MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI
TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES

COURSE NAME : DIPLOMA IN INFORMATION TECHNOLOGY

COURSE CODE : IF

DURATION OF COURSE : 6 SEMESTERS   **WITH EFFECT FROM 2009-10**

YEAR / SEMESTER : SIXTH   **DURATION : 16 WEEKS**

PATTERN : FULL TIME - SEMESTER   **SCHEME : E**

SR. NO.	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME										SW (16006)
				TH	TU	PR	PAPER HRS	TH (01)		PR (04)		OR (08)		TW (09)		
								MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
1	Management	MAN	12219	03	--	--	03	100	40	--	--	--	--	--	--	
2	Advanced Java Programming	AJP	12259	03	--	04	03	100	40	50#	20	--	--	25@	10	
3	Data Communication and Networking	DCN	12267	03	--	02	03	100	40	--	--	25#	10	--	--	
4	Entrepreneurship Development	EDP	12264	01	01	--	--	--	--	--	--	--	--	25@	10	50
5	Industrial Projects	IPR	12265	--	--	06	--	--	--	--	--	50#	20	50@	20	
6	Professional Practices-VI	PPS	12266	--	--	05	--	--	--	--	--	--	--	50@	20	
7	**Elective – II (Any One)**															
	Object Oriented Modelling and Design	OMD	12260	02	--	04	03	100	40	--	--	25#	10	25@	10	
	Advanced Web Technology	AWT	12261	02	--	04	03	100	40	--	--	25#	10	25@	10	
			TOTAL	12	01	21	--	500	--	50	--	100	--	175	--	50

Student Contact Hours Per Week: **34 Hrs.**

THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.

Total Marks **: 875**

@ Internal Assessment, # External Assessment, [   ] No Theory Examination.

Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Termwork, SW- Sessional Work.

➢ Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subjects is to be converted out of 50 marks as sessional work (SW).

➢ Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms.

➢ Code number for TH, PR, OR, TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

Course Name : All Branches of Diploma in Engineering / **Technology**

Course Code : EJ/EN/ET/EX/EV/IC/IE/IS/MU/DE/ME/PG/PT/AE/CE/CS/CR/CO/CM/IF/
EE/EP/CH/CT/PS/CD/EDEI/CV/FE/IU/MH/MI

Semester : Sixth for EJ/EN/ET/EX/EV/IC/IE/IS/MU/DE/ME/PG/PT/AE/CE/CS/CR/CO
/CM/IF/EE/EP/CH/CT/PS/CD/EDEI/CV/FE/IU and Seventh for MH / MI

Subject Title : Management

Subject Code : 12219

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	--	03	100	--	--	--	100

NOTE:

> **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**

> **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**
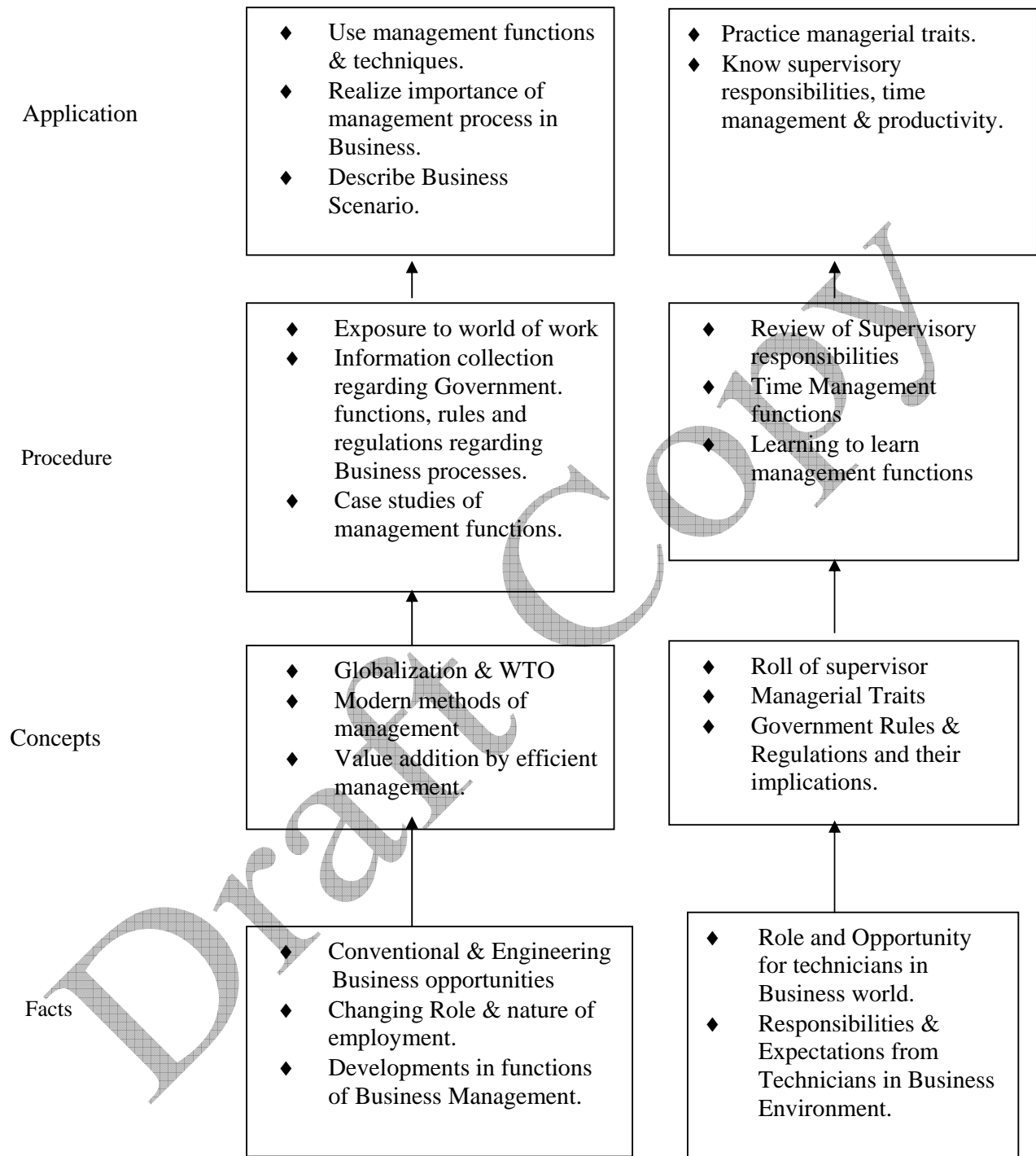
Rationale:

After completion of three years of technical training, Polytechnic students are expected to enter in to the World of Work. The business environment is altogether different and new to the students. A proper introduction and understanding of Business Processes is therefore essential for all Polytechnic students. Management is a subject which deals with basics of Managerial science required to understand the processes in Industrial & Commercial environment. This will enable the students of Polytechnics to become familiar and to understand various Business Organizational structures, their functioning and the Role these technicians will have to play in these setups with responsibilities.

Objective:

The students will able to:

1. Familiarize environment in the world of work
2. Explain the importance of management process in Business.
3. Identify various components of management.
4. Describe Role & Responsibilities of a Technician in an Organizational Structure.
5. Apply various rules and regulations concerned with Business & Social responsibilities of the Technician.

Learning Structure:

Application	♦ Use management functions & techniques. ♦ Realize importance of management process in Business. ♦ Describe Business Scenario.	♦ Practice managerial traits. ♦ Know supervisory responsibilities, time management & productivity.
Procedure	♦ Exposure to world of work ♦ Information collection regarding Government. functions, rules and regulations regarding Business processes. ♦ Case studies of management functions.	♦ Review of Supervisory responsibilities ♦ Time Management functions ♦ Learning to learn management functions
Concepts	♦ Globalization & WTO ♦ Modern methods of management ♦ Value addition by efficient management.	♦ Roll of supervisor ♦ Managerial Traits ♦ Government Rules & Regulations and their implications.
Facts	♦ Conventional & Engineering Business opportunities ♦ Changing Role & nature of employment. ♦ Developments in functions of Business Management.	♦ Role and Opportunity for technicians in Business world. ♦ Responsibilities & Expectations from Technicians in Business Environment.

Contents: Theory

Chapter	Name of the Topics	Hours	Marks
01	**Overview of Business** 1.1. Types of Business • Service • Manufacturing • Trade 1.2. Industrial sectors • Introduction to • Engineering Industry • Process Industry • Textile Industry • Chemical Industry • Agro Industry 1.3 Globalization • Introduction • Advantages & disadvantages w.r.t India 1.4 Intellectual Property Rights I(I P R) • Concept • Types of IPR	02	04
02	**Management Process** 2.1 What is Management? • Evolution • Various Definitions • concept of Management • Levels of Management • Administration and Management • Scientific Management by F W Taylor 2.2 Principles of Management (14 principles of Henry Fayol) 2.3 Functions of Management: • Planning • Organizing • Coordinating • Directing • Controlling • Decision Making	07	14
03	**Organizational Management** 3.1 Organization • Definition • Steps in forming organization 3.2 Types of Organization • Line • Line & Staff • Functional • Project type 3.3 Departmentation • Centralized & Decentralized	07	14

		• Authority & Responsibility
		• Span of Control (Management)
		3.4 Forms of ownerships
		    • Proprietorship
		    • Partnership
		    • Joint stock company
		    • Co-operative society
		    • Govt. Sector		

