODUCTION TO IT

Maximum Time :   3 Hrs.   University Examination : 35 Marks
Total Marks :   50   Continuous Internal Assessment : 15 Marks
Minimum Pass Marks :40%

1. Familarity with operation of computers, booting the system from floppy and hard disk

2. Internal and External commands of DOS (changing drives, changing files, copying

   files, directories, path command etc)

3. Understanding and changing Autoexec.bat, config.sys files

4. Using PC Tools, Norton utilities and anti virus programs.

5. Preparation & representation of documents.

SEMESTER-II

DCS-210   COMMUNICATION SKILLS-II

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks : 40%

A) Instructions for paper-setter

4. The question paper will consist five sections namely A, B, C, D and E.
5. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
6. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates

3. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
4. Use of non-programmable scientific calculator is allowed

SECTION A

1. Precis and Comprehension

Precis writing of simple passages from the prescribes text book. The passage selected should be from the textbook. The passage selected should be such as easily lends to surrounding. The passage should be of 100 to 150 words. In order to test comprehension a few questions on the passage may be set

SECTION B

2. Communication Techniques

Importance of communication

One way and two way communication

Essentials of good communication

Methods of communication, oral, written and non-verbal

Barriers to communication

Techniques of overcoming barriers

Concept of effective communication

All forms of written communications including drafting reports, notices, agenda notes, business correspondences, preparation of summaries and précis, telegrams, circulars, representations. Press

release and advertisements

Telephonic communications

11

SECTION C

4. Technical Report Writing

Technical report writing from the given outlines, a choice to attempt one out three to be given in the examination. The question paper shall provide the required outlines

SECTION D

5. Equivalent Terminology

150 popular administrative and technical terms in English with their equivalent words in regional language or in Hindi.. These terms shall be officially prescribed and sent to the paper as well.

Practice of writing personal resume and writing application for job/ employment

DCS-210P   COMMUNICATION SKILLS-II

Maximum Time :   **3 Hrs.**   **University Examination : 35 Marks**
Total Marks :   **50**   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Participation in an informal meeting

2. Oral representation

3. Interview, Resume of the interview

4. Group discussions, Seminars, debates in current topics

5. Paper reading for developing facial expressions, voice qualities etc.

DEE--220   APPLIED MATHEMATICS-II

Maximum Time :   3 Hrs.   **University Examination : 70 Marks**
Total Marks :   100   **Continuous Internal Assessment : 30Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter

1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Differential Calculus

Concept of limits. Four standard limits $\underset{x \to a}{Lt} \dfrac{x^n - a^n}{x - a}$

$\underset{x \to 0}{Lt} \dfrac{Sinx}{x}$ $\underset{x \to 0}{Lt} \dfrac{a^x - 1}{x}$ $\underset{x \to 0}{Lt} (1+x)^{1/x}$

Differentiation by definition of x^n, sinx, cos x, tan x, e^x
Differentiation of sum, product and quotient of functions. Differentiation of function as a function.
Differentiation of trigonometric inverse functions. Logarithmic differentiation,
Successive differentiation (excluding nth order)
Applications :
(a) Rate Measures
(b) Errors
(c) Maxima and Minima
(d) Equation of tangent to a curve for explicit functions only and equation of a normal.
(e) Newton's Method of solving equation using the formula f(a) /f'(a)
SECTION B
2. Integral Calculus
Integration as inverse operation of differentiation.
Simple Integration by substitution, by parts and by partial fractions (for linear factors only).
Evaluation of definite integrals (simple problems)

Evaluation of $\int_0^{\pi/2} \operatorname{Sin}^n x \, dx$ $\int_0^{\pi/2} \operatorname{Cos}^n x \, dx$ $\int_0^{\pi/2} \operatorname{Sin}^m x \operatorname{Cos}^n x$

using formulae without proof (m and n being positive integers only)

Applications :
(a) area bounded by a curve and axes
(b) volume of solid formed by revolution of an area about axes. (Simple problems).
(c) Centre of gravity
(d) Moment of Inertia
(e) Average value
(f) Root mean square value of a function
(g) gama function(reduction formula)

SECTION C
3. Differential Equation
Concept of formation of Differential Equation and solution of first order differential equation.
(a) Variables separation.
(b) Homogeneous differential Equation
(c) Linear Differential Equation. ax n

Solution of Linear differential Equations having e , Sin ax, Cos ax and x in the right hand side.

SECTION D
matrix
addition, subtraction, multification, rank of matrix

DCS-230   BASIC ELECTRICAL ENGINEERING

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A

1. Review of Following

Concepts and units of electric current

Ohm's law, concept of resistance, conductance, resistivity and conductivity. Their dependence and dependence on temperature

Power and energy, heating effect of electric current and conversion of mechanical to electrical units and vice versa

Kirchoff's voltage and current laws and their applications in simple DC circuits.

Series and parallel combination of resistors, wattage consideration, Simple problems.

2. Electro Magnetism

Concept of magnetic field production by flow of current, concept of magneto motive force (MMF), flow, reluctance, permeability, Analogy between electric and magnetic circuits

Force on a moving charge and current in a magnetic field, force between two currying parallel conductors.Faraday's laws, lenz's laws and rules of electromagnetic induction, principle of self and mutual induction, self and mutually induced e.m.f; simple numerical problems

SECTION B
3. A.C. Theory

Concept of alternating voltage and current, difference between AC and DC.

Concept of cycle, frequency, period, instantaneous value, average value, rms value and peak value. Form factor (definition only)

Concept of impedance, impedance triangle, phase angle. Numerical problems. Phasor diagram for RL, RC and RLC series circuits.

