(A) COURSE TITLE ANDCODE : COMMUNICATION SKILLS–II, G – 201

(B) LEVEL : TWO, Hardcore Course

(C) BRANCH/ DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

In Communication skills – I, the basics of the process of communication was learnt, this course deals with more applications of the concepts and principles learnt therein.

The employer expects that a Diploma pass-out should be able to communicate orally as well as in writing. Moreover he is expected to write notes, circulars, minutes of meetings etc. He/she should also be able to write a technical report, draft a proposal etc. This subject will deal with Technical Communication and provide sufficient practice for this purpose.

(E) TEACHING AND EXAMINATION SCHEME:

Sl. No.	Course Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
								Theory		Practical		
			Pre-requisite	L	T	P	C	ET	PA	ET	PA	
1.	G- 201	Communication Skills –II	G-101	3	1	-	4	75	25	-	-	100

(F) DETAILED COURSE CONTENTS

CHAPTER-1.0 ESSENTIALS OF EFFECTIVE BUSINESS CORRESPONDENCE

- Introduction
- Simplicity
- Clarity of goal
- Courtesy
- Persuasion
- Sincerity.
- Tactful approach.

CHAPTER-2.0 BUSINESS LETTER

- Introduction
- Different types

CHAPTER-3.0 ENQUIRIES & REPLIES

- Enquiries
- Replies.
- Quotations
- Sample letters

CHAPTER-4.0 CIRCULAR LETTERS

- Introduction
- Salient features

CHAPTER-5.0 APPLICATIONS FOR EMPLOYMENT

- Introduction
- Application formats.
- Covering letter
- The Curriculum Vitae/ Resume

CHAPTER-6.0 AGENDA & MINUTES

- Introduction
- Technique
- Key language

CHAPTER-7.0 NOTICES, CIRCULARS & ORDERS

- Introduction
- Notices
- Circulars
- Orders

CHAPTER-8.0 REPORT WRITING

- Introduction
- Techniques of writing a Report

CHAPTER-9.0 PROPOSAL WRITING

- Introduction
- Types of Proposal

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Chapter Title	Hours	Marks			
			K	C	A	Total Mark
1.	Essentials of Effective Business Correspondence Communication	4	4	-	-	4
2.	Business Letter	6	-	3	5	8
3.	Enquiries & Replies	6	-	2	4	6
4.	Circular Letters	6	-	2	4	6
5.	Applications For Employment	8	-	3	7	10
6.	Agenda & Minutes	8	-	3	7	10
7.	Notices, Circulars & Orders	8	-	3	7	10
8.	Report Writing	9	-	3	7	10
9.	Proposal Writing	9	-	2	9	11
	Total	**64**	**4**	**21**	**50**	**75**

Abbreviations: K=Knowledge level, **C**= Comprehension Level, **A**=Application level

(H) SUGGESTED IMPLEMENTATION STRATEGIES:

The student will be able to develop the communication skills if this course is treated in such a way that there is enough of practice and feedback.
Enough practice in writing of notes, circulars
Moreover, the communication skills could also be developed through the technical courses, through report writing, problem solving discussions, role-plays etc., are undertaken.

(I) SUGGESTED LEARNING RESOURCES :

(a) Reference Books:

S. No	Title	Author, Publisher, Edition & year
1.	Effective Technical Communication	Rizvi, Ashraf, Tata McGraw Hill,India, 2005
2.	Effective Business Communication	Asha Kaul, Prentice Hall ,India2007
3.	Communication Skills for Technical Students – Book I	Tiwari, N.P. et al , Somaiya Publications, 172, Mumbai Marathi Granth Sangrahalaya, Marg, Dadar, Mumbai – 400 014, 4th Ed., 1995

S. No	Title	Author, Publisher, Edition & year
4.	A Course in Technical English– Book II	Tiwari, N.P. et al , Somaiya Publications, 172, Mumbai Marathi Granth Sangrahalaya, Marg, Dadar, Mumbai – 400 014, 1989

(b) Others:

- Textbooks mentioned in the references.
- TV programmes.
- Newspaper clippings.
- Periodicals like, news magazines, journals etc.
- OHP transparencies

Hours: - Marks:-

SUGGESTED LIST OF PRACTICALS:

- Using a dictionary.
- Use of newspaper/news magazines articles.
- Writing of reports
- Writing of proposals
- Writing of applications
- Group discussions

(A) COURSE TITLE AND CODE : ENGINEERING DRAWING, G - 203

(B) LEVEL : TWO

(C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

Drawing as a communicating and representing medium, which has a significant role in the design profession of technician, developing competencies related to work more closely with Design Engineer. This includes visualization of an object in space as well as proficiency in reading and interpretation of working drawing. It is the skill, which translates an engineering idea into lines and dimensions on a piece of paper. This subject for diploma programme is aimed at developing a foundation of knowledge of drawing and use of computer in the field of Engineering Drawing.

(E) TEACHING AND EXAMINATION SCHEME:

Sl. No.	Course Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
								Theory		Practical		
			Pre-requisite	L	T	P	C	ET	PA	ET	PA	
2.	G- 203	Engineering Drawing		2	-	6	8	75	25	25	25	150

(F) DETAILED COURSE CONTENTS

CHAPTER 1.0 INTRODUCTION TO DRAWING

- Use of different drawing instruments
- Conventions of Lines
- Principle of dimensioning system.
- Types and construction of scales – Plain and Diagonal scale
- Computer hardware and software requirements for CAD

CHAPTER – 2.0 CURVES AND TANGENTIAL

- Construction of Ellipse by
- Arc and Circle method
- Concentric Circle method
- Rectangle/ Oblong method
- Construction of Parabola by
- Directric focus method
- Rectangle method
- Draw Hyperbola by

- Transverse axis and focus method
- Passing through a given point.
- Draw involutes of
  - A polygon
  - A circle
- Use of CAD commands for generating above curves

CHAPTER – 3.0 PROJECTION OF POINTS AND LINES

- Projection of Points in different planes.
- Projection of lines in different plane
- Lines inclined to one reference plane
- Use of filter command in CAD for above.

CHAPTER - 4.0 PROJECTION OF PLANES

- Projection of planes of following shapes
- Circular
- Rectangular
- Pentagonal
- Hexagonal
- Projections for above planes for inclined to one plane.
- For a Cube, Prism Pyramid, Cone etc.

CHAPTER – 5.0 PROJECTION OF SOLIDS

- Projection of following solids, inclined to one reference plane.
- Prism
- Cube
- Pyramid
- Cylinder
- Projection of above solids when section resting on base and ground.

CHAPTER – 6.0ORTHOGRAPHIC PROJECTIONS

- Introduction
- First angle and Third angle projections
- Conversion of simple pictorial view to orthographic view.
- Draw plan side view and top view in third angle
- Use CAD for Orthographic projections

CHAPTER – 7.0 SECTIONAL VIEWS

- Conversion of given pictorial view to sectional view.
- Draw sectional view at given sections for both X and Y-axis.

CHAPTER – 8.0 DEVELOPMENT OF SURFACES

- Development of surfaces for the following
- Cube
- Cylinder
- Prism
- Cone and frustum cone
- Use CAD for development of surfaces.

CHAPTER – 9.0 ISOMETRIC PROJECTIONS

- Isometric Scales
- Isometric views of simple objects
- Isometric views for slots and cuts in the objects

CHAPTER – 10.0 STANDARD CONVENTIONS AND SYMBOLS

- Conventions as per IS Codes
- Symbols as per Codes
- The above conventions and symbols are for Civil, Mechanical and Electrical Engg.

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Sl. No.	Chapter No.	Chapter Title	Hours	Marks			
				K	C	A	Total Mark
1.	1.0	INTRODUCTION TO DRAWING	2	2	2	-	4
2.	2.0	CURVES AND TANGENTIAL EXERCISES	4	2	2	6	10
3.	3.0	PROJECTION OF POINTS AND LINES	3	-	2	6	8
4.	4.0	PROJECTION OF PLANES	3	2	2	4	8
5.	5.0	PROJECTION OF SOLIDS	3	-	2	7	9
6.	6.0	ORTHOGRAPHIC PROJECTIONS	4	2	-	5	7
7.	7.0	SECTIONAL VIEWS	4	2	-	5	7
8.	8.0	DEVELOPMENT OF SURFACES	3	-	2	5	7
9.	9.0	ISOMETRIC PROJECTIONS	3	2	1	4	7
10.	10.0	STANDARD CONVENTIONS AND SYMBOLS	3	4	2	2	8
Total			**32**	**16**	**15**	**44**	**75**

