MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI

TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES

COURSE NAME : COMPUTER ENGINEERING / COMPUTER TECHNOLOGY .

COURSE CODE : CO/CM/CD

DURATION OF COURSE : SIXTH SEMESTERS FOR CO/CM AND EIGHT SEMESTERS FOR CD **WITH EFFECT FROM 2008-09**

YEAR / SEMESTER : SIXTH SEMESTER FOR CO/CM AND SEVENTH SEMESTER FOR CD **DURATION : 16 WEEKS**

FULL TIME / PART TIME : FULL TIME **SCHEME : C**

SR. NO.	SUBJECT TITLE	SUBJECT CODE	TEACHING SCHEME			EXAMINATION SCHEME & MAXIMUM MARKS											
			TH	TU	PR	PAPER HRS	TH		TEST	TOTAL		PR		OR		TW	
							Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
1.	Management	9133	03	--	--	03	80	28	20	100	40	--	--	--	--	--	--
2.	Software Testing	9164	04	--	02	03	80	28	20	100	40	--	--	25@	10	--	--
3.	Advanced Java Programming	9165	03	--	04	03	80	28	20	100	40	50#	20	--	--	25@	10
4.	**Elective-II for Computer Technology (Any One) CD**																
	Object Oriented Modelling and Design	9166	02	--	04	03	80	28	20	100	40	--	--	25#	10	25@	10
	Advanced Web Technology	9167	02	--	04	03	80	28	20	100	40	--	--	25#	10	25@	10
	Elective-II for Computer Engineering (Any One) CO/CM																
	Embedded System	9168	02	--	04	03	80	28	20	100	40	--	--	25#	10	25@	10
	Systems Programming	9169	02	--	04	03	80	28	20	100	40	--	--	25#	10	25@	10
	Advanced Web Technology	9167	02	--	04	03	80	28	20	100	40	--	--	25#	10	25@	10
5.	Entrepreneurship Development	--	01	01	--	--	--	--	--	--	--	--	--	--	--	25@	10
6.	Industrial Projects	--	--	--	06	--	--	--	--	--	--	--	--	50#	20	50@	20
7.	Professional Practices-VI	--	--	--	05	--	--	--	--	--	--	--	--	--	--	50@	20
		TOTAL	**13**	**01**	**21**	**--**	**400**	**--**	**100**	**500**	**--**	**50**	**--**	**100**	**--**	**175**	**--**

STUDENT CONTACT HOURS PER WEEK (FORMAL TEACHING) : **35 HRS**.

THEORY AND PRACTICAL PERIODS ARE OF 6O MINUTES EACH.

@ INTERNAL ASSESSMENT, # EXTERNAL ASSESSMENT.

TOTAL MARKS: 825

ABBREVIATIONS: TH-THEORY, TU-TUTORIALS, PR-PRACTICAL, OR- ORAL, TW-TERM WORK.

Assessment of Practical, Oral & Term work to be done as per the prevailing norms of curriculum implementation & assessment.

COURSE NAME : COMPUTER ENGINEERING GROUP
COURSE CODE : CO/CM/CD/IF
SEMESTER : SIXTH FOR CO/CM/IF AND SEVENTH FOR CD
SUBJECT TITLE : MANAGEMENT
SUBJECT CODE : 9133

Teaching and Examination Scheme:-

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
03	--	--	03	80	20	--	--	--	100

Rationale:

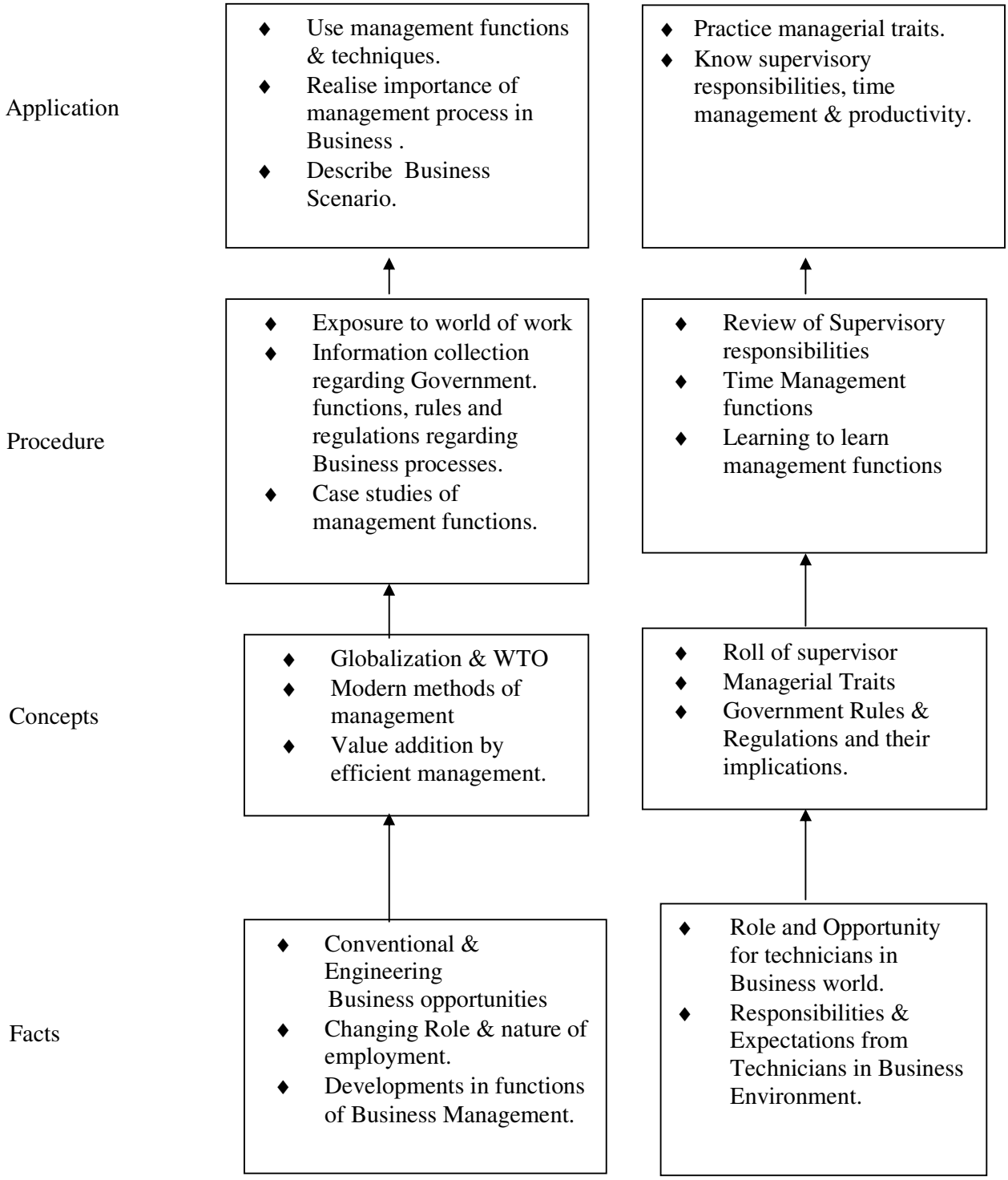
After completion of three years of technical training, Polytechnic students are expected to enter in to the World of Work. The business environment is altogether different and new to the students. A proper introduction and understanding of Business Processes is therefore essential for all Polytechnic 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:



Contents: Theory

Chapter	Name of the Topics	Hours	Marks
01	**Overview Of Business** 1.1. Types of Business 1.2. Industrial sectors – Textile, Engineering, Agro etc service sector – Introduction & Characteristics 1.3 Globalization - Strength & weaknesses.	**02**	**---**
02	**Management Process** 2.1 What is Management? Evolution , various Definitions, concept of Management- Levels of Management, Administration and Management 2.2 Principles of Management 2.3 Functions of Management: Planning , Organizing, Directing , controlling Motivating, Coordinating , Decision Making	**07**	**12**
03	**Organizational Management** 3.1 What is organization – Definition and steps in organization. 3.2 Organization Structure - Departmentation - Division of work base Centralized / Decentralized - Authority of Responsibility base, Span of Control Forms of Organization- Line , Line –staff etc. 3.3 Forms of ownerships – Partnership, Proprietorship, Joint stock, Co-operative society , Govt. Sector etc.	**07**	**12**
04	**Human Resource Management** 4.1 Personnel Management – What is Personnel Management and Functions of Personnel Management. 4.2 Staffing – Planning & Recruitment procedure 4.3 Personnel – Training & Development Types of training – Induction, skill enhancement, Workers & Supervisors training programs Motivation. 4.4 Safety Management – Causes of Accidents, Safety Procedures , Introduction to Industrial Acts- Factory act, ESI, workman compensation, Dispute act.	**08**	**16**
05	**Financial Management** 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 & accounts, preparation of Profit & Loss Account, Balance sheet etc. 5.4. Taxes & Tax Registration – Introduction and types of Taxes – Excise Service Tax, Income Tax, VAT Sales tax.	**08**	**16**

06	**Materials Management** 6.1. Inventory Management – Meaning & Objectives 6.2 ABC Analysis Purchase Procedure- Purchase types , searching & Selection of sources. Global purchasing, Global outsourcing. 6.3 Economic Order Quantity: Models & Analytical Treatment 6.5 Modern Techniques of Material Management – JIT, SAP/ERP	**08**	**16**
07	**Project Management** 7.1 Project Management - Introduction & Meaning 7.2 Project Planning & Control – CPM/PERT Techniques Concept of Break Even Analysis 7.3 Productivity – Meaning, Means & Measures of increasing productivity, Concept of Quality Circle , 5 'S', Kaizen (waste control), 6 sigma. 7.4 I. P.R.	**08**	**08**
	Total	**48**	**80**

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

2. Video Cossets:

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

COURSE NAME : COMPUTER ENGINEERING /COMPUTER TECHNOLOGY
COURSE CODE : CO/CM/CD
SEMESTER : SIXTH FOR CO/CM AND SEVENTH FOR CD
SUBJECT TITLE : SOFTWARE TESTING
SUBJECT CODE : 9164

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS.	TH	TEST	PR	OR	TW	TOTAL
04	--	02	03	80	20	--	25#	25@	150

Rationale:

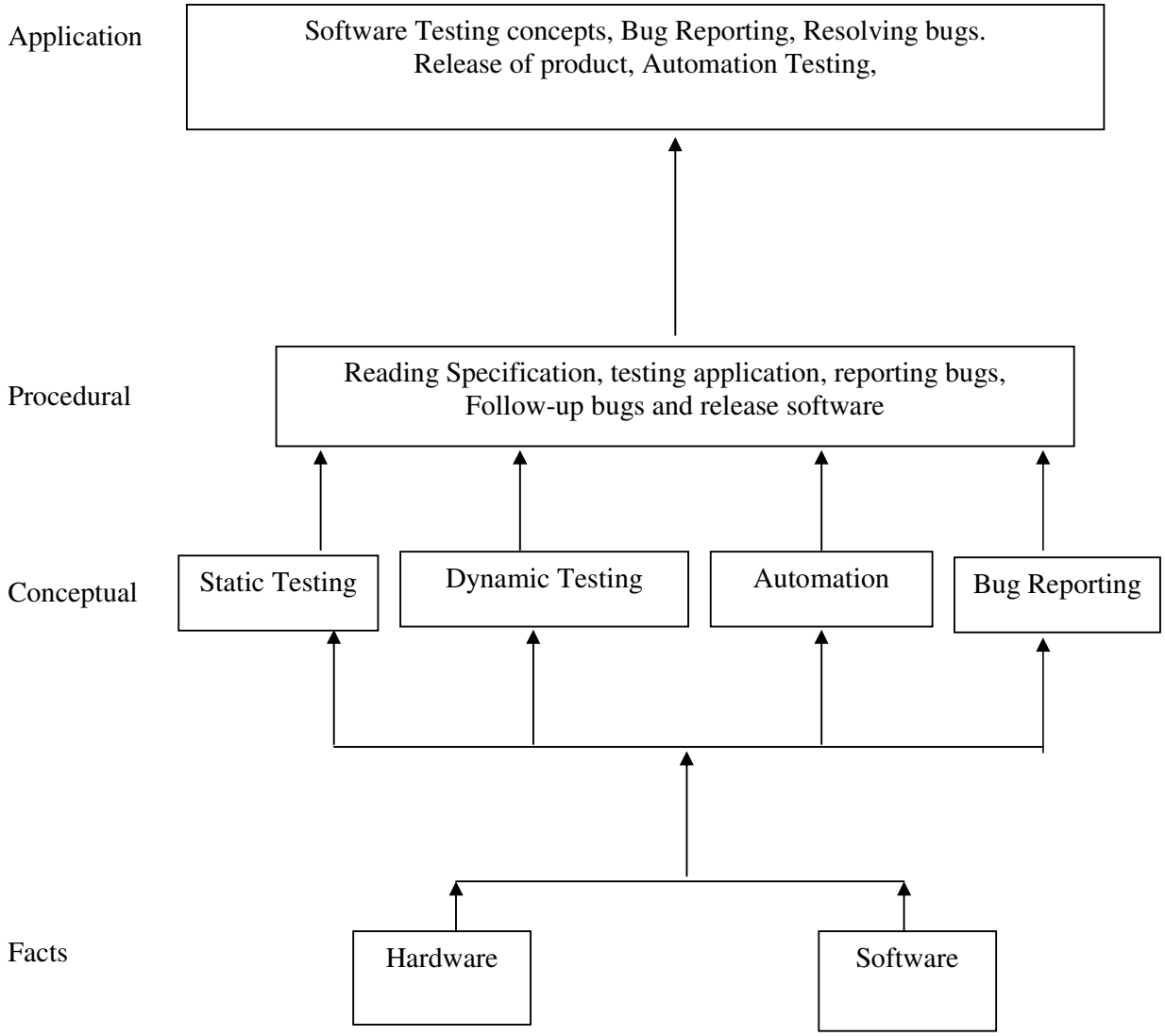
This subject will introduce you to basics of software testing, teaching you not just the fundamental technical skills but also the supporting skills necessary to become a successful software tester. You will learn how to immediately find problems in any computer program, how to plan an effective test approach, how to clearly report your finding and how to tell when your software is ready for release.

Objectives:

The students will be able to:

1. Understand the impact of software bugs and importance of software testing
2. Develop the skills necessary to find bugs in any types of software.
3. Learn how to effectively plan your tests, communicate the bugs you find, and measure your success as a software tester.
4. Use your new testing skills to test not just the software , but also the product specification the raw code, and even the user's manual
5. Learn how to test software for compatibility, usability and cultural issues.
6. Discover how to improve your testing efficiency by automating your tests.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Purpose of Testing** Software Testing Background Software Error Case Studies:- Disney Lion King, Intel Pentium Floating Point Division Bug, NASA Mars Polar Lander, Patriot Missile Defense System,Y2K Bug. What is Bug? Terms for software Failures, Software Bug: A Formal Definition , Why do Bug occurs? , cost of bugs, What Exactly does a software tester do? What makes a good software tester? Software Development Process Product Components:- What Effort Goes into a software product?, What parts make up a software product? , Software Project Staff , Software Development Lifecycle Models :- Big-Bang Model , Code and fix Model, Waterfall model, Spiral Model The Realities of Software Testing Testing Axioms: - It's impossible to test a program completely, software testing is a risk-based exercises, testing can't show that bug don't exist, the more bug you find, the more bugs there are, the pesticide paradox.	06	08
02	**Testing Fundamentals** **Examining the Specification** Getting Started :- Black-Box and white-box Testing, Static and Dynamic Testing , Static Black Box Testing :- Testing the specification Performing a High Level Review of the Specification:- Pretend to be a customer, Research Existing Standards and guidelines , Review and test similar software Low Level Specification Test Techniques:- Specification Attributes Checklist , Specification Terminology Checklist. **Testing the software with Blinders On** Dynamic Black-Box Testing : testing the software While, Blindfolded, Test-to-pass and Test-to-fail, Equivalences Partitioning , Data Testing :- Boundary Condition, Sub-Boundary Conditions, default, empty, blank, Null, Zero and None, Invalid, Wrong, Incorrect and garbage data. State Testing:- Testing Software 's Logic Flow, Testing States to Fail. Other Black Box Test Techniques :- Behave like a Dumb User, Look for bugs where you have already found them, follow experience, intuition and hunches	14	16
03	**Examining the Code** **Static White Box Testing:** Examining the design and code, Formal Review: - Peer Review, Walkthroughs, Inspections. Coding Standards and Guidelines:- Examples of Programming Standards and Guidelines, Obtaining Standards. Generic Code Review Checklist:- Data Reference Errors, Data Declaration Errors, Computation Errors, Comparison Error, Control Flow Errors, Subroutine Parameter Errors, Input/Output Errors, Other checks. **Testing the software with X-Ray Glasses** Dynamic White Box Testing, Dynamic white box testing versus debugging, Testing the Pieces:- Unit and Integration Testing, An	14	16

	Example of Module Testing. Data Coverage: - Data Flow, Sub-Boundaries, Formula and Equations, Error Forcing. Code Coverage: - Program Statements and Line Coverage, Branch Coverage, Condition Coverage.		
04	**Applying Your Testing Skills** **Configuration Testing** An Overview of Configuration Testing: - Isolating Configuration Bugs, Sizing up the job. Approaching the Task: - Decide the Types of Hardware You'II Need, Decide What Hardware Brands, Model, and Device Drivers are available. Decide which Hardware features, modes and options are possible. Pare Down the identified Hardware Configuration to a Manageable Set. Identify your Software's Unique Features that work with the Hardware Configurations. Design the test Cases to Run on each configuration. Execute the tests on each configuration. Rerun the tests until the results satisfy your team. Obtaining the hardware, Identify hardware standards, configuration testing other hardware. **Compatibility Testing** Compatibility Testing Overview, Platform and Application Versions, Backward and forward compatibility, the impact of testing multiple versions. Standards and Guidelines: - High-Level standards and Guidelines, Low- level standards and Guidelines, Data Sharing Compatibility.	**06**	**08**
05	**Foreign Language Testing** Making the words and Pictures Make Sense , Translation Issues :- Text Expansion , ASCII , DBCS and Unicode , Hot Keys and shortcuts , Extended Characters , Computation on characters , Reading Left to Right and Right to Left , Text on Graphics, Keep the Text out of the code . Localization Issues: - Content, Data Formats. Configuration and Compatibility Issues: - Foreign platform configurations, Data Compatibility. How much should you Test?	**02**	**04**
06	**Usability Testing** **User Interface Testing:** What makes a Good UI? , Follows standards or Guidelines, Intuitive, Consistent, Flexible, Comfortable, Correct, Useful. Testing for the Disabled: Accessibility Testing: - It's the Law, accessibility features in software. **Testing the Documents** Types of Software Documentation, The importance of documentation testing, what to look for when reviewing documentation, the realities of documentation testing. **Web site Testing** Web Page Fundamentals, Black-Box Testing: - Text, Hyperlinks, graphics, forms, object and other simple miscellaneous Functionality. Gray Box Testing, White Box Testing, Configuration and compatibility testing, Usability Testing, Introducing Automation.	**08**	**10**
07	**Supplementing