04		**Human Resource Management**
		4.1 Personnel Management
		    • Introduction
		    • Definition
		    • Function
		4.2 Staffing
		    • Introduction to HR
		    • Introduction to HR Planning
		    • Recruitment procedure
		4.3 Personnel – Training & Development
		    • Types of training
		          - Induction
		          - Skill enhancement
		4.4 Leadership & Motivation
		    • Leadership- Styles & types
		    • Motivation –Definition , Intrinsic & Extrinsic
		    • Moslow's theory of Motivation and its significance
		4.5 Safety Management
		    • Causes of Accidents
		    • Safety Procedures
		4.6 Introduction, Objectives & feature of Industrial Legislation
		    such as
		    • Factory Act
		    • ESI Act,
		    • Workman Compensation Act,
		    • Industrial Dispute Act.
			08	20

05		**Financial Management (No Numericals)**
		5.1. Financial Management- Objectives & Functions
		5.2. Capital Generation & Management
		    • Types of capitals
		    • Sources of finance
		5.3. Budgets and Accounts
		    • Types of Budgets
		    • Production Budget (including Varience Report)
		    • Labour Budget
		    • Introduction to Profit & Loss Account (Only concept)
		    • Balance sheet etc.
		5.4. Introduction to Various Taxes
		    • Excise Service Tax,
		    • Income Tax
		    • VAT
		    • Custom Duty.
			08	18

06	**Materials Management** 6.1. Inventory Management (No Numericals) • Meaning & Objectives 6.2 ABC Analysis 6.3 Economic Order Quantity: • Introduction & Graphical Representation 6.4 Purchase Procedure • Objectives of Purchasing • Functions of Purchasing Department • Steps inPurchasing 6.5 Modern Techniques of Material Management • Introductory treatment to Just inTime(JIT)/ System Applications & Products (SAP) /Enterprise Resource Planning (ERP)	08	18
07	**Project Management (Simple /Elementary Numericals)** 7.1 Project Management • Introduction & Meaning • Introduction to CPM/PERT Techniques (simple network problems) • Concept of Break Even Analysis and its significance 7.2 Quality Management • Definition of Quality, Concept of Quality, Quality Circle, Quality Assurance • Introduction to TQM, Kaizen, 5 'S' & Six Sigma	08	12
	Total	**48**	**100**

Learning Resources:
Books:

Sr. No	Author	Tit;e	Publisher
01	Dr. O.P. Khanna	Industrial Engg & Management	Dhanpal Rai & sons New Delhi
02	Dr. S.C. Saksena	Business Administration & Management	Sahitya Bhavan Agra
03	W.H. Newman E.Kirby Warren Andrew R. McGill	The process of Management	Prentice- Hall of India Pvt. Ltd. New Delhi - 110001

Video Cassets:

No	Subject	Source
1.	Business opportunity selection and guidance	Website : http://www.ediindia.org
2.	Planning for completion and Growth	

Course Name : Computer Engineering Group

Course Code : CO/CM/IF/CD

Semester   : Sixth for CO/CM/IF and Seventh for Cd

Subject title   : Advanced Java Programming

Subject code : 12259

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	04	03	100	50#	--	25@	175

NOTE:
  ➢ **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**

  ➢ **Total of tests marks for all theory subjects are to be converted out of 50 and to be**

   entered in mark sheet under the head Sessional Work. (SW)

Rationale:

       In the current era of networking, online transaction processing and managing the dataflow over network becomes an important issue. This subject is essential for providing knowledge and hands on experience over the issues of managing data on web, developing powerful GUI based friendly user interface, server side programming and developing applications for communication over network using object oriented fundamentals.
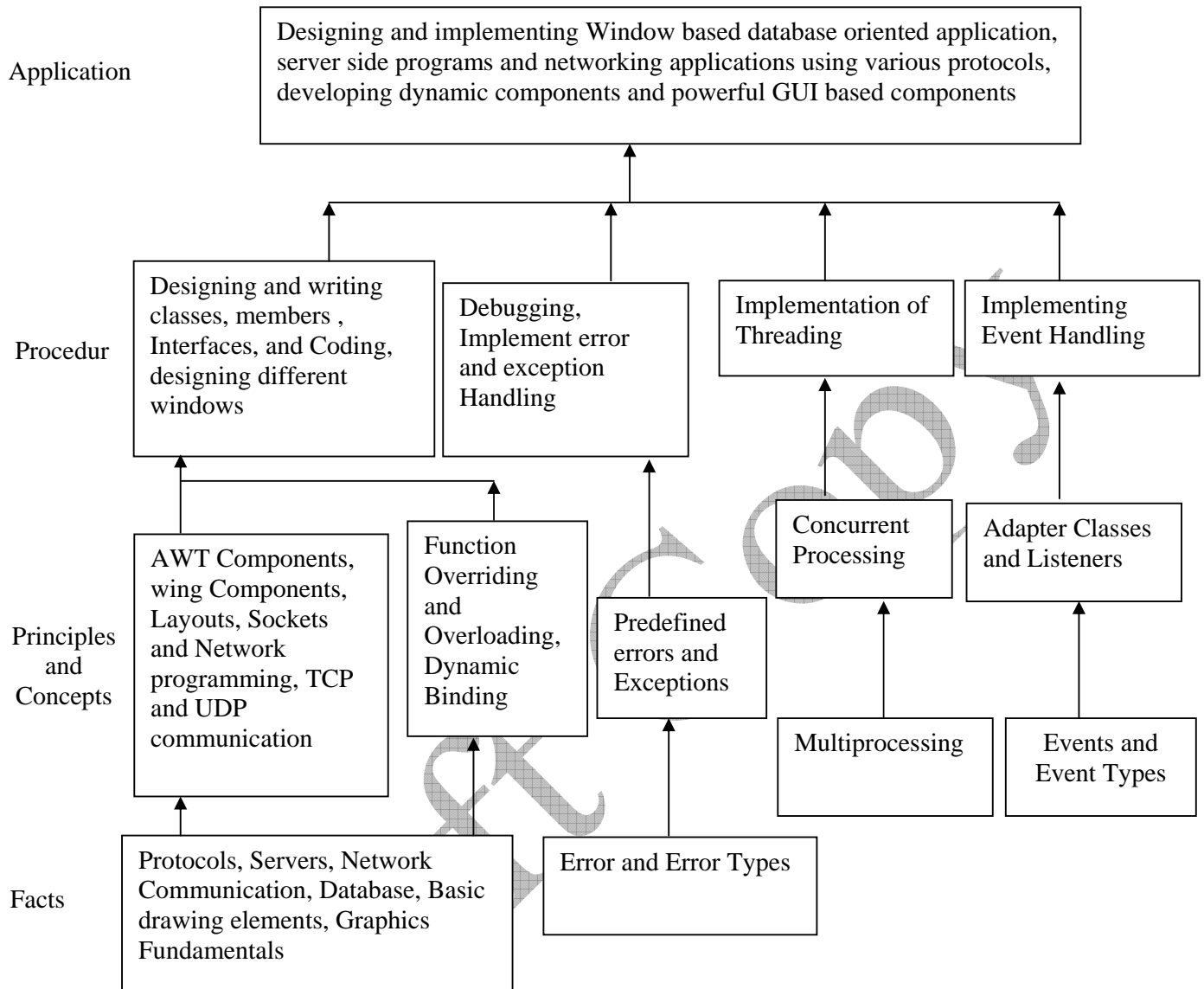
       Advanced Java enhances the Java programming. After learning this subject, student will be

able to develop network based software projects required in curriculum as well as industry

Objectives:

After studying this subject, the student will be able to:

  • Create network based applications.

  • Create business applications.

  • Implement Server side programming.

  • Develop dynamic software components.

  • Develop database application.

  • Design and develop powerful GUI based components.

  • Create Animation using Applet, Thread and AWT controls.

Learning Structure:

Application

> Designing and implementing Window based database oriented application, server side programs and networking applications using various protocols, developing dynamic components and powerful GUI based components

Procedur

> Designing and writing classes, members , Interfaces, and Coding, designing different windows

> Debugging, Implement error and exception Handling

> Implementation of Threading

> Implementing Event Handling

Principles and Concepts

> AWT Components, wing Components, Layouts, Sockets and Network programming, TCP and UDP communication

> Function Overriding and Overloading, Dynamic Binding

> Predefined errors and Exceptions

> Concurrent Processing

> Adapter Classes and Listeners

> Multiprocessing

> Events and Event Types

Facts

> Protocols, Servers, Network Communication, Database, Basic drawing elements, Graphics Fundamentals

> Error and Error Types

Contents: Theory

Chapter	Name of the Topic	Hours	Marks

01	**Introduction the Abstract Window Toolkit: (AWT)**
	1.1 Working with Windows and AWT
	      AWT classes
	      Windows Fundamentals
	      Working with frame windows
	      Creating a frame window in applet
	      Creating windowed program
	      Display information within with in a window
	1.2 Working with graphics
	      Working with color
	      Setting the paint mode
	      Working with Fonts
	      Managing text output using Font Metrics
	      Exploring text & graphics
	1.3 Using AWT Controls, Layout Managers and Menus
	   Control Fundamentals
	   Labels
	   Using Buttons
	   Applying Check Boxes
	   Checkbox Group
	   Choice Controls
	   Using Lists
	   Managing scroll Bars
	   Using a Text Field
	   Using a Text Area
	   Understanding Layout Managers
	   Menu Bars and Menu
	   Dialog Boxes
	   File Dialog
	   Handling events by Extending AWT Components
	   Exploring the Controls, Menus, and Layout Managers
		16	24

02	**Networking:**
	2.1 Basics
	      Socket overview, client/server, reserved sockets, proxy servers, internet addressing.
	2.2 Java & the Net
	      The networking classes & interfaces
	2.3 Inet address
	      Factory methods, instance method
	2.4 What is URL
	      Format
	2.5 URL connection
	2.6 Creating TCP Client, Creating TCP Server, Reading and Writing from TCP Sockets, Accepting and processing request from TCP Client
	2.7 Data grams
	        Data gram packets, Data gram server & client
		08	18