Abbreviations: K=Knowledge level, **C**= Comprehension Level, **A**=Application level

(H) SUGGESTED IMPLEMENTATION STRATEGIES:

- Chalk & talk method to explain the various principles
- Demonstration and use of instrument used in drawing.
- Classroom practices for different typical exercises.
- Use of computer for developing drawing
- OHP Transparencies for complicated drawing objects

(I) SUGGESTED LEARNING RESOURCES :

(a) Reference Books:

S. No.	Title	Author, Publisher, Edition & Year
1.	Elementary Engineering Drawing	N.D.Bhatt, Charoter Publisher,Anand
2.	Engineering Drawing	Gujral and Shende Khanna Pub. N.Delhi
3.	Engineering Drawing	R.B.Gupta, Satya Prakashan, Delhi
4.	Introduction of CAD	Voisinet McGraw Hill
5.	Understanding Auto CAD 2002	Sham tickoo, TaTa McGraw Hill
6.	Auto CAD 2002 With Applications	Sham tickoo, TaTa McGraw Hill
7.	Work book in Mechanical Drafting	TTTI, Bhopal

(b) Others:

- Charts
- Workbook
- Practice sheets

HOURS: 96 **MARKS:** 25

SUGGESTED LIST OF PRACTICALS:

- Problems on Scales and Letterings (One sheet)
- Problems on Curves (One sheet)
- Simple Orthographic Projections- One for First Angle and One for Third Angle Projection (Two sheets)
- Orthographic projections with sections (One sheet)
- Isometric projection for two objects (One sheet)
- Projection of Points and Lines (One sheet)
- Projection of Solids (Two sheets)
- Projection of Planes (One sheet)

Apart from above, Practice on CAD for following is essential.

Practice on working and application on CAD software

Use of commands like

LIMITS, UNITS, GRID SNAP, ZOOM, PAN, LINE, CIRCLE,
SOLID, ARC, ELLIPS, POINT, ERASE, COPY,
MOVE,MIRROR,BREAK,REGEN,VPOINT,DIST,ID,HATCH,TEXT,STYLE,ARRAY
,PLINE,PEDIT,FILLET,CHAMFER,TRIM,STRECTH,POLYGONE,AREA,SCALE,R
OTATEOFFSET,MEASURE.BLOCK,INSERT,EXPLODE,COLOR,VIEW,PLAN,SHA
DE.
DIMENSIONING,

Practice to take hard copy using Print command of CAD software

(A) COURSE TITLE & CODE : ENGINEERING MATHEMATICS – II
G – 207

(B) LEVEL : TWO

(C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

The purpose of teaching Engineering Mathematics-II to diploma students is to enable them to understand advance uses of mathematics and solving engineering problems. Continuity and sequence is necessary for logical development of subject. The topic includes Coordinate Geometry, Differential Calculus, Integral Calculus, Discrete Mathematics and their application. This course will be helpful even for taking higher studies by the passouts.

(E) TEACHING AND EXAMINATION SCHEME:

Course Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
							Theory		Practical		
		Pre-requisite	L	T	P	C	ET	PA	ET	PA	
G- 207	Engineering Mathematics-II	G-103	4	1	-	5	75	25	-	-	100

(F) DETAILED COURSE CONTENTS

CHAPTER 1.0 COORDINATE GEOMETRY

- Coordinate Systems:
- Cartesian & Polar Coordination.
- Distance Divisional Areas:
- Distance between two points.
- Division of line segment.
- Area of a triangle.
- Standard forms of the equations of a straight line:
- Locus of a point.
- General Equation.
- Intersection of straight line:
- Angle between them.
- Bisector of the angle between them.
- Change of axis:
- Transformation of coordinator when origin is shifted.
- When axis are rotated.

- Straight lines: $X^2 + 2hxy + by^2$:
- Quadratic Equation.
- Properties of Q. Equation.
- Geometric figures:
- Circle.
- Parabola.
- Ellips Hyperbola.
- Definition & Properties.
- Standard Equations.