4. AC Power in RLC Circuits

Working principles and construction of Ammeters and voltmeters (moving coil and moving iron type)

Difference between ammeter and voltmeter, extension of their range and simple numerical problems

Principle and working of:

Wattmeter (dynamo-meter type)

Energy meter (induction type)

SECTION C

5. Generalised Treatment of Ele ctrical Machines
Introduction
Definition of motor and generator
Basic principle of generator and a motor
6. Three Phase Supply
Advantages of three phase system over single phase system

7. Transformers

Principles of operation and constructional details of single phase and three phase transformers. Core type and shell type transformers. Transformer ratio and emf equation

8. A.C. Motors

Brief introduction about three phase induction motors, its principle of operation

9. Single Phase and Fractional Kilowatt Motors

Introduction

Principle of operation of single phase motors

Types of single phase induction motors and their constructional details (i.e. split phase, capacitor start and run, shaded pole and reluctance start motors)

Single phase synchronous motors-reluctance motor (hysterisis motor)

DCS-230P   BASIC ELECTRICAL ENGINEERING

Maximum Time :   3 Hrs.   University Examination : 35 Marks
Total Marks :   50   Continuous Internal Assessment : 15 Marks
Minimum Pass Marks :40%

1. Verification of Ohm's Law
2. a) Verification of Req = R1+R2+R3+……… in circuits, where are R1, R2, R3,……. are in series.
b) Verification of 1/ Req=1/R1+1/R2+…….. in circuits, where are R1, R2, R3,……. are in parallel.
3. Verification of Kirchoff's first and second laws.
4. To measure the (very low) resistance of ammeter and (very high) resistance of voltmeter
5. To measure resistance of galvanometer by half deflection method.
6. a) To verify Leq = L1+L2+L3+……… in circuits, where are L1, L2, L3,……. are connected in series.
b) To verify 1/ Leq=1/L1+1/L2+…….. in circuits, where are L1, L2, l3,……. are connected in parallel.
7. a) To verify Ceq = C1+C2+C3+……… in circuits, where are C1, C2, C3,……. are connected in series.
b) To verify 1/ Ceq=1/C1+1/C2+…….. in circuits, where are C1, C2, C3,……. are connected in parallel.
8. To plot current and voltage growth and decay in RL and RC circuits for different time constants.
9. To measure power and power factors in a 3 phase system with
a) balanced load
b) unbalanced load by the two wattmeter method and any other method
10. To find the value of capacitance of a capacitor to improve the power factor of an induction motors
11. To observe the difference in the effect of switching on a single phase capacitor start induction motor with
a) the capacitor disconnected and
b) the capacitor connected

12. Study of DOL starter, Starting of 3-phase induction motor by DOL starter, Reversing the direction of rotation of 3-phase induction motor

DCS-240   BASIC ELECTRONICS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2.   Use of non-programmable scientific calculator is allowed

SECTION A
1. Brief history of the development of electronics i.e. vacuum tube and solid state devices.
2. Voltage and Current Sources
Concept of voltage and current source, constant voltage and current sources and their graphical representation. Conversion of voltage sources into current source and viceversa.

SECTION B
3. Semi-Conductor Devices
Atomic structure Crystalline structure, covalent bonds, generation and combination, semi-conductor materials, intrinsic semiconductors, effect of temperature on conductivity in germanium and silicon.
Extrinsic semi-conductors, doping, P & N type semi conductors, majority and minority carriers, effect of temperature.
P-N junction, drift and diffuse current, depletion layer, potential barrier, effect of forward and reverse biasing of a P-N junction, Energy band diagrams, Breakdown mechanisms.
4. Semi-Conductor Diodes
Crystal diode, its working, characteristics, static and dynamic resistance
Use of diode as half wave and full wave (center trapped and bridge type) rectifiers.
Relation between DC output and AC input voltage.
Concept of ripples, filter circuits; shunt capacitor series inductor and pie filters and their applications to reduce ripples.
Diode rating/specifications
SECTION C
5. Transistors
Construction of a bi-polar junction transistor with respect to:

Doping, width and area, working principle of transistors, forward and reverse biasing.
Transistor configuration, Common base (BC), Common Emitter (CE) and Common Collector (CC)
Comparision between CB, CE and CC configuration
Current relations, input and output characteristics in CE and CE configurations.
Applications of transistor amplifier in CE configurations

6. Transistor Biasing and Stabilization
Transistor biasing, its need, operating point and need of stabilization of operating point.
Different biasing circuits, limitations, simple problems to calculate operating point in different biasing circuits
Effect of temperature on the operating point of a transistor.

7. Single Stage Transistor Amplifier
Basic single stage transistor amplifier circuit in CE configuration, function of each part.
Working of single –stage trans istor amplifier, physical and graphical explanation, phase reversal.
Concept of DC and AC load line on output characteristics
Small signal voltage gains.
Concept of input and output impedance.
AC equivalent circuit of single-stage transistor amplifier.

SECTION D
8. Regulated Power Supply
Need of regulated power supply. Regulation and stabilization of voltage by Zener diode its limitations.
Block diagram of a regulated power supply.
Transistorised regulated power supply and short circuit protection.
9. FET- construction, working and applications.