03	**Java Data Base Client/ Server** 3.1 Java as a Database front end	08	20

		Database client/server methodology Two-Tier Database Design Three-Tier Database Design		
	3.2	The JDBC API – Connection, DatabaseMetaData, PreparedStatement, ResultSet, ResultSetMetaData, Statement The API Components, Limitations Using JDBC(Applications vs. Applets), Security Considerations, A JDBC Database Example JDBC Drivers ,JDBC-ODBC Bridge Current JDBC Drivers		
04	**The Tour of Swing** 4.1 J applet, Icons and Labels ,Text Fields, Buttons Combo Boxes, Tabbed Panes, Scroll Panes. 4.2 Trees, Tables, Exploring the Swings.		08	16

05	**Servlets**
	5.1 Background, The Life Cycle Of a Servlet,The Java
	     Servlet Development Kit, The Simple Servlet, Using
	     Tomcat for Servlet development, The Servlet API
	5.2 The Javax Servlet Package, Reading Servlet
	     Parameters Reading Initialization Parameters
	     The Javax. Servlet. http package, Handling HTTP
	     Requests and responses
	5.3 Using Cookies, Session Tracking, Security Issues
			08	20

		Total	**48**	**100**

Practical:
Skills to be developed:
Intellectual Skills:-

- Use of programming language constructs in program implementation.

- To be able to apply different logics to solve given problem.

- To be able to write program using different implementations for the same problem

- Study different types of errors as syntax semantic, fatal, linker & logical

- Debugging of programs

- Understanding different steps to develop program such as

    - Problem definition

    - Analysis

    - Design of logic

    - Coding

    - Testing

    - Maintenance (Modifications, error corrections, making changes etc.)

Motor Skills:-

- Proper handling of Computer System

List of Practical:

Sr. No	Contents
01	Write a program to design a form using components textbox, text field, checkbox, buttons, list and handle various events related to each component.
02	Write a program to design a calculator using Java components and handle various events related to each component and apply proper layout to it.
03	Write a program to demonstrate use of Grid Layout.
04	Write a program to demonstrate use of Flow Layout.
05	Write a program to demonstrate use of Card Layout.
06	Write a program to demonstrate use of Border Layout.
07	Write a program to display any string using available Font and with every mouse click change the size and / style of the string. Make use of Font and Font metrics class and their methods.
08	Write a program to create a menu bar with various menu items and sub menu items. Also create a checkable menu item. On clicking a menu Item display a suitable Dialog box.
09	Write a program to increase the font size of a font displayed when the value of thumb in scrollbar increases at the same time it decreases the size of the font when the value of font decreases.
10	Write a program to retrieve hostname using methods in Inet Address class.
11	Write a program that demonstrates TCP/IP based communication between client and server.
12	Write a program that demonstrates UDP based communication between client and server.
13	Write a program to demonstrate use of URL and URL Connection class for communication.
14	Write an Application program /Applet to make connectivity with database using JDBC API
15	Write an Application program/Applet to send queries through JDBC bridge & handle result.
16	Write a program to design a form using basic swing components.
17	Write a program to demonstrate the use of scroll panes in Swing.
18	Write Java Program to map Directory tree.
19	Write a Java program to demonstrate the use of Tables.
20	Write a servlet for demonstrating the generic servlet class.
22	Write a servlet to demonstrate the Http Servlet class using do Get ().
23	Write a servlet to demonstrate the Http Servlet class using do Post ().
24	Write a servlet to demonstrate the cookie.

Reference Books:
　　1. Books:

Sr. No.	Author	Title	Publisher
01	Patrick Naughton-Herbert Schildt	The Complete Reference Java 2 (Third Edition)	Tata McGraw hill
02	Michael Morrison	The Complete IDIOT's Guide To JAVA 2	Prentice Hall of India
03	Jawroski	Java2 Unleased	Techmedia
04	Java2 Programming	Keyur Shah	Tata McGraw hill

2. Following web sites may be referred:

http://www.sun.java.com

http://www.osborne.com

3) The required JDK for practical can be downloaded from the site:

http://www.sun.java.com

Course Name : Diploma in Information Technology

Course Code : IF/ IE/ IU

Semester   : Sixth

Subject Title : Data Communication and Networking

Subject Code : 12267

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
03	--	02	03	100	--	25@	--	125

NOTE:
- ➢ **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- ➢ **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**
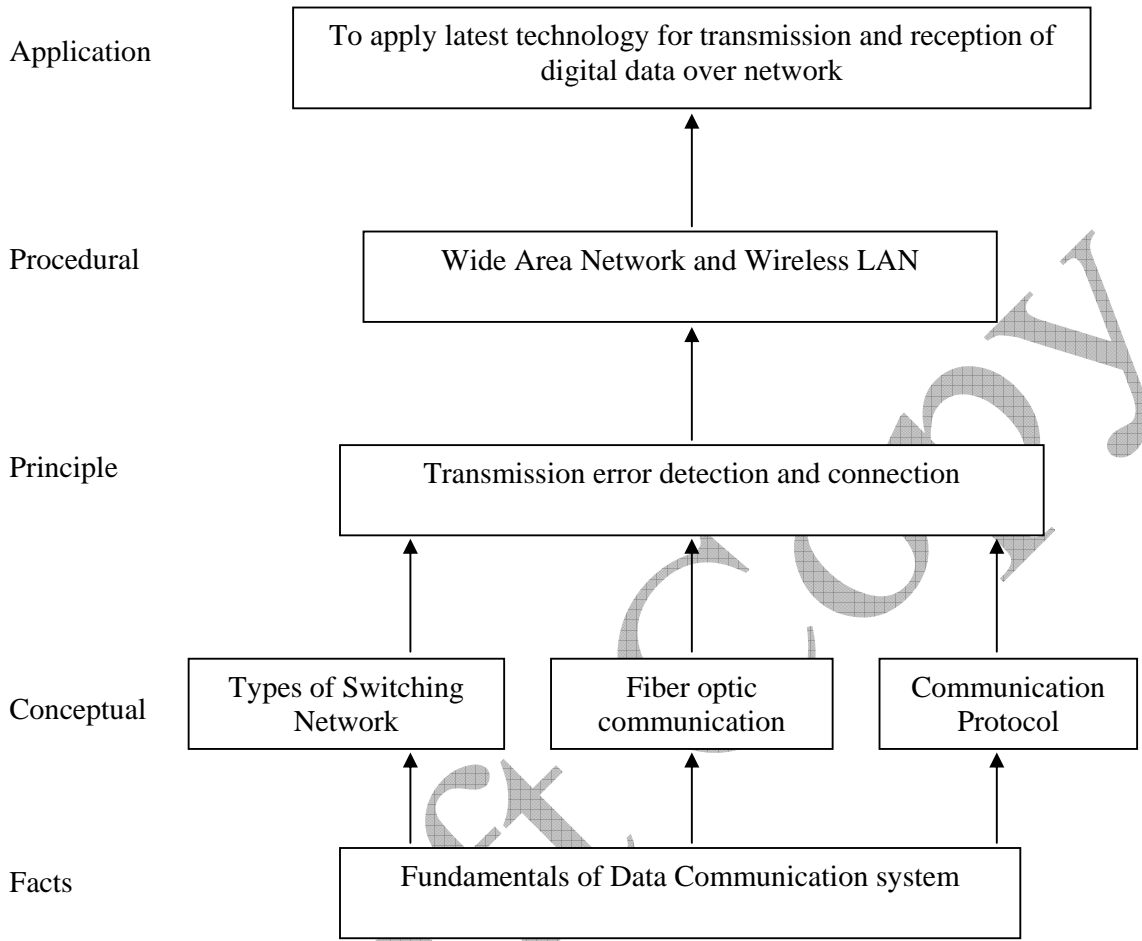
Rationale:

After understanding basic communication system it is worth to discuss Data Communication & Networking. Telecommunication & Data communication is fastest growing technology & undoubtedly has strong growth in future so we should know data transfer from one system to another system through different communication networks like WAN, MAN & different switching techniques.

Objective:

The student will be able to:

1. Distinguish between different terms used for digital data communication
2. Describe the working of different switching techniques.
3. Identify the error & suggest corrective techniques.
4. Describe Wireless LAN Technology.
5. Describe fiber optic communication techniques.
6. Compare different distributed application system.