CHAPTER – 2.0 DIFFERENTIAL CALCULUS

- Functions
  - Independent & Dependent Variables.
  - Types of functions.
- Limits:
  - Concept of limits.
  - Evaluation of limits.
- Differentiation by Ist Principle:
  - Differentiation of Sum.
  - Product and Quotient.
  - Differentiation of function of a function.
  - Differentiation of Trigonometrical, Inverse Trigonometrical & Hyperbolic functions.
  - Logarithmic differentiation.
  - Differentiation of Tropical & Parametric functions.
- Partial Differentiation:
  - Differential Equations.
  - Partial Differentiation.
  - Successive Differentiation.
  - Higher order derivatives.
  - Linear differentiation Equations.
- Application of differentiation:
  - Differential coefficient.
  - Application of coefficient.
  - Equation for Tangent, Normal Tangent, Sub-tangent and Subnormal-tangent.

CHAPTER – 3.0 INTEGRAL CALCULUS

- Integration:
  - Definition.
  - Fundamental Properties.
- Methods of Integration:
  - Integration by Substitution.
  - Integration by parts.
  - Integration by partial fractions.
  - Reduction formula for integration of $\mathrm{Sin}^n x \,.\, \mathrm{Cos}^n x$
- Definite Integrals:

- Definition of gamma function.
- Evaluation of gamma function.

- Application of Integration:
  - Definite integral as limit of a sum.
  - Area of a plane curve.
  - Length of areas of plane curve.
  - Work done.
  - Volume.
  - Mean & RMS values.
  - Centre of gravity.
  - Simpson's Rule.
- Evaluation of Integrals:
  - Evaluation of double integrals.
  - Evaluation of triple integrals.
  - Use of constant limits.

CHAPTER - 4.0 DISCRETE MATHEMATICS

- Relational algebra.
- Sets & subsets.
- Operations on sets
- Product sets (Cartesian product)
- Concepts of relation, domain and Range
- Sets arising from relations.

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Mark
1.0	Coordinate Geometry	22	2	5	8	15
2.0	Differential Calculus	24	4	6	8	18
3.0	Integral Calculus	20	4	8	10	22
4.0	Discrete Mathematics	14	4	8	8	20
	Total	**80**	**14**	**27**	**34**	**75**

Abbreviations: K=Knowledge level, **C**= Comprehension Level, **A**=Application level

(H) SUGGESTED IMPLEMENTATION STRATEGIES:

- Chalk & talk method to explain the various laws, Theorems etc.
- Demonstration and use of Log-tables.
- Classroom practices for different typical exercises.
- Use of derivation and formulas and provision of charts
- OHP Transparencies

(I) SUGGESTED LEARNING RESOURCES :

(a) Reference Books:

S. No.	Title	Author, Publisher, Edition & Year
1.	Mathematics for Polytechnics Vol.-I and Vol-II	TTTI, Bhopal
2.	Mathematics for Polytechnics	S.P.Deshpande
3.	Plain Trigonometry	Bansilal
4.	College algebra	Shah and Desai
5.	Engineering Mathematics	I.B. Prasad
6.	Engineering, Mathematics	Grewal

(b) Others:

- Charts
- Workbook
- Practice sheets

(A) COURSE TITLE & CODE : FUNDAMENTALS OF ELECTRICAL & ELECTRONICS (IT- 201)

(B) LEVEL : TWO

(C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

The students after studying this subject will be able to understand the basics of electrical, electronics devices, circuits and measurements. Electricity finds its base as basic energy for modem industrial activities. Electronics, which is being extensively, used today, in all industries, power system operation, communication systems, computers and information technology. This course will form the base for handling various types of equipment used in IT industry and will facilitate in operation and maintenance to carry out his/her job function effectively.

(A) TEACHING AND EXAMINATION SCHEME

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							ET	**PA**	ET	PA	
IT-201	Fundamentals of Electrical, Electronics & Measurement	G-105	3	-	2	5	75	25	50	25	175

(B) DETAILED COURSE CONTENT

CHAPTER – 1.0 SEMICONDUCTOR DIODE

- **DIODE:** PN Junction, PN junction with no external bias, forward bias and reverse bias, characteristics of semiconductor diode, working principle of PN junction, reverse breakdown, static and dynamic resistance, Silicon diode Vs Germanium diode.
- **3.2 Types Of Diode-**Zener diode, operating principle, VI-characteristics, zener diode as a voltage regulator, varactor diode, light emitting diode.
- Use of diode as half wave and full wave (Centre tapped and bridge type) rectifiers. Relation between d.c. output and a.c. input voltage.Concept of ripples, filter circuits, Shunt capacitor, Series inductor &filters and their applications.