DCS-240P   BASIC ELECTRONICS

Maximum Time :   **3 Hrs.**   **University Examination : 35 Marks**
Total Marks :   **50**   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Identification of electronic components; Passive components such as R, L and C their types, rating and specifications and colour code, Active components such as diodes and transistors.
2. Plotting V-I characteristics of a semi-conductor diode and finding its dynamic resistance.
3. Plotting V-I characteristics of a Zener diode and reverse breakdown voltage.
4. Observations of input and output wave shapes and verification of relationship between DC output voltage and AC input voltage for a half -wave rectifier.
5. Observations of input and output wave shapes and verifications of relationship between DC output voltage and AC input voltage for a full-wave rectifier.
6. Observations of output wave shapes of a full-wave rectifier with (a) shunt capacitor
(b) series inductor (c) pie filter circuit
7. Plotting input and output characteristics of a transistor in CB configuration
8. Plotting input and output characteristics of a transistor in CE configuration
9. Measurement of operation point (collector current (Ic), and collector emitter voltage Vce) in case of :
Fixed base biasing of a transistor.

Potential divider biasing of a transistor.

10. To observe and note the effect on the performance of a transistor due to change due to change in temperature, also observe the effect on the performance on replacing the transistor by the same number.

11. To measure the voltage gain and to observe and plot phase reversal of signal with CRO for a single-stage transistor amplifier.

12. To plot frequency response curve of a single-stage transistor amplifier.

13. To plot characteristics of A Field Effect Transistor (FET).

DCS-250 COMPUTER FUNDAMENTAL & PRGRAMMIMG IN C

Maximum Time : 3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter

1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
Number system : decimal, octal, binary & hexadecimal, representation of integer, fixed and floating points, character representation: ASCII, EBCDIC

SECTION B
functional units of computer,:-I/O device, primary and secondary memories.

SECTION C
programming fundamental:- algorithm development, technique of problem solving, flowcharting, stepwise refinement, alogorithm for searching sorting exchange and insertion merging of order lists.

SECTION D
Representation of integers, characters, reals, data types, constant and variables, arithmetic expression, assignment statement logical expression, sequencing, alteration and iteration, arrays, string processing, sub program , recursion, files and pointers testing and debugging of program.

DCS-250P COMPUTER FUNDAMENTAL & PRGRAMMIMG IN C

Maximum Time :　3 Hrs.　　　　　　**University Examination : 35 Marks**
Total Marks :　　50　　　　　　**Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Programming exercises on executing a C program
2. Programming exercises on editing a C program
3. Programming exercises on defining variables and assigning values to variables
4. Programming exercises on arithmetic and relational operators
5. Programming exercises on arithmetic expressions and their evaluation
6. Programming exercise on single if statement
7. Programming exercise on if-else statement
8. Programming exercise on switch statement
9. Programming exercise on go to statement
10. Programming exercise on while statement
11. Programming exercise on do-while statement
12. Programming exercise on for statement
13. Programming exercise on functions
14. Programming exercise on one dimensional arrays
15. Programming exercise on two dimensional arrays

SEMESTER-III

DCS-310   OBJECT ORIENTED PROGRAMMING

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Object Oriented Paradigm
Structured vs object oriented development, elements of object oriented programming, objects, classes, multiple views, encapsulation and data abstraction, inheritance, polymorphism, object oriented programming (OOP) languages.
2. C++ At A Glance
Introduction, classes, derived classes, operator overloading

SECTION B
3. Data Types, Operators and Expressions
Data type such as character, integers etc, variables, operators and expressions
4. Control Flow
Statements such as blocks, if statements, if-else statement, for loop, while loop, dowhile loop, switch statement.
5. Arrays and Strings
Operators on arrays, multidimensional arrays, strings, array of strings, string manipulation

SECTION C
6. Classes and Objects
Class specification, class objects, accessing class members, defined member function, passing objects on arguments, returning objects from functions, structures and classes, constructors and destructors
7. Constructors and Destructors
Parametrized constructors, constructor with default arguments

SECTION D
8. Operator Overloading

Unary operator overloading, binary operator overloading.
9. Inheritance
Derived class declaration, forms of inheritance, constructor and destructor are derived classes.

DCS-310P   OBJECT ORIENTED PROGRAMMING

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Exercises involving various control statement
2. Exercises involving class and object creation
3. Exercises involving unary operator overloading
4. Exercises involving binary operator overloading
5. Exercises involving Derived classes

DCS-320   DIGITAL ELECTRONICS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Introduction
Basic difference between analog and digital signal.
Applications and advantages of analog signals.
2. Number System
Binary and hexadecimal number system, conversion from decimal and hexadecimal to binary and vice-versa. BCD representation
Binary addition, subtraction, multiplication and division including binary points. BC addition. 1's and 2's complement method of addition/subtraction
3. Logic Gates
Concept of negative and positive logic

Definition, symbols and truth tables of NOT, AND, OR, NAND,EXOR Gates, NAND and NOR as universal gates.

4. Logic Simplification

Postulates of Boolean algebra, DE Morgan's Theorems, Various identities.

Formulation of truth table and Boolean equation for simple problem. Implementation of Boolean (logic) equations with gates

Karnaugh map (upto 4 variables) and simple applications in developing combinational logic circuits

5. Logic Families

Logic Family Classification:
- Definition of SSI, MSI, LSI, VLSI
- TTl and MOS families and their sub classification
- Characteristics of TTL and MOS digital gates, delay, speed, noise margin, logic levels , power dissipation , fan-in , fan-out , power supply requirement and comparision between TTL and MOS families
- Interfacing TTL and MOS Ics.

Logic Circuits:

Open collector, wired OR and totem pole output circuit operation (qualitative) for a TTL NAND gate
- MOS circuit operation for a standard gate (NOR)

Tri state Switch/Buffer

SECTION B

6. Codes and Parity

Concept of code, weighted and non-weighted codes, examples of 8421, BCD, excess-3 and Gray code.

Concept of parity, single and double parity and error detection

Alpha numeric codes: ASCII and EBCDIC.