Learning Structure:

Application   To apply latest technology for transmission and reception of digital data over network

Procedural   Wide Area Network and Wireless LAN

Principle   Transmission error detection and connection

Conceptual   Types of Switching Network   Fiber optic communication   Communication Protocol

Facts   Fundamentals of Data Communication system

Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Concept of Data Communication & Networking** 1.1 Data Communication – Protocols; Standards; Standards Organizations; 1.2 Signal Propagation - Analog & Digital Signals; Bandwidth of signal & a medium; Data transmission rate and the bandwidth.	04	12
02	**WAN** 2.1 Switching Basics - Circuit Switching; Packet Switching - Datagram approach, Virtual circuit approach; Message Switching 2.2 Frame Relay - Introduction; The need for Frame Relay; How Frame Relay works; Frame Relay frame format 2.3 Asynchronous Transfer Mode (ATM) – Introduction, Overview of ATM, Packet Size, ATM Cells, Switching, ATM layers,	12	24
03	**Fiber Optic Communication** 3.1 Light Propagation - Basic Concepts, Reflection & Refraction, light into the cable; 3.2 Fiber Cables – Construction, Preposition effect, Fiber optic cable modes, Refractive indexes in fiber cores; 3.3 Light Sources – Light connecting diodes, lasers; 3.4 Optical detections 3.5 Fiber Cable Losses - Connector and cable misalignment, Effects of bands in the cable, Absorption losses & scattering	10	16
04	**Transmission Errors-Detection & Correction** 4.1 Error classification – Delay distortion, Attenuation, Noise; Types of Errors; 4.2 Error detection -Vertical redundancy check; longitudinal redundancy check; Cyclic redundancy check; 4.3 Error Correction- Methods of error correction, BEC, FEC 4.4 Recovery from errors – Stop & Wait, Go-back-in, Sliding Windows	04	12
05	**Distributed Application** 5.1 Application - Simple Network Management Protocol (SNMP); Simple Mail Transfer Protocol (SMTP); Multipurpose Internet Mail Extension (MIME); Hyper Text Transfer Protocol (HTTP); File Transfer Protocol (FTP), Uniform Resource Locator (URL)	10	20
06	**Wireless LAN** 6.1 IEEE 802.11 - Architecture- BSS, ESS; Physical layer – FHSS, DSSS, OFDM; MAC layer – DCF, PCF 6.2 Bluetooth – Architecture; Bluetooth layers – Media layer, base band layer, physical links, L2 CAP.	08	16
	Total	**48**	**100**

List of Practical:
1. Measurement of NA of given optical fiber.
2. Radiation pattern of LED / Laser.
3. Study of Optical detector characteristics.

4. Measurement of fiber losses.
5. Study of switching in data Networks.
6. Study of Frame relay & ATM.
7. Study of error detection & recovery.
8. Study of FHSS, DSSS.
9. Study of Bluetooth Technology.

Learning Resources:
Books:

Sr. No.	Author	Title	Publication
01	Achyut S. Godbole	Data Communication & Networking	Tata McGraw-Hill Edition
02	B.A. Forouzan	Data Communication & Networking	Tata McGraw-Hill Edition (4th Edition)
03	Michal Miller	Data & Network Communication	Thomson Delmar Learning

Course Name : Computer Engineering Group

Course Code : CM/CO/IF/CD

Semester   : Sixth for CO/CM/IF and Seventh for CD

Subject Title : Entrepreneurship Development

Subject Code : 12264

Teaching and Examination Scheme:

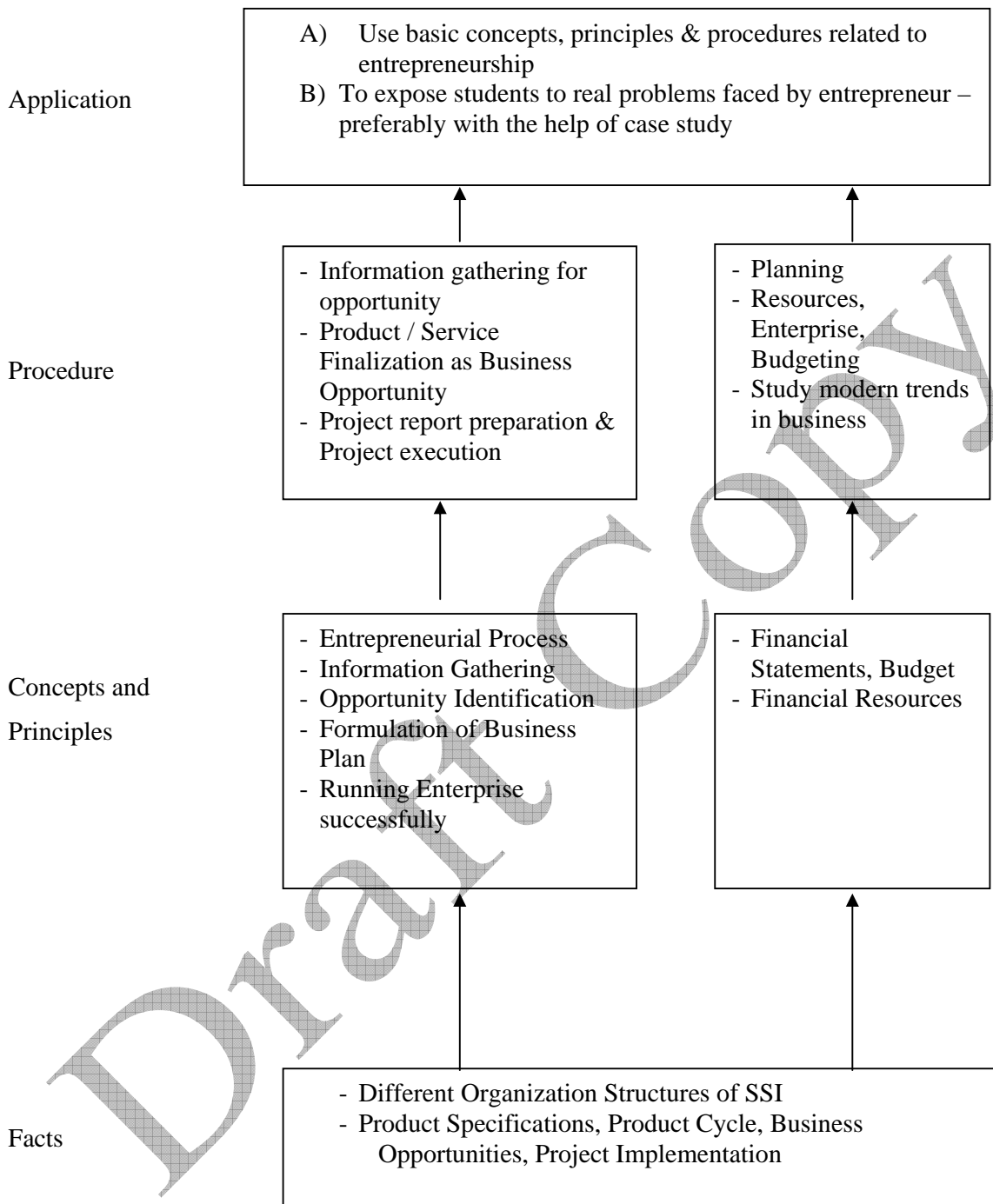| Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	01	--	--	--	--	--	25@	25

Rationale:

Globalization, liberalization & privatization along with revolution in Information Technology, have thrown up new opportunities that are transforming lives of the masses. Talented and enterprising personalities are exploring such opportunities & translating opportunities into business ventures such as- BPO, Contract Manufacturing, Trading, Service sectors etc. The student community also needs to explore the emerging opportunities. It is therefore necessary to inculcate the entrepreneurial values during their educational tenure. This will help the younger generation in changing their attitude and take the challenging growth oriented tasks instead of waiting for white- collar jobs. The educational institutions should also demonstrate their uniqueness in the creation of enterprising personalities in their colleges. This subject will help in developing the awareness and interest in entrepreneurship and create employment for others.

Objectives:

Students will be able to

1) Identify entrepreneurship opportunity.

2) Acquire entrepreneurial values and attitude.

3) Use the information to prepare project report for business venture.

4) Develop awareness about enterprise management.

Learning Structure:

Application

> A) Use basic concepts, principles & procedures related to entrepreneurship
> B) To expose students to real problems faced by entrepreneur – preferably with the help of case study

Procedure

> - Information gathering for opportunity
> - Product / Service Finalization as Business Opportunity
> - Project report preparation & Project execution

> - Planning
> - Resources, Enterprise, Budgeting
> - Study modern trends in business

Concepts and

Principles

> - Entrepreneurial Process
> - Information Gathering
> - Opportunity Identification
> - Formulation of Business Plan
> - Running Enterprise successfully

> - Financial Statements, Budget
> - Financial Resources

Facts

> - Different Organization Structures of SSI
> - Product Specifications, Product Cycle, Business Opportunities, Project Implementation

Contents: Theory

Chapter	Name of the Topic	Hours
01	**Entrepreneurship, Creativity & Opportunities** 1.1) Concept, Classification & Characteristics of Entrepreneur 1.2) Creativity and Risk taking. 1.2.1) Concept of Creativity & Qualities of Creative person. 1.2.2) Risk Situation, Types of risk & risk takers. 1.3) Business Reforms. 1.3.1) Process of Liberalization. 1.3.2) Reform Policies. 1.3.3) Impact of Liberalization. 1.3.4) Emerging high growth areas. 1.4) Business Idea Methods and techniques to generate business idea. 1.5) Transforming Ideas in to opportunities transformation involves Assessment of idea &Feasibility of opportunity SWOT Analysis	03
02	**Information And Support Systems** 2.1) Information Needed and Their Sources. Information related to project, Information related to support system, Information related to procedures and formalities 2.2) SUPPORT SYSTEMS 1) Small Scale Business Planning, Requirements. 2) Govt. & Institutional Agencies, Formalities 3) Statutory Requirements and Agencies.	02
03	**Market Assesment** 3.1) Marketing -Concept and Importance 3.2) Market Identification, Survey Key components 3.3) Market Assessment	02
04	**Business Finance & Accounts** **Business Finance** 4.1) Cost of Project 1) Sources of Finance 2) Assessment of working capital 3) Product costing 4) Profitability 5) Break Even Analysis 6) Financial Ratios and Significance **Business Account** 4.2) Accounting Principles, Methodology 1) Book Keeping 2) Financial Statements 3) Concept of Audit	03

05	**Business Plan & Project Report**
	5.1) **Business plan steps involved from concept to commissioning:**
	    Activity Recourses, Time, Cost
	5.2) **Project Report**
	    1) Meaning and Importance
	    2) Components of project report/profile (**Give list**)
	5.3) **Project Apprisial**
	    1) Meaning and definition
	    2) Technical, Economic feasibility
	    3) Cost benefit Analysis
		03