CHAPTER – 2.0 RECTIFIERS AND FILTERS

- **Semiconductor diode applications.**
- **Rectifier Circuits:**
- Half wave, full wave, center tap, bridge and their comparison, Ripple factor, PIV, merits and demerits of rectifier circuits.
- **4.3 Filters:** Necessity of filters, types of filters, shunt capacitor filters, series Inductor, LC filter, ∏ filter and their comparison.

CHAPTER – 3.0 BIPOLAR JUNCTION TRANSISTOR

- Construction, symbol, operating principle of PNP and NPN transistors, transistor configurations: CC, CB, CE. Transistor characteristics in different configurations and comparison.

CHAPTER – 4.0 TRANSISTOR BIASING

- **Transistor Biasing-** Introduction, operating point, need of transistor bias,
- **Types of transistor biasing -** Fixed bias, emitter feedback bias, collector feedback bias, voltage divider bias, stabilization of operating point, need for stabilization, thermal runaway, stability factor.

CHAPTER – 5.0 TRANSISTOR AMPLIFIERS

- **Amplifiers-**Introduction, classification of amplifiers, single stage C.E. amplifier
- **Multistage transistor amplifier -** RC coupled, transformer coupled and direct coupled amplifier, frequency response of multistage amplifiers.

  7.3 Power Amplifiers - Difference between voltage and power amplifier, classification of power amplifiers.

CHAPTER – 6.0 FIELD EFFECT TRANSISTORS

- Introduction, construction, symbol, working principle, types of JFET, characteristics of JFET, Comparison, merits and demerits of JFET with BJT
- **FET parameters -** Dynamic drain resistance, transconductance, pinch-off voltage, amplification factor.
- **MOSFET -** Metal Oxide Semiconductor FET Construction, symbol and working principle of MOSFET.

CHAPTER – 7.0 REGULATED POWER SUPPLY

- Need of regulated power supply, regulation, stabilisation of voltage by Zener-diode, its limitations.
- Block diagram of regulated power supply, transistorised regulated power supply and short circuit protection

CHAPTER – 8.0 ELECTRICAL & ELECTRONIC MEASUREMENT

- Working principle and Construction of Ammeters and Voltmeter, difference between them, extension of range and simple numerical problems.
- Principle and working of Watt meter (dynamometer type) and Energy meter (Induction type)
- Digital measuring instruments, Seven-segment display and its applications

CHAPTER – 9.0 INTEGRATED CIRCUITS

- Introduction to Integrated Circuits and types of ICs.

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Mark
5.0	Semi conductor Diode	4	2	2	4	8
6.0	E Rectifiers and Filters	6	2	2	4	8
7.0	BiPolar Junction Transistor	4	2	1	3	6
8.0	Transistor Biasing	6	2	2	4	8
9.0	Transistor Amplifier	2	2	2	4	8
10.0	Field Effect Transistors	6	2	3	3	8
11.0	Regulated Power Supply	6	4	2	2	8
12.0	Electrical & Electronic Measurement	6	2	2	4	8
13.0	Integrated Circuits	4	2	2	2	6
14.0		4	2	2	3	7
		48	22	20	33	75

Abbreviations: **K**=Knowledge level, **C**= Comprehension Level, **A**=Application level

(H) IMPLEMENTATION STRATEGIES

According to the theory and practical schedules the subject teacher will complete the session.

(I) LEARNING RESOURCES SUGGESTED TO BE USED

1. Lab manuals if available
2. CAI packages
3. OHP transparencies

(J) SUGGESTED LIST OF EXPERIMENTS:

Hours: 32 **Marks:50**

Assignment

- Plotting V-I Characteristics of semi-conductor diode.
- Plotting V-I characteristics of Zener diode and finding its reverse breakdown voltage.
- Observation of output wave shapes and input wave shapes of Full wave/Half wave rectifier.
- Plotting input/output characteristics of CE configuration of transistor.
- Measure voltage, current, power and energy in single phase AC circuit.
- Colour coding of resistance and units of capacitance.