7. Arithmetic Circuits

Half adder and Full adder circuit, design and implementation.

Half and full subtracter circuit, design and implementation.

8. Decoders, Display Devices and Associated Circuits

LED, LCD, seven segment display, basic operation of various commonly used types

Four bit decoder circuits for 7 segment display/ driver Ics.

SECTION C

9. Multiplexers and De -Multiplexers

Basic functions and block diagram of MUX and DEMUX. Different types.

10. Latches and Flip Flops

Concept and types of latch with their working and applications

Operation using waveforms and truth tables of RS, T, D, JK, Master/ Slave JK flip flops.

Difference between a latch and a flip flop

11. Counters

Binary counters

Divide by N ripple counters (including design), Decade counter.

Pre settable and programmable counters

Down counter, updown counter

Synchronous counters (only introduction)

Difference between Asynchronous and Synchronous counters

Ring counter with timing diagram

SECTION D
12. Shift Register
Introduction and basic concepts including shift left and shift right.
Serial in parallel out, serial in serial out, parallel in serial out, parallel in parallel out.
Universal shift register
Buffer register, Tristate Buffer register
13. Memories
Basic RAM cell, N X M bit RAM, Expansion of word length and capacity, static and dynamic RAM, basic idea of ROM, PROM, EPROM, AND EEPROM.
13. A/D and D/A Convertors
General principle of A/D and D/A conversion and brief idea of their applications. Binary resistor network and resistor ladder network methods of D/A conversion. Dual slope and successive approximation types of ADCs.

DCS-320P   DIGITAL ELECTRONICS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. AND, OR, NOT, NAND, NOR AND EXOR Ics
Verification and interpretation of truth tables for AND, OR, NOT, NAND, NOR AND Exclusive OR (EXOR) gates
2. Logic functions using universal gates:
- Realisation of logic functions with the help of NAND or NOR gates
- Construction of a NOR gate latch and verification of its operation
3. Half-adder and Full adder circuits:
- Construction of Half adder using EXOR and NAND gates and verification of its operation
- Construction of Full adder using EXOR and NAND gates and verify its operation
4. 4 bit adder/subtracter circuit:
Construction of a 4 bit adder, 2's complement subtractor circuit using 4 bit adder IC and an EXOR IC and verify the operation of the circuit
5. IC Flip-flop
Verification of truth table for positive edge triggered, negative edge triggered, level triggered IC flip-flops (Atleast one IC each of D latch, D flip-flop, edge trigerred JK and master slave JK flip-flops)
6. Display devices and their decoder/ drivers:
Familarisation and use of different types of single LEDs, common anode and common cathode seven segment LED displays. Use of 7447, 7448 (or equivalent) decoder / driver Ics for 7 segment displays
7. Tristate gate Ics:
Verification of truth table and study the operation of tristate buffer IC 74126 or equivalent Construction of a 4/8 bit directional bus by using an approximate IC.
8. Decoder, encoder, multiplexer and demultiplexer
- Verification of truth table for encoder and decoder ICs
- Verification of truth table for one/two-each of multiplexer and demultiplexer ICs

9. Shift Register
- Construction of a 4 bit serial-in-serial-out/serial-in-parallel-out right shift register using JK flip flops and verification of its operation
Construction and testing for its operation of a 4 bit ring counter using JK flip flops
10. Universal Shift Registers IC
Verification of truth table for any one universal shift register IC
11. Asychronous Counter ICs
- Use of 7490 equivalent TTL (a) divide by 2 (a) divide by 5 (c) divide by 10 counter
OR
- Use of 7493 equivalent TTL (a) divide by 2 (b) divide by 8 (c) divide by 16 counter
12. To construct and test 4/8 bit D/A convertor using IC.
13. To construct and test 4/8 bit A/D convertor using IC.
Note: The students should be exposed to different digital ICs, related to the experimentsand the data book.

DCS-330   COMPUTER ARCHITECTURE

Maximum Time :   **3 Hrs.**   **University Examination : 70 Marks**
Total Marks :   **100**   **Continuous Internal Assessment : 30Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Processor Organization
General structure of CPU registers, stack, operation of stack, ALU and control unit. Instruction format, mathematical operations, fixed point addition, multiplication or division. Princ iple of arrays and pipe line processors, principle of instruction decoding and implementation, hardwire and micro instruction based control unit

SECTION B
2. Design of Controller
Identifying micro instruction, minimizing micro instruction, size, parallelism in micro instruction, encoding control instruction, timing cycle and clock generation, organization of micro programme based control unit

SECTION C
3. Memory Organization

Static memory, dynamic memory, memory hierarchies, memory refresh, paging concept of memory compaction, interleave memory and principle of address interleaving associative memory, memory segmentation, block address calculation, concept of cache memory

SECTION D
4. Data Transfer Technique
Various I/O devices, IOP, CPU configuration

DCS-340   OPERATING SYSTEMS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2.   Use of non-programmable scientific calculator is allowed

SECTION A
1. Overview of an Operating System
Software organization, linking, loading and executing control program for batch processing, time sharing and real time O.S. multi programme, multi processing systems. Various functions of operating System.
2. Overview of System Software
Compilers, assemblers and loaders

SECTION B
3. Unix Operating System
Feature of UNIX, directory structure of UNIX, File structure of UNIX, concept of inodes. Logging into Unix, format of UNIX components, basis operations on files, filters and pipelines mail and communication commands.

SECTION C
4. Shell Programming
Types of shells, control structure for shells and I/O for shells.
5. Use of Editors
VI, EX & Ed.