06	**Enterprise Managment And Modern Trends**
	6.1 **Enterprise Managment**:
	    a. Essential roles of Entrepreneur in managing enterprise
	    b. **Product Cycle**: Concept and importance
	    c. **Probable Causes Of Sickness**
	
	    d. **Quality Assurance**
	    Importance of Quality, Importance of testing
	6.2) **E-Commerce**
	    Concept and process
	6.3) **Global Entrepreneur**
		03

	Total	**16**

Sr. No	Assignments
1	Assess yourself-are you are entrepreneur?
2	Prepare project report and study its feasibility

Learning Resources:
1) Reference Books:

Sr. No.	Title	Author	Publisher
01	Entrepreneurship Theory and Practice	J.S. Saini B.S.Rathore	Wheeler Publisher New Delhi
02	Entrepreneurship Development	TTTI, Chandigadh	TTTI, Chandigadh
03	Entrepreneurship Development	E. Gorden K.Natrajan	Himalaya Publishing. Mumbai
04	Entrepreneurship Development	Preferred by Colombo plan staff college for Technical education.	Tata Mc Graw Hill Publishing co. ltd. New Delhi.
05	A Manual on How to Prepare a Project Report	J.B.Patel D.G.Allampally	EDI STUDY MATERIAL

06	A Manual on Business Opportunity Identification & Selection	J.B.Patel S.S.Modi	Ahmadabad (Near Village Bhat , Via Ahmadabad Airport & Indira Bridge), P.O. Bhat 382428 , Gujrat,India P.H. (079) 3969163, 3969153 E-mail : ediindia@sancharnet.in/olpe@ediindia.org Website : http://www.ediindia.org
07	National Derectory of Entrepreneur Motivator & Resource Persons.	S.B.Sareen H. Anil Kumar	
08	New Initiatives in Entrepreneurship Education & Training	Gautam Jain Debmuni Gupta	
09	A Handbook of New Enterpreneurs	P.C.Jain	
10	Evaluation of Enterpreneurship Development Programmes	D.N.Awasthi , Jose Sebeastian	
11	The Seven Business Crisis & How to Beat Them.	V.G.Patel	

2) Video Cassettes

Sr. No.	Subject	Source
1	Five success Stories of First Generation Entrepreneurs	EDI STUDY MATERIAL Ahmadabad (Near Village Bhat , Via Ahmadabad Airport & Indira Bridge), P.O. Bhat 382428 , Gujrat,India P.H. (079) 3969163, 3969153 E-mail : ediindia@sancharnet.in/olpe@ediindia.org Website : http://www.ediindia.org
2	Assessing Entrepreneurial Competencies	
3	Business Opportunity Selection and Guidance	
4	Planning for completion & Growth	
5	Problem solving-An Entrepreneur Skill	

Glossary:
Industrial Terms
Terms related to finance, materials, purchase, sales and taxes.

Components of Project Report:
1. Project Summary (One page summary of entire project)
2. Introduction (Promoters, Market Scope/ requirement)
3. Project Concept & Product (Details of product)
4. Promoters (Details of all Promoters- Qualifications, Experience, Financial strength)
5. Manufacturing Process & Technology
6. Plant & Machinery Required
7. Location & Infrastructure required
8. Manpower (Skilled, unskilled)
9. Raw materials, Consumables & Utilities
10. Working Capital Requirement (Assumptions, requirements)
11. Market (Survey, Demand & Supply)
12. Cost of Project, Source of Finance
13. Projected Profitability & Break Even Analysis
14. Conclusion.

Course Name : **Computer Engineering Group**

Course Code : **CO/CM/IF/CD**

Semester   : **Sixth for CO/CM/IF and Seventh for CD**

Subject Title : **Industrial Projects**

Subject code : **12265**

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
--	--	06	--	--	--	50#	50@	100

Rationale:

In the field of Computer and Information Technology various technologies (hardware and Software) needs to be integrated and proper paradigms needs to be implemented to develop any kind of computer applications . Hence it becomes essential to get hands on experience for developing industrial applications. This subject is essential to understand the implementation of the system development process i.e. analyse, design, coding , debugging and testing . This will help the students to acquire skills and attitudes to work as programmer or Network administrator.
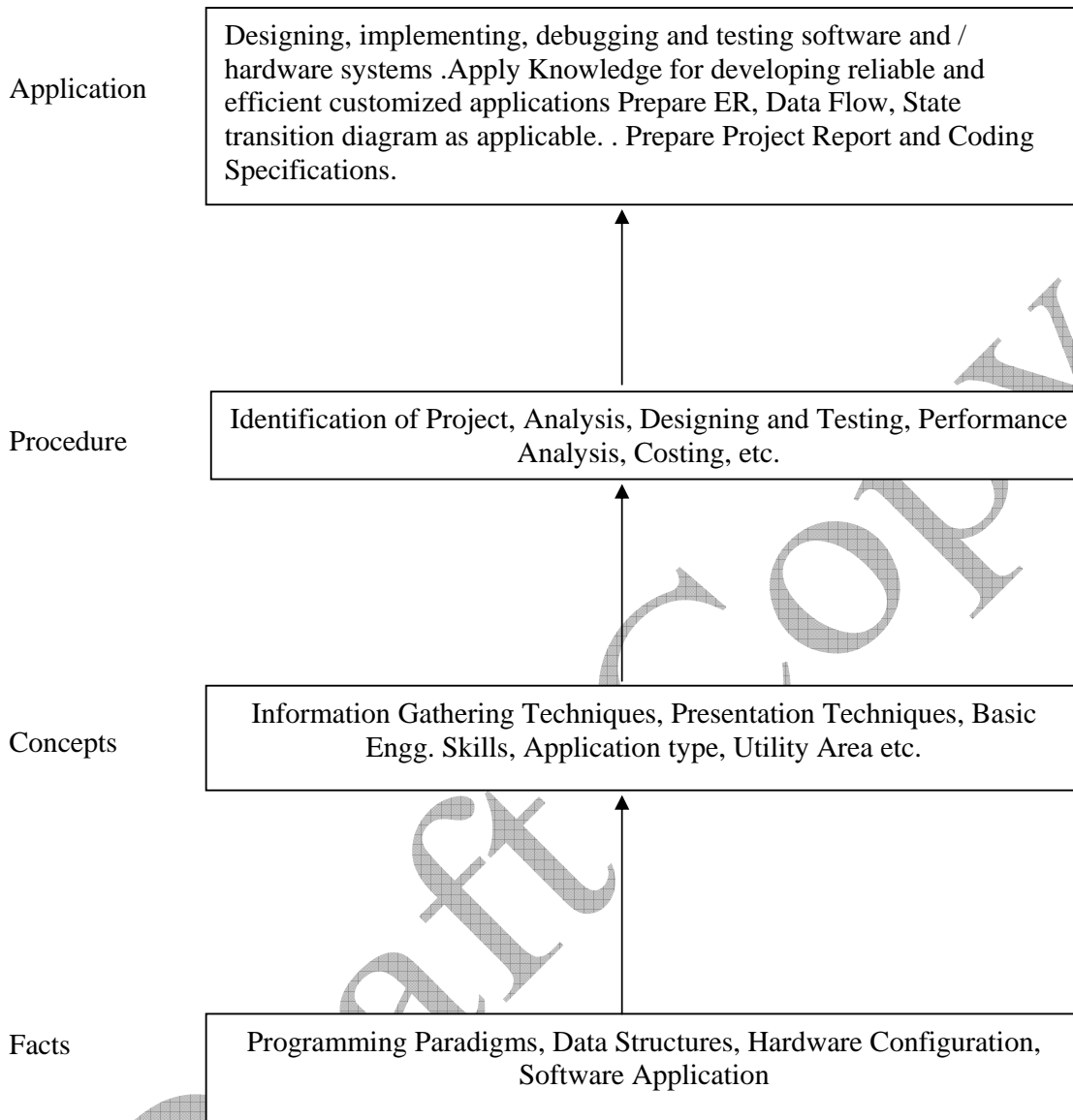
Furthermore the student will be able to find out various sources of technical information and develop self-study techniques to prepare a project and write a project report.

Objectives:

The students will be able to,

(1) Work in Groups, Plan the work, and Coordinate the work.

(2) Develop leadership qualities.

(3) Develop Innovative ideas.

(4) Practically implement the acquired knowledge.

(5) Develop basic technical Skills by hands on experience.

(6) Write project report.

(7) Develop skills to use latest technology in Computer/Information Technology field.

(8) Analyse the different types of Case studies.

Learning Structure:

Application
┌───┐
│ Designing, implementing, debugging and testing software and / │
│ hardware systems .Apply Knowledge for developing reliable and │
│ efficient customized applications Prepare ER, Data Flow, State │
│ transition diagram as applicable. . Prepare Project Report and Coding │
│ Specifications. │
└───┘
                              ↑

Procedure
┌───┐
│ Identification of Project, Analysis, Designing and Testing, Performance │
│ Analysis, Costing, etc. │
└───┘
                              ↑

Concepts
┌───┐
│ Information Gathering Techniques, Presentation Techniques, Basic │
│ Engg. Skills, Application type, Utility Area etc. │
└───┘
                              ↑

Facts
┌───┐
│ Programming Paradigms, Data Structures, Hardware Configuration, │
│ Software Application │
└───┘

Contents:

Two hours should be allotted for giving the Instructions for preparing a Project Report (Refer Guideline Document for Format of Project Report)

Group	Projects
I Software Oriented Projects	(1) Develop Application Software for Hospital/Shopping Mall/Cinema Theatre/Commercial Complex/Educational Institute/Industrial Complex. (2) Develop Inhouse Systems. (3) Case Studies Related to Industries – Operation / Maintenance / Repair and Fault Finding. (Refer Guideline Document). (4) Develop Information Processing System. (5) Develop Web Based Applications using Web Technologies. (6) Develop Network monitoring system. (7) Develop systems for financial organisation. (8) Develop System Program based system like compilers, editors, spreadsheets, mini database systems.
II Hardware Oriented Projects	(1) Develop Intrusion Detection System. (2) Develop Speech Recognition System. (3) Develop Image Processing Systems. (4) Develop Expert Systems. (5) Develop Artificial Intelligence based Systems. (6) Develop various types of Interfacing Applications. (7) Develop device Controllers.
Seminar	Seminar on any relevant latest technical topic based on latest research, recent trends, new methods and developments in the field of Computer Engineering / Information Technology.