- Study of components :Resistors: Types, power rating, tolerance rating, colour codes, standard values of resistors. Capacitors: Types, voltage ratings, standard values.
- Plot VI characteristics of PN Junction diode.
- Plot VI characteristics of zener diode
- Zener diode as a voltage regulator. Observe and draw half wave rectifier input and output waveforms.
- Observe and draw full wave rectifier input and output waveforms
- Center tapped b) Bridge type.
- Observe and draw rectifier with capacitor filter input and output waveforms.
- To plot input/output characteristics of transistor in CB configuration.
- To plot input/output characteristics of transistor in CE configuration.
- Study transistor biasing.
- Study of single stage CE amplifier.

  Plot frequency response curve and calculate bandwidth of RC coupled amplifier.Plot JFFT characteristics.

(K) REFERENCE BOOKS/JOURNALS/ MANUALS/ CODE OF PRACTICES etc:

S.No.	Title	Edition Year of Publication	Author Publisher & Address
1.	Electronic Technology	Latest	E.admirality
2.	Electrical Engineering basic technology	Latest	Hubscher, Klaue pfloger,Appelt, Willey Eastern Ltd, New Delhi
3.	Electrical Engineering	Latest	J.B. Gupta
4.	Experiments in basic electrical Engineering	Latest	S.K. Bhattacharya, S.K. Rastogi, K.M., New Age International , New Delhi
5.	Problems in Electrical Engineering	Latest	Smith P.
6.	A Text book of Applied Electronics	1st ,1996	R.S. Sedha, S. Chand & Co.New Delhi
7.	Electronic Devices and Circuits - An Introduction	22^{nd} ,2000	Allen Mottershead, Prentice Hall India New Delhi
8.	Electronic Circuits & Applications	8^{th} ,1994	Grob, McGraw Hill International Ltd.
9.	Electronic principles	EIGHTH	Malvino, Tata McGraw Hill Publishing company Ltd. New Delhi
10.	Basic Electronics	SEVENTH 2000	Bernard Grob, Tata McGraw Hill Publishing company Ltd. New Delhi
	Electronic Devices and circuit theory	FIFTH 1996	Robert Boylestad and Louis Nashelsky,Prentice Hall of India Ltd. New Delhi-110001

(A) COURSE TITLE & CODE : MANAGING INFORMATION SYSTEM (IT - 202)

(B) LEVEL : TWO

(C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

familiar with different aspect of establishing and managing computer based information services. The student will understand the project management, network management, security aspects and maintenance of computer system and peripherals.

(A) TEACHING AND EXAMINATION SCHEME:

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							ET	**PA**	ET	PA	
IT-202	Computer Centre Management	G202	3	1	-	4	100	25	-	-	125

(B) DETAILED COURSE CONTENT

CHAPTER-1.0 INFORMATION SERVICE TRENDS AND ISSUES

- Present and future Information Technology Industry Scenario: Problems and Trends, Solution through Information Service (IS) Department/Centre
- Organization and Administration of an IS center: Common Manpower levels and their Roles
- Functions of Computerized IS: System Development, System Maintenance, Production, Administration, Technical Support.
- Cost Vs Benefits: Equipment Costs, Installation Costs, Development Costs, Personal Costs, Operating Costs Vs Benefits

CHAPTER-2.0 ESTABLISHING INFORMATION SERVICE CENTRE

- Computer Software Acquisition:- System and Application Software requirement, Evaluation Criteria- Cost, Service and support, Documentation, Flexibility, Stability, M/c and O.S dependency, Completeness; Tailor made package evaluation Criteria- System Adaptability, Training, Portability, Performance and Capacity, support, File Maintenance, Controls, Data Integrity and Backup
- Computer Hardware Acquisition- Identification, Guidelines & Specification of computer systems (Server/workstations), Peripherals: printer, scanner, plotter etc.; Network Equipments: Switches, Hubs, network cable and connectors etc.