SECTION D

6.DOS Commands
internal external
7. deadlocks

DCS-340P   **OPERATING SYSTEMS**

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Exercise involving UNIX commands.
2. Exercise involving redirection and piping commands.
3. Exercise involving UNIX communication TCP/IP and <ail).

DCS-350P   **COMPUTER WORKSHOP-I**

Maximum Time :   3 Hrs.   **University Examination : 70 Marks**
Total Marks :   100   **Continuous Internal Assessment : 30Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2.   Use of non-programmable scientific calculator is allowed

1. Soldering and desoldering, problems in soldering and holding sensitive equipment, detailed parts familarization of personal computers parts, mother board details, IO boards, hard disk and hard disk drive, floppy disk drive, CD ROM drive, DVD, Keyboard, display devices, various chips (memory chips and CPU), serial and parallel ports, assembly of complete Pc, making it operational, fault finding, changing ROM set up and facilities in ROM set up.

2.   Dissembling of PCs
     Power supply, Linear power supply and switch mode power supply, trouble shooting of SMPs, Familarization in operation in use of function generation, single beam CrO, dual race/dual beam CRO, digital multimeter, universal frequency counter/timer, logic analyzer.

SEMESTER-IV

DCS-410   PROGRAMMING IN VISUAL BASIC

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION-A
Visual basic environment and overview
over view of main screen, menu bar, tool bar, tool box
using menus, customizing a form, building user control.
command buttons text boxes, labels images controls.

SECTION-B
statements in visual basic, writing codes, dialog box.
variable, type of variable string numbers.

SECTION-C
writing procedures, VB programs structure ,projects.
forms, modules, and frames, project with multiple forms
displaying information on form, picture boxes, textboxes.
SECTION-D
printer object controlling program flow.
built in function user defined function and procedures.
arrays, grids & records.
object oriented programming, creating object, building classes.

DCS-410P   PROGRAMMING IN VISUAL BASIC

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. write a program to make a calculator using textbox, command button
2. write a program to search the record from the source
3. WAP to generate Fibonacci number.
4. WAP to sort the list in ascending numbers.

DCS-420   **DATA STRUCTURE**

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Problem solving concepts, top down and bottom up design, structured programming
2. Concept of data type and data structure, differences between data type and data structures, view of data structures at logical level, implementation level and application level, Built-in data structures and user defined data structures

SECTION B
3. Concept of dynamic variables, difference between static and dynamic variables, concepts of pointer variables
4. Study of the following of the following user defined data structures using static and variables
- Built-in data structures like arrays, records
- User defined data structures like stacks, queues, linked lists, circular linked lists, doubly linked list

SECTION C
5. Non-linear data structures: trees, terminology of trees, concepts and applications of binary trees, tree traversal techniques and algorithms.

SECTION D
6. Sorting and searching algorithms and their efficiency considerations
7. Considerations for choice of proper data structure

DCS-420P   DATA STRUCTURE

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Problems on arrays on insertion, deletion and searching
2. Problems on pointers
3. Problems on structures
4. Creation of dynamic integer array
5. Transformations from infix to postfix, infix to prefix and evaluation
6. Programs on transformations
7. Program on implementation of stacks
8. Programs on implementation of queues such as initialization, insertion, deletion and searching
9. Programs on circular queues
10. Problem on operation of lists
11. Problems on trees as construction of binary trees, insertion, deletion and searching in binary trees
12. Preorder, inorder and post order traversal of trees
13. Programs to count the leaves and to find the height of a binary tree
14. Programs on sorting such as merge sort, quick sort, heap sort, bubble sort
15. Searching a linked list for all records with a particular list
16. Search into a binary search tree

DCS-430   DATABASE MANAGEMENT SYSTEM

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Introduction
Purpose of database, data abstraction, data models, instances & schemas, data independence, data definition language, data manipulation language, database manager, database administration

SECTION B
2. Entity Relationship Model
Entity & Entity sets, relationship sets, mapping constraints, candidate & primary key, entity relationship diagram, reducing E-R diagram to tables.
3. Relational Model
Concepts of relational model, integrity constraints, extension & intension, relational algebra, relational calculus, commercial query language, modifying the database, comments on relational model.
4. DBMS based on Relational Model
Introduction, the mapping operation, data manipulation facility, data definition facility, data control facility.

SECTION C
5. Normalisation
Introduction to functional dependence, normalization-1NF, 2NF, 3NF, BCNF, 4NF, 5NF

SECTION D
6. Oracle Ingress Or Sybase
Creation of tables, modification of tables, DDL command for RDBMS, SQL command for RDBMS, command language

DCS-430P   DATABASE MANAGEMENT SYSTEM

Maximum Time :   3 Hrs.   **University Examin ation : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

Development of application or any RDBMS package based upon the syllabus.

DCS-440   SYSTEM ANALYSIS AND DESIGN

Maximum Time :   3 Hrs.   **University Examination : 70 Marks**
Total Marks :   100   **Continuous Internal Assessment : 30 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Introduction
Concepts of a system, examples of systems, types of systems-open and closed, static and dynamic with examples.
2. Overview of System Analysis and Design
System Development life cycle, brief introduction to analysis, design, implementation and testing and maintenance
SECTION B
3. Preliminary Investigation
Project selection, scope definition and preliminary investigation
4. Feasibilty Study
Technical and economic and operational feasibity, cost and benefit analysis

SECTION C
5. Requirement Specification and Analysis
Fact finding techniques, data flow diagrams, data dictionaries, decision trees and tables.
6. Detailed Design
Module Specification, file design, data base design.