Note: (1) One Project from any one group.
   (2) Seminar will be held under Professional Practices.

Learning Resources:

1. Magazines:

Sr. No.	Magazines
1.	IEEE Transactions/Journals
2.	Computer Today.
3.	PC Quest.

4.	Data Quest
5.	Any Journal Related to Computer/Information Technology/Electronics field.
6.	Computer World
7.	Chip
8.	IT World

2. Website:

      Using any search engine, such as http://www.google.co.in/ the relevant information can be searched on the Internet.

Course Name : Computer Engineering Group

Course Code : CO/CM/IF/CD

Semester   : Sixth for CO/CM/IF and Seventh for CD

Subject Title : Professional Practices-VI

Subject Code : 12266

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
--	--	05	--	--	--	--	50@	50

Rationale:

Most of the diploma holders join industries. Due to globalization and competition in the industrial and service sectors the selection for the job is based on campus interviews or competitive tests.

While selecting candidates a normal practice adopted is to see general confidence, ability to communicate and attitude, in addition to basic technological concepts.
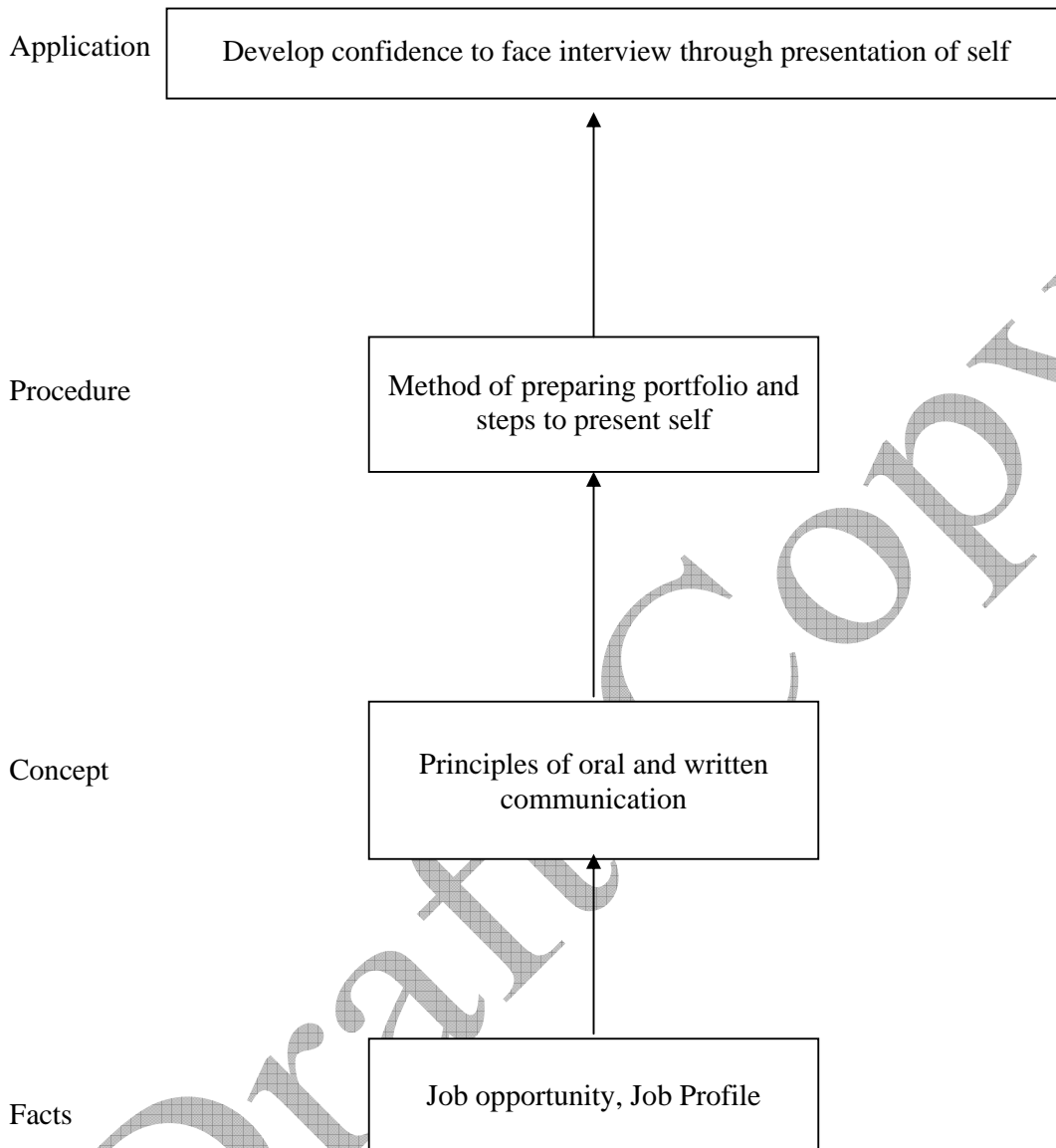
The purpose of introducing professional practices is to provide opportunity to students to undergo activities which will enable them to develop confidence. Industrial visits, expert lectures, seminars on technical topics and group discussion are planned in a semester so that there will be increased participation of students in learning process.

Objectives:

Student will be able to:

1. Acquire information from different sources.
2. Prepare notes for given topic.
3. Present given topic in a seminar.
4. Interact with peers to share thoughts.
5. Prepare a report on industrial visit, expert lecture.

Learning Structure:

Application | Develop confidence to face interview through presentation of self |

Procedure | Method of preparing portfolio and steps to present self |

Concept | Principles of oral and written communication |

Facts | Job opportunity, Job Profile |

Activity	Content	Hours

01	**Industrial Visits**
	Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form part of the term work.
	   1. Visit a industry
	   2. Collect organization chart
	   3. Roles and responsibilities of each post.
	   4. No. of resources available in industry etc
		14

02	**Lectures by Professional / Industrial Expert be organized from any of the following areas:**
	   1. Meditation. Yoga to improve concentration
	   2. Robotics
	   3. Any latest tool useful for software development
	   4. Mobile computing
	   5. Data Mining
	   6. SAP
	   7. Neural network
	   8. Software project Management
	   9. Wi-fi Technology
	   10. Any other suitable topic
		16

03	**Information Search :**
	   1. Buying of a new computer (cost, make, model etc.).
	   2. Comparison of .different computer architectures
	   3. Software security
	   4. Video conferencing
	   5. XML
	   6. Any other suitable topic
		22

04	**Group Discussion :**
	The students should discuss in group of six to eight students and write a brief report on the same as a part of term work. The topic group discussions may be selected by the faculty members. Some of the suggested topics are
	   1) Hacking
	   2) Computer virus
	   3) Chatting on Net
	   4) Working BPO
	   5) Software piracy
	   6) Computer gaming
	   7) Any other suitable topic
		12

05	**Student Activities :** The students in a group of 3 to 4 will perform any one of the following activities (other similar activities to be considered), and write a report as part of term work. Activity : i) Collect information from Computer repairing center (at which level repairing is done, cost). Collect information regarding latest requirement for a job from any industry	16
	Total	**80**

Course Name : Diploma in Computer Technology/Information Technology

Course Code : CM/IF

Semester   : Sixth

Subject Title : Object Oriented Modelling and Design (Elective-II)

Subject Code : 12260

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
02	--	04	03	100	--	25#	25@	150

NOTE:
- ➢ **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- ➢ **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