CHAPTER-3.0 ELECTRICAL EQUIPMENTS REQUIREMENTS

- Physical Layout and structure considerations- computer layout-Architecture (space), false ceiling, false flooring, computer furniture's , Room Layout, Air Conditioning, Dust - free, Cleanliness, Sitting arrangements, Access, Security, Fire safety and protection, Environment Factors.
- Electrical Equipment and fittings considerations: Power and Lighting, Electrical Fittings, System load, Specifications of window air conditioner/split-AC, fire-extinguishers, tool kit, servo stabilizer, Specifications of isolations Transformer, UPS, CVT, CVR, Safety Considerations.

CHAPTER – 4.0 PROCUREMENT PROCESS: HARDWARE & SOFTWARE

- Need Identification, Alternative Selection, H/w & S/w requirement Study and Configuration, Request for Quotations, Evaluation of Quotations, Selection and Ordering, Delivery, Installation & Benchmarking.
- Acceptance and Taking Over, Post Installation, Basis for Evaluation Checklist.

CHAPTER – 5.0 PROJECT MANAGEMENT

- Need for Planning
  - Uncertainty in data processing plans
  - Long –term plans
- Project Planning
  - Project Phases, Estimating, Resource Scheduling
- Planning Control Aids
  - Critical Path Method, Gantt charts, Networks, Network Analysis, Planning from the network, Network Packages
- Project control
- Measuring Progress, Recording Progress, Deviation from plans, Performance Statistics

CHAPTER-6.0 SECURITY ASPECTS

- Physical Security- Security factors, fire, flooding, earthquake, theft and sabotage, electrical failure
- Data Security-Accidental disclosure, deliberate infiltration, control of illegal access, control measure/techniques for security-authorization
- System Security-Log Book Maintaining, Viruses, backups

CHAPTER –7.0 MAINTENANCE & NETWORK MANAGEMENT

- Maintenance
  - Introduction: Factors for negotiating the hardware maintenance contract-terms, service and response, vendor support etc.
  - Different types of maintenance
  - Preventive maintenance
  - Remedial Maintenance
  - Intermittent faults
  - Customer provided information and its synthesis
- Network Management
  - Itranet and Internet Management

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Mark
15.0	Information Service Trends and Issues	8	2	6	4	12
16.0	Establishing Information Service Centre	10	4	12	2	18
17.0	Electrical Equipments Requirements	10	4	8	2	14
18.0	Procurement Process: Hardware & Software	8	4	8	2	12
19.0	Project Management	10	4	8	2	14
20.0	Security Aspects	8	2	8	2	14
21.0	Maintenance & Network Management	10	4	8	4	16
	Total	**64**	24	58	18	100

Abbreviation's K=Knowledge level, **C**= Comprehension Level, **A**=Application level

(H) IMPLEMENTATION STRATEGIES

The teachers should insist student to develop a proposal to establish a computer center.

(I) LEARNING RESOURCES SUGGESTED TO BE USED (if available)

4. Available Proposal
5. CAI packages
6. OHP transparencies

(J) SUGGESTED LIST OF TUTORIALS: Marks :25

- Study of institution functioning
- Prepare a proposal to establish a computer centre

(K) REFERENCE BOOKS

S.No.	Title	Edition Year of Publication	Author Publisher & Address
1.	Computer Management & Planning	Latest	Utpal Banerjee, TMH Publications
2.	Management of Information Services	1st, 2000	Chitra Sivakumar & K.S. Babai Tata McGraw- Hill
3.	Introducing system Analysis & Design	Latest	Galgotia Booksource, New Delhi

(A) COURSE TITLE & CODE : PROGRAMING 'C' (IT-407)

(B) LEVEL : FOUR

(C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

This subject intends to develop programming skills in the students, using a popular structured programming language `C'. The students will learn the step by step procedure (i.e. Algorithm and flowcharting) in any program development process. The programming skills thus acquired using `C' language can be used in developing programs for the scientific, research and business purposes.

(A) TEACHING AND EXAMINATION SCHEME:

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							ET	**PA**	ET	PA	
IT-406	Programming in 'C'	G-202	2	-	3	5	75	25	50	25	175

(F) DETAILED COURSE CONTENT

CHAPTER – 1.0 INTRODUCTION TO `C' PROGRAMMING

- Introduction
  - History and features of C, Algorithms, Flowcharts, structured programming Concepts

CHAPTER – 2.0 OPERATORS, EXPRESSIONS AND INPUT/OUTPUT STATEMENTS

- Character set of C
- Operators and Expressions
  - Arithmetic, Relational, Logical assignment operators, variables, constants, data types, expressions, data type conversion, key words, hierarchy of operators.
- `C' Programme structure, Type declaration, Input and Output, (printf, scanf, getchar, putchar, getch, putch), Conversion specifiers in format control string, Library functions (Math functions)

CHAPTER – 3.0 CONTROL STATEMENTS

- Unconditional branching: goto statement
- Conditional branching statements: if statement,
- if- else, Nested `if'

Multiple branching statements: switch case statement

CHAPTER – 4.0 CONTROL LOOP STATEMENTS

- Loop Statements: `for' statement, while statement,
- `do-while' statement, `break-continue' statement

CHAPTER – 5.0 ARRAYS & STRINGS

- Arrays:
  - Concept of one dimensional, two dimensional and
  - Multi-dimensional array, array declaration, Array and initialization, operations on one and two-dimensional arrays.
- String Manipulations
  - Strings, get, puts, string operations, string function (concatenation, comparison, length of a string).

CHAPTER – 6.0 FUNCTIONS

- Library and User-Defined Functions
  - Concepts of library functions, user-defined
  - Functions, local and global variables, storage class,

  Parameter passing mechanisms

CHAPTER – 7.0 POINTERS

- Declaring and using pointer type variables
- Operation on pointer variables
  - Address operator, Indirection operation, increment in pointers and scale factor
  - Using malloc function
- Pointers and arrays, pointers and functions

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Marks
22.0	Introduction to Programming in 'C'	2	2	2	2	6
23.0	Operators, expressions and Input/ output statements	4	4	4	2	10
24.0	Control statements	4	2	6	4	12
25.0	Control Loop statements	4	2	6	2	10
26.0	Arrays & strings	4	2	6	2	10
27.0	Functions	8	4	6	5	15
28.0	Pointers	6	2	8	2	12
Total		**32**	**18**	**38**	**19**	**75**

Abbreviations: **K**=Knowledge level, **C**= Comprehension Level, **A**=Application level

(H) IMPLEMENTATION STRATEGIES

The teachers are expected to give assignments to develop programs to the students soon after the completion of the concerned topic. The number of assignment will depend upon the availability of time. Sample question on the topic covered can be given to the students to make the teaching/learning process more effective. The programs that the teachers give to the students either in the classroom or as a take home assignment can be problems related to the other subjects taught in the discipline, like from mathematics/physics/mechanics/fundamental of electrical engineering etc.

The program that will be developed by the students should be general, interactive and structured. At the completion of this course the students are expected to understand the syntax and semantic of `C' Language and develop proficiency in programming skills.

(I) LEARNING RESOURCES SUGGESTED TO BE USED

7. Lab manuals if available
8. CAI packages
9. OHP transparencies

(J) SUGGESTED LIST OF PRACTICALS: Hours :48hrs Marks :50

- Assignment to prepare general algorithms and flow chart.

- Study of storage devices
- Assignment to write character, operators symbols of C Language
- Assignment to identify valid and invalid variables, constants and expressions
- Programme based on Input/Output statements
- Program based on Arithmetic expression
- Program based on Library functions
- A Program based on goto statement
- Two Programs based on `if' and `Nested if"
- Program based on `switch case' statement.
- At least one program based on each:
  - `for' statement
  - `while' statement
  - `do-while' statement
  - break continue statement
- One program based on one dimensional array
- One program based on two dimensional array
- Three programs based on string operations
- Two programs based on functions**.**

(K) REFERENCE BOOKS

S. No.	Title	Edition Year of Publication	Author Publisher & Address
1.	The Spirit of C	2000	Mullish Cooper Jaico Publishing House, 121, N.G. Road, Mumbai-400003
2.	Programming in C	IInd Edition 2000	Balagurusamy Tata Mc-Graw hill Publishing Company Ltd., New Delhi
3.	Let us Learn 'C'	IIIrd - Edition 2000	Yashwant Kanetkar BPB Publications, B-14, Connaught Place, New Delhi-110001
4.	Programming with C	II nd- Edition 2000	Tata Mc-Graw hill Publishing Company Ltd., New Delhi
5.	Programming with C++	I st - Edition Latest	D. Ravichandran Tata Mc-Graw hill Publishing Company Ltd., New Delhi