SECTION D
7. Testing and Quality Assurance
Maintenance, unit and integration testing techniques, design objectives, quality factors such as reliability correctness etc.
8. User Education and Training
Issues in user education and training, method of educating and training the user

DCS-450   **MICROPROCESSERS**

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2.   Use of non-programmable scientific calculator is allowed

SECTION A
1. Architecture of 8086
Introduction to 8 bit and 16 bit microprocessors, internal architecture of 8086, internal resistors, physical and logical address generation, maximum and minimum modes, clock generation, minimum system, comparision between 8086 and 8088
2. Programming 8086
Address modes, instruction format, instruction templates and hand assembly, instruction set, data transfer, arithmetic, bit manipulation, string instructions, program transfer and processor control instructions, assembler and assembler directives

SECTION B
3. Programming using Assemblies
Programming exercises based on the instruction set and use of assembler
4. Memory I/O Interface
Memory Interface block diagram, I/O interface (direct and indirect)

SECTION C
5. Interrupt Interface of 8086
Types of interrupts, interrupt masking, software interrupts

SECTION D
6. Features of Advanced Microprocessors
Main features of 80386 and Pentium etc

DCS-450P   MICROPROCESSERS

Maximum Time :   3 Hrs.   University Examination : 35 Marks
Total Marks :   50   Continuous Internal Assessment : 15 Marks
Minimum Pass Marks :40%

1. Study of instructions of 8086 using Debug
2. Addit ion and subtraction of multibyte numbers
3. Multiplication of unsigned/signed numbers
4. Division strings in ascending and descending order
5. Sorting strings in ascending and descending order
6. Modular programming using subroutines

SEMESTER-V

DCS-510   **INDUSTRIAL MANAGEMENT**

Maximum Time :   3 Hrs.   **University Examination : 70 Marks**
Total Marks :   100   **Continuous Internal Assessment : 30Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Principles of Management
Management, different functions of management planning, organizing, coordination and control.
Structure of an industrial organization.
Functions of different departments.
Relationship between individual departments.
2. Human and Industrial Relations.
Human relations and performance in organization.
Understand self and others for effective behaviour.
Behaviour modification techniques.
Industrial relations and disputes.
Relations with subordinates, peers and superiors.
Characteristics of group behaviour and trade unionism
Mob psychology.
Grievance, Handling of grievances.
Agitations, strikes, Lockout, Picketing and Gherao
Labour Welfare
Workers participation in management.
3. Professional Ethics
Concept of Ethics.
Concept of professionalism.
Need for professional ethics.
Code for professional ethics.
Typical problems of professional engineers.
Professional bodies and their role.

SECTION B
4. Motivation
Factors determining motivation.
Characteristics of motivation.
Methods for improving motivation.
Incentives, pay promotion, rewards.
Job satisfaction and job enrichment.
5. Leadership.
Need for Leadership.
Functions of a Leader.
Factors for accomplishing effective leadership.
Manager as a leader.
6. Communication
Importance of communication.
The communication process.
Barriers to communication.
Making communication effective.
Listening in communication.
7. Human Resource Development
Introduction.
Staff development and career development.
Training strategies and methods.

SECTION C
8. Wage Payment
Introduction to wages.
Classification of wage payment scheme.
9. Labour, Industrial and Tax Laws.
Importance and necessity of industrial legislation.
Types of labour laws and disputes.
Brief description of the following Acts
The Factory Act 1948, Payment of Wages Act 1936, Minimum Wages Act 1948,
Workmen's Compensation Act 1923. Industrial Dispute Act 1947, Employee's state
Insurance Act 1948, Provident fund Act.
Various types of Taxes- Production Tax, Local Tax, Sales Tax, Excise duty, Income Tax.
Labour Welfare schemes.
10. Accidents and Safety
Classification of accidents; According to nature of injuries i.e. fatal, temporarory,
According to event and According to place.
Causes of accidents – psychological, physiological and other industrial hazards.
Effects of accidents.
Accidents-prone workers.
Action to be taken in case of accidents with machines, electric shock, road accident,
fibres and erection and correction accidents.
Safety conciousness.
Safety procedures.
Safety measures- Do's and Don't's.
Safety publicity.
Safety measures during executions of Engineering works.

SECTION D

11. Environmental Engineering.
Ecology.
Factors causing pollution.
Effects of Pollution on Human Health.
Air pollution and control act.
Water Pollution and control act.
Pollution control equipment.
Solid waste mangement.
Noise pollution and its control.

12. Enterpreneurship Development
Concept of Enterpreneurship.
Need of Enterpreneurship in the context of prevailing employment conditions of the country.
Successful enterpreneurship.
Preparation of project report.
Training for enterpreneurship development.

DCS-520P   PROGRAMMING IN FOXPRO

Maximum Time :   **3 Hrs.**   **University Examination : 70 Marks**
Total Marks :   **100**   **Continuous Internal Assessment : 30 Marks**
Minimum Pass Marks :40%

Module -1
This module is designed to teach the new user how to create, edit and manipulate
Database, enter data, search for and sort data and generate reports and mailing labels.
FoxPro Terminology
Command window
Creating and opening database
Adding records
Viewing records in Browse mode
Editing records
Moving and resizing FoxPro windows
Modifying the structure of a database
Customizing the environment
Sorting and indexing
Creating simple indexes
Creating multiple field indexes
Querying a database
Creating logical queries
Saving query results
Generating and enhancing reports
Mailing labels (if time allows)

Module -2
This module is designed help the experienced participants become comfortable with creating and manipulating relationships between tables, creating calculations.

Using relationships
Linking Terminology
Indexing tables
Creating relationships in queries
Creating integrity for a relationship
Creating relationships in queries with multiple conditions
Creating expressions in queries
Screens (if time allows)
Reports
Module -3
This module is designed to give the user a hands-on experience to the FoxPro programming language as well as general programming concepts and FoxPro specifics.
Steps in writing a program
Programming tips
Display data
Positioning the record pointer
Creating loops
Developing IF statements
Prompting the user input
Error checking
Using memory variables
Locating data
Using functions
Calling programs (Branching)
Using Macro substitution

DCS-530   E-COMMERCE AND ITS APPLICATION

Maximum Time :   **3 Hrs.**   **University Examination : 35 Marks**
Total Marks :   **50**   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2.   Use of non-programmable scientific calculator is allowed

SECTION-A
Architectural framework of e-commerce
web architecture, web browser, ,HTTP,TCP/IP,webserver, HTML,CGI, scripts standards:- EDIFACT,edi.

SECTION-B
security issue
introduction to viruse, worms, bombs and protective measure , and security issue, firewalls, and proxy application gateways ,secure, electronic transaction, public and private key encryption. digital signature, and digital certificate,

SECTION C
electronic payments systems.:- digital cash, electronic signature, debit cards at point of scale, smart cards, online, credit cards, based systems, electronic fund EFT, payment gateways.

SECTION-D
electronic commerce application:-
e-commerce banking , online shopping, business, models, and revenue models,, online publishing, e-commerce, in retail industry, CBS, digital copyrights, electronic data interchange, electronic fund transfer, electronic display board, electronic catalogue.

DCS-530P   E-COMMERCE AND ITS APPLICATION

Maximum Time :   **3 Hrs.**   **University Examination : 35 Marks**
Total Marks :   **50**   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. visit most popular e-commerce sites on the internet and comment on their design related issue.
2. create a site which enable the connectivity with the commerce site.
3. list down the security level of various sites their strengths and limitations.
4. how you can integrate an e-commerce site with other sites to make distributed network site.

DCS-540   COMPUTER NETWORKS

Maximum Time :   **3 Hrs.**   **University Examination : 35 Marks**
Total Marks :   **50**   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Networking Basics
What is network
Models of network computing
LAN, MAN & WAN
Network services
2. OSI Model
Standards
OSI Reference Model
OSI Physical layer concepts
OSI Datalink layer concepts
OSI Network layer concepts
OSI Transport layer concepts
OSI Session layer concepts
OSI Presentation layer concepts
OSI Application layer concepts

SECTION B
3. Transmission Media
Transmission frequencies
Cable Media
Wireless media
Public and Private network services
Connecting hardware

4. Network Topologies
Data Transmission
Digital & Analog signaling
Bit synchronization
Based band & Brad transmission
Multiplexing
5. Protocol Suites
Models & Protocols
Network IPX/SPX
Internal Protocols
Apple Talk
Digital Network Architecture

SECTION C
6. Network Architecture
ARC net specifications
Ethernet specifications
Token Ring specifications
7. Network Connectivity
Network Connectivity Devices
NICs
Hubs
Repecters
Multiplexers

39

Modes
Routers

SECTION D
8. Network Printing
Print Services
9. Network Administration
Keeping Records
Protecting data
10. Network Trouble Shooting Techniques
Trouble shooting process
Trouble shooting tools

DCS-540P   **COMPUTER NETWORKS**

Maximum Time :   **3 Hrs.**   **University Examination : 35 Marks**
Total Marks :   **50**   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Interfacing with the network card (Ethernet)
2. Preparing of network cables including hubs. Connectors etc.
3. Establishment of LAN network for homogeneous systems
4. Establishment of LAN network for heterogenous systems
5. Use of protocols and gateways in establishment LAN
6. writing small programs such as file security, file transfer, remote testing.
7. Trouble shooting of networks
8. Writing Logic scripts.

DCS-550P COMPUTER WORKSHOP-II

Maximum Time :   3 Hrs.   **University Examination : 70 Marks**
Total Marks :   100   **Continuous Internal Assessment : 30 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter

1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2.   Use of non-programmable scientific calculator is allowed

SECTION A
1. Loading of various operating systems, UNIX, LINUX, Novel netware, windows NT, windows 85 and 98, Familarization of their features with practical illustrations. Changing settings.

SECTION B
2. Virus detection, prevention and cure. Use of PC tools. Learning various types of virus such as polymorphic virus, stealth virus, boot sector virus, position table viruses.

SECTION C
3. Structure of Floppy disk and hard disk, anting to book sector and reading from it.
4. Exposure to RDBMS languages, their features and handling each one of them

SEMESTER-VI

DCS-610   COMPUTER GRAPHICS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Graphic Systems
Display devices, physical input and output devices, display processors graphics software coordinate representation, graphics functions and standards
2. Output Primitives
Point plotting, line drawing algorithms- DDA algorithms, bresenham's line algorithms, circle generating algorithms, ellipses, attributes and construction techniques

SECTION B
3. Two -Dimensional Transformations
Basic transformations-translations, rotation, matrix representation and homogeneous coordinates, composite transformations-scaling relative to a fixed pivot, rotation about a pivot point, general transformation equations, other transformation – reflection.

SECTION C
4. Windowing and Clipping Techniques
Windowing concepts clipping algorithms, area clipping, line clipping, polygon clippings, text clipping, blanking, window-to-viewpoint transformation, Cohen Sutherland algorithm

SECTION D
5. Animation Techniques
Animation perspectives, computer animation hardware, computer animation software and applications, PC animation, concept of simulations

42

DCS-610P   COMPUTER GRAPHICS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

1. Line Drawing
2. DDA Bresenham's
3. Circle generation
4. Two dimensional transformation
5. Computer Animation
6. Windowing and Clipping
7. Projection of a cube or any other dimensional figure using parallel and perspective transformation

DCS-620   PC ORGANISATION

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter
1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Hardware Organisation of PC
Micrometer organization, 8086/8088 microprocessor, its architecture, instruction set, memory address and addressing techniques and I/O addressing. The mother board of the PC: memory organization, system timers/counters, interrupt vectoring, Interrupt controller, DMA controller and its channels, PC-bus slots, various types of digital buses. Serial I/O ports e.g. COM 1 and 2, parallel ports
2. The Video display of The PC
The basic principles of the working of Video monitors, video display adapters (monochrome and colour graphic). Video modes

SECTION B
3. The Keyboard of The PC
The basic principles of the working of a PC Keyboard. Scan modes

4. Disk Drives:
Constructional features of Hard disk, Floppy disk and their drives (HDD and FDD).Logical structure of a disk and its organization: Boot Record, File Allocation Table (FAT) , Disk Directory, Data source

SECTION C
5. Peripheral Devices
Basic features of various other peripheral devices e.g. mouse, printer (DMP, Inkjet, Laser), scanner, plotter, digitizer and Modem
6. Power Supplies
SMPS used in PC and its various voltages. Basic idea of constant voltage transformer (CVT) and un-interrupted power supply (UPS)-off line and On-line.
SECTION D
7. The B ios and Dos Services
The basic idea of BIOS and DOS services for diskette, Serial Port, Keyboard, Printer and Misc. services.
8. Advanced Microprocessors:
Basic features of 32-bit Intel microprocessor 80386, 80486 and Pentium.

DCS-620P　　　　　　　　　PC ORGANISATION

Maximum Time :　3 Hrs.　　　　　　University Examination : 35 Marks
Total Marks :　　50　　　　　　Continuous Internal Assessment : 15 Marks
Minimum Pass Marks :40%

1. To identify various components, devices and sections of a PC.
2. To interconnect the system unit with the video monitor, mouse and keyboard and test the operation of the PC.
3. To connect various add-on cards and I/O devices to a PC mother-board and test their working.
4. To note the voltages and waveforms at various terminals in the I/O channel (Bus Slots).
5. To study the SMPS circuit of a PC, measure various supply voltages and connect it to the mother-board and other appropriate I/O device.
7. To study the operation of an uninterrupted power supply (UPS)

DCS-630 INSTALLATION AND MAINTENANCE OF COMPUTERS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

A) Instructions for paper-setter

1. The question paper will consist five sections namely A, B, C, D and E.
2. Each of the sections A, B, C and D will contain two questions and candidates have to attempt at least one question compulsorily from each section. Each section carry 15% of the total marks
3. Section E will comprise of 10-15 short answers type questions, which will cover the entire syllabus and will carry 40% of the total marks.

B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed

SECTION A
1. Site Preparation

Design of computer room, specification for flooring materials, falls roofing, disk-tape library room, air -conditioning requirements and its maintenance. Temperature and humidity factor, need for dust proofing, different types of air conditioners and their application, Design of computer, power requirement of computer room, Need of stabilizer, CVT, UPS, simple principle of UPS and its advantages over normal power supply, earthing and its advantages, distribution board, fire detection and prevention of computer room

SECTION B
2. Installation

Layout planning of computer system, knowledge of installation procedure and manuals, cracking off-line equipment, act all testing computer system, using manufacture specified procedure, training the operator for small systems like Pc, Installation of various kinds of printers. Installation of hubs and switches. Installation of network cable, fibre optic and UTP cabling

SECTION C & D
3. Maintenance

Types of maintenance, preventive and corrective maintenance, site audit, importance of preventive maintenance, Use of diagnostic software like Pc tools, QA++, Norton commander, Macaceffe, Smartdog, Typical symptoms of common hardware and software fault and understand the error messages some aid to chip level fault detection and its rectification, failure of equipment, knowledge of local parts substitution. Maintenance of printers

DCS-630P   INSTALLATION AND MAINTENANCE OF COMPUTERS

Maximum Time :   3 Hrs.   **University Examination : 35 Marks**
Total Marks :   50   **Continuous Internal Assessment : 15 Marks**
Minimum Pass Marks :40%

This course is dine preferably in industry based on computer network principle and around polytechnic. Visit to standard computer centers of local area where fan or other network is installed. Practice in design of computer room environments. Design of computer center according to dimension available for computer center. Application of PC-tolls, QA++, Norton aommander, Macaceffe, Smartdog.

DCS-640P   MAJOR PROJECT WORK

Maximum Time :   3 Hrs.   **University Examination : 140 Marks**
Total Marks :   200   **Continuous Internal Assessment : 60 Marks**
Minimum Pass Marks :40%

Some of the project activities arte given below:
1. Projects related to repair and maintenance of computers
2. Projects related to design of PCBs
3. Projects related to setting up of small computer centre
4. Projects related to Programming
5. Projects related to assembly and fabrication of a PC
6. Software projects related to industry (by using any RDBMS)
7. Software projects related to industry (by using FoxPro)
8. Projects related to multi-media
9. Projects related to system software e.g. writing of device drivers
10. Projects related to testing, fault diagnosis and repair of
Motherboards
SMPS
HDD
CD
Printers
Monitors
Plotters
11. Projects related to maintenance of common faults in Pc range of computers and various fault diagnosis procedure
12. Projects related to networking e.g. set up and diagnosis faults in small LANs
13. Projects related to process control, data acquisition system
14. Projects related to instrumentation, robotics etc
15. Projects related to computer graphics, object oriented programming and artificial intelligence