      Object oriented modeling and design presents an Object Oriented approach to software development. It is based on modeling objects from the real world and then using the model to build a language-independent design. This subject shows how to use Object Oriented concepts throughout the entire software life cycle, from analysis through design implementation by using different models. The graphical notation i.e. described in subjects helps the software developer to visualize a problem before going for implementation.
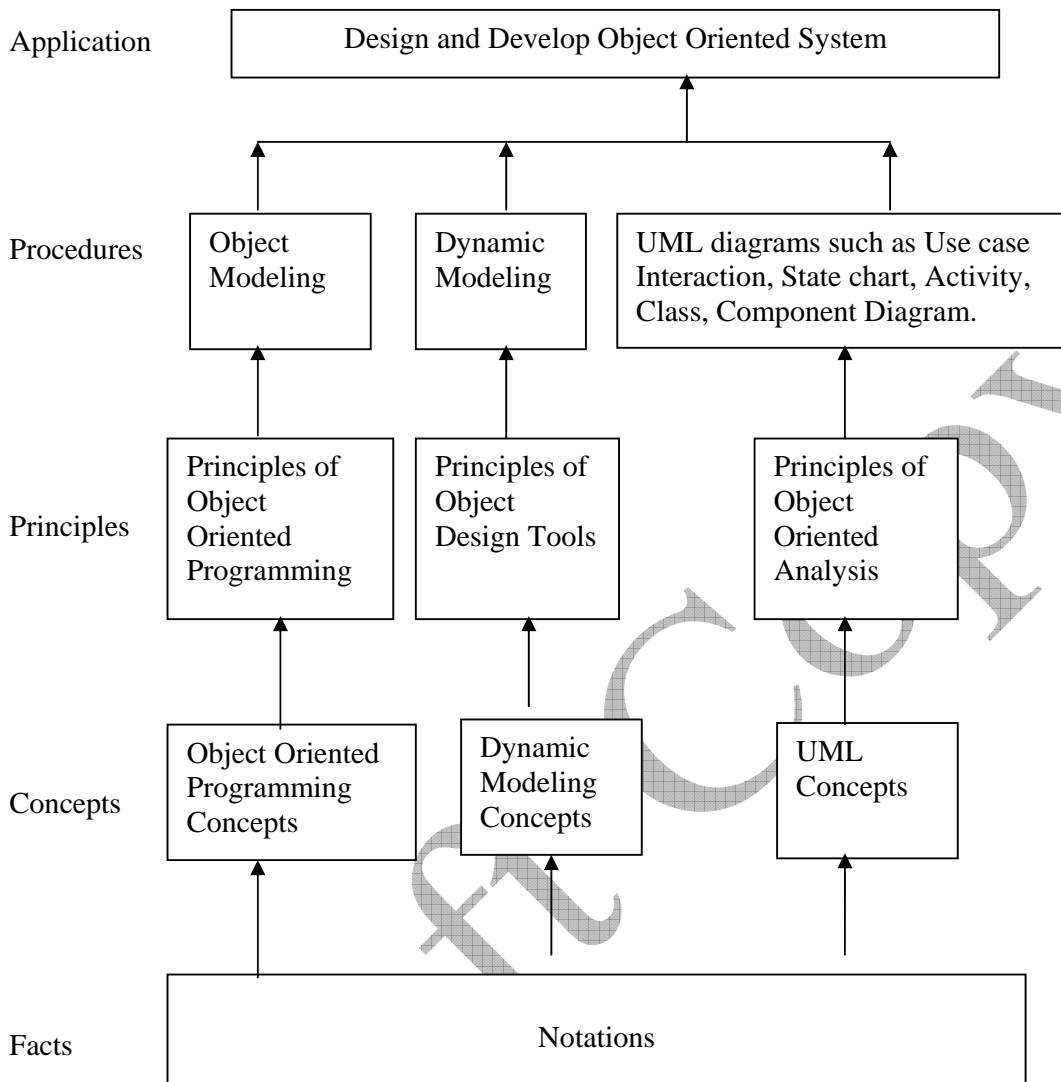
      This subject will be useful for the student to understand the concepts of Object Oriented Programming System and to model these concepts using Unified Modelling Language (UML) for any application, before actually going for coding part.

Objectives:

The student will be able to:

1) Interpret / give the meaning of object-oriented concepts.
2) Understand different Modeling Methodology.
3) Prepare an object model for a given problem statement.
4) Prepare dynamic for a given problem statement.
5) Describe and Design the concepts of class diagram, object diagram, interaction diagram, sequence diagram collaboration, use case diagram, state diagram , activity.
6) Usage of anyone design tool.

Learning Structure:

Application — Design and Develop Object Oriented System

Procedures — Object Modeling | Dynamic Modeling | UML diagrams such as Use case Interaction, State chart, Activity, Class, Component Diagram.

Principles — Principles of Object Oriented Programming | Principles of Object Design Tools | Principles of Object Oriented Analysis

Concepts — Object Oriented Programming Concepts | Dynamic Modeling Concepts | UML Concepts

Facts — Notations

Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Importance of Modeling** 1.1 Brief overview of Object Modeling Technology (OMT) by Ram Baugh, Booch Methodology, Use Case driven approach (OOSE) by Jacobson, Overview of CRC card method by Cunningham. 1.2 Importance of Modeling, Four principles of Modeling	03	10
02	**Object Modeling** 2.1 Objects and Classes (Object Diagrams, Attributes, Operations and Methods), Links, Associations and Advanced Concepts (General Concepts, Multiplicity, Link Attributes, Association as a Class, Roll names, Ordering, Qualification, Aggregation). 2.2 Generalizations and Inheritance, Grouping Constructs. 2.3 Aggregation verses Association And Generalization, Recursive Aggregates, and Propagation of Operations. 2.4 Abstract Classes, Multiple Inheritance, Metadata, Candidate Keys, Constraints 2.5 Introduction to Dynamic and Functional Modeling.	07	26
03	**Overview of UML** 3.1 Overview of UML, Scope of UML, Conceptual model of UML, Architectural – Metamodel, Unified Software Development Lifecycle. 3.2 Introduction to UML Diagram	05	16
04	**UML – Structural Modeling and Use Cases** 4.1 Class Diagram and Advanced Class Diagrams: - Advanced Classes and Relationships, Interfaces, Types and Roles, Packages, Instances. Object Diagram. 4.2 Use case diagram: Terms and Concepts, Modeling techniques.	05	22
05	**UML Behavioral Modeling** 5.1 Interaction diagram-Sequence and collaboration diagram: Terms and Concepts, Modeling techniques. 5.2 State chart diagram: Terms and Concepts, Modeling techniques. 5.3 Activity diagram: Terms and Concepts, Modeling techniques. 5.4 Component Diagrams: Terms and Concepts, Common modeling techniques. Deployment Diagrams: Terms and Concepts, Common modeling techniques	12	26
	Total	**32**	**100**

Practical:
Skills to be developed:
Intellectual Skills:

Use of programming language constructs in program implementation.
- To be able to apply different logics to solve given problem.
- To be able to write program using different implementations for the same problem
- Study different types of errors as syntax semantic,fatal, linker & logical

- Debugging of programs
- Understanding different steps to develop program such as
  - Problem definition
  - Analysis
  - Design of logic
  - Coding
  - Testing
  - Maintenance (Modifications, error corrections, making changes etc.)

Motor Skills:
- Proper handling of Computer System**.**

List of Practical:

1. Analyze and Design the UML diagrams for

- ATM System

- Railway Reservation System

- Library Management System.

Analyze and design the UML diagrams & develop programme for minimum three systems.

(For Developing Above three programmes entire time allotted to practical mention in the teaching Scheme (4 X 16 = 64 Hrs.) should be utilized.

Learning Resources:
1. **Books:**

Sr. No.	Author	Title
1	Rumbaugh, Blaha	Object Oriented Modelling and Designing (Refer for First and Second Chapter)
2	Booch, Jacobson, Rumbaugh	The UML User Guide(Addison Wesley) (Refer for Third, Fourth and fifth Chapter)
3	Mark Paiestly	Practical OOD with UML–.(Refer for Fourth and Fifth Chapter)

2. **Web Sites:**
   - http://uml.tutorials.trireme.com/
   - http://pigseye.kennesaw.edu/~dbraun/csis4650/A&D/UML_tutorial/
   - http://www.smartdraw.com/tutorials/software-uml/uml.htm
   - http://www-db.stanford.edu/~burback/watersluice/node55.html

Demo lectures with power point presentations using LCD projector should be arranged to develop programming concepts of students

Course Name   **: Computer Engineering Group**

Course Code   **: CM/CO/IF/CD**

Semester   **: Sixth for CO/CM/IF and Seventh FOR CD**

Subject Title   **: Advanced Web Technologies (Elective-II)**

Subject Code   **: 12261**

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
02	--	04	03	100	--	25#	25@	150

NOTE:
- ➢ **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- ➢ **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**
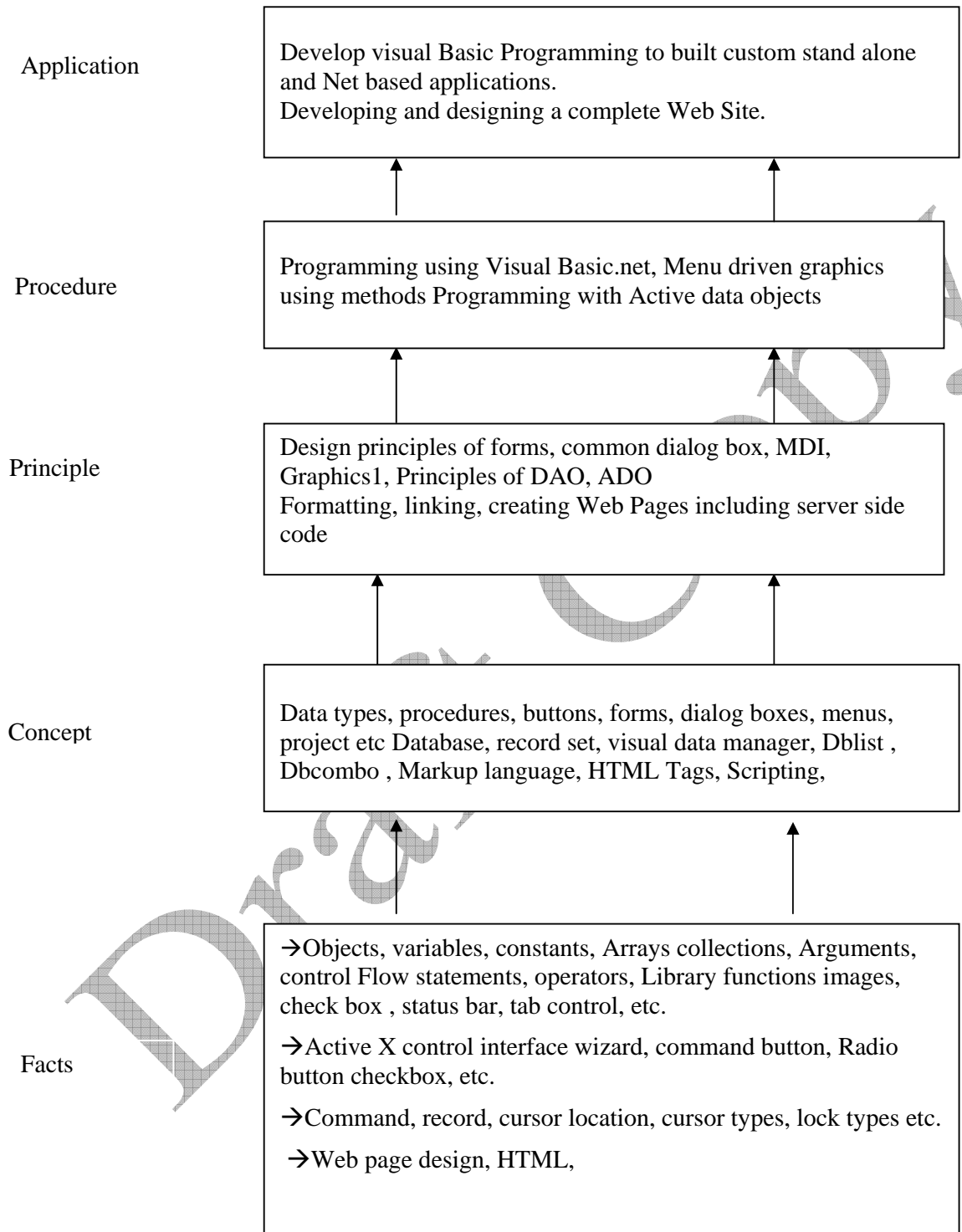
Rationale:

This subject is the technology subject, subject knowledge of Web Page Design and Visual Basic is essential for studying this subject. Advanced Web Technologies is based on dot net technology, which is a frame work, which supports many languages so that application designed in one language(like C++, COBOL, JAVA, etc) can be connected/interfaced with this frame work hence it is more flexible and advanced.

Objectives:

The student will be able to:

1. Use GUI tools of . NET framework
2. Use basic and advance . NET controls.
3. Interface back-end and front-end.
4. Build applications integrated with .NET Framework.
5. Build .NET based applications.
6. Transfer code form VB to VB.NET.
7. Can do Asp Transaction.

Learning Structure:

Application	Develop visual Basic Programming to built custom stand alone and Net based applications. Developing and designing a complete Web Site.

↑

Procedure	Programming using Visual Basic.net, Menu driven graphics using methods Programming with Active data objects

↑

Principle	Design principles of forms, common dialog box, MDI, Graphics1, Principles of DAO, ADO Formatting, linking, creating Web Pages including server side code

↑

Concept	Data types, procedures, buttons, forms, dialog boxes, menus, project etc Database, record set, visual data manager, Dblist , Dbcombo , Markup language, HTML Tags, Scripting,

↑

Facts	→Objects, variables, constants, Arrays collections, Arguments, control Flow statements, operators, Library functions images, check box , status bar, tab control, etc. →Active X control interface wizard, command button, Radio button checkbox, etc. →Command, record, cursor location, cursor types, lock types etc. →Web page design, HTML,

Contents: Theory

Chapter	Name of the Topic	Hours	Marks

01	**Introduction**
	1.1 Why dot Net
	    - Introduction to Microsoft .Net Framework.
	    - Building blocks in .Net
	    - Drawback of previous languages.
	    - Understand what is .Net
	1.2 Introduction to .Net
	    - Types of application architecture.
	    - .Net initiative.
	    - .Net framework: components of .Net framework,
	      Advantages, requirement of .Net.
		04	04

02	**Introduction and implementation of VB.Net**
	2.1 Introduction to VB.Net
	    - VB.Net overview.
	    - Difference between VB and VB.Net
	2.2 Implementation of VB.Net
	    - Features.
	    - VB.Net IDE.
	    - Data Types, Loops, Control structures, Cases, Operators.
	    - Creating forms.
	    - Procedures and functions.
	    - Form controls.
	      - Error Provider
	      - ComboBox
	      - MonthCalendar
	      - RadioButton
	      - TextBox
	      - CheckBox
	      - CheckedListBox
	      - DateTimePicker
	2.3 Implementation of OOP
	    - Creation of class and objects.
	    - Inheritance.
	    - Constructors.
	    - Exception handling.
	2.4 Component based programming
	    - Working with Private assembly, shared assembly.
	    - Using COM components developed in VB or other
	      language.
		04	20

03	**Introduction to ADO.Net and data manipulation**
	3.1 Introduction to ADO.Net
	    - What is database?
	    - Writing XML file.
	    - ADO.Net architecture.
	    - Creating connection.
	    - Dataset and Data reader.
	    - Types of Data adapter and ADO controls.
	    - Reading data into dataset and data adapter.
		08	20

	- Binding data to controls.
	- Data table and Data row.
	3.2 Accessing and manipulating data
	    - Selecting data.
	    - Insertion, deletion, updation, sorting.
	    - How to fill dataset with multiple tables.
	3.3 Multi-threading
	    - Working with multithreading.
	    - Synchronization of Threads.
	3.4 Migrating from VB 6.0 to VB.Net
	    - Updating the applications developed in VB to VB.Net		

04	**Introduction and implementation of ASP.Net**
	4.1 Introduction to ASP.Net
	    - Difference between ASP and ASP.Net
	    - Introduction to IIS.
	    - What is web application? Why it is used?
	4.2 Implementation of ASP.Net
	    - ASP.Net IDE.
	    - Creation of web forms.
	    - Using web form controls.
		02	08

05	**ASP.Net objects and components**
	5.1 ASP.Net Objects
	    - Response.
	    - Server.
	    - Application.
	    - Session.
	    - Request
	    - ASP.Net scope, state, view state, post back and
	  configuration.
	 5.2 How to use objects?
	    - Object creation: Scripting, Drive, folder, file.
	    - How to use Application object.
	        - Events
	        - Methods and collection.
	        - Example.
	    - How to use session object : enabling and disabling of
	     session,
	    - Event, properties, methods, collection.
	    - Example.
	5.3 Server components :
	    - Ad rotator, Content linker, Browser capabilities.
	    - Use and creation of global.asax file.
			24

06	**ADO.Net and Data Manipulation**
	6.1 ADO.Net in ASP.Net
	    - Connection.
	    - Dataset and data reader.
	    - Data table and Data row.
	    - Web.config introduction.
	    - Binding data with data grid.
	    - Accessing and manipulating data.
	6.2 ADO.Net : Server control templates and Data binding
		04	20

	techniques
	- Understand data access in .Net using ADO.Net
	- Understand various Server Control Templates available for
	  Data Binding using Repeater Control, Data List control,
	Data
	  Grid Controls, FormView Control, DetailView Control.			

07	**ASP transactions and e-mail** - Transactions. - Transaction db design. - CDONTS object, CDOSYS object. - Email sending web page creation.		02	04
	Total		32	100

Practical:
Skills to be developed:

Intellectual Skills:
- Use of programming language constructs in program implementation.
- To be able to apply different logics to solve given problem.
- To be able to write program using different implementations for the same problem
- Study different types of errors as syntax semantic, fatal, linker & logical
- Debugging of programs
- Understanding different steps to develop program such as
  - Problem definition
  - Analysis
  - Design of logic
  - Coding
  - Testing
  - Maintenance (Modifications, error corrections, making changes etc.)

Motor Skills:
- Proper handling of Computer System**.**

List of Practical:
1. Introduction to .Net framework.

2. a) Design Login form with validation.

   b) Design Registration form with validation of email address, date of birth, blank field, telephones and mobile numbers etc.

3. Design form, make it a class, create its object and access it from another form.

4. Design student class, marks class, inherits it in result class and access it using form.

5. Create instance of class using new operator of above example.

6. Design mark sheet of student using XML file and dataset.

7. Design employee details with help of database (back-end) using data adapter, data reader and datasets. Use data grid to display result.

8. Generation of database (data table) of employee or student with help of data tables of .Net.

9. To use multiple table design example of employee and department.

10. Design registration form of college using text box, text area, radio list, check list, button etc. using Autopostback property.

11. Simple application for following function: (1) Login (2) Surfing (3) Logout taking into considerations (Application, Session, Server object, global .asa file and their events, methods and collection) also demonstrates enabling and disabling of session.)

12. Creation of file, entry, reading data from a file.

13. Using components create:

    (1) Advertisement (using Ad rotator)

    (2) Book example (using Next function)

    (3) find capabilities of browser (Browser object capabilities)

14. Online application (student, employee, product, shopping mall)

    (a) Using dataset, data reader.

    (b) Same application using data table and data row. (use data grid to display data)

    (c) Bind the data to data grid using properties / templates.

    (d) Display details (student, employee, product, etc.) using data list. (4 cols per line)

15. Application which sends email.

Mini Project:

Design the mini project by integrating all the experiment performed as mentioned in the curriculum.

Learning Resources:
Books:

Sr. No.	Author	Title	Publisher
01	Anita & Bradely	Prog. In VB.Net	TATA Mc Grow Hill
02	Dave Mercer	ASP.net	TATA Mc Grow Hill
03	--	Beginning VB.Net 2003	Wrox Publication
04	Robert LandLizer	Designing Application with Microsoft VB.net	TATA Mc Grow Hill
05	--	Beginning ASP.Net	Wrox Publication
06	Grun grundgier	Prog. In VB.net	Oerilly
07	Thwan ThAI , Hoang Lan	.Net Frame Work Essential	Oreilly

Websites:
-   www.startvbdotnet.com
-   www.w3schools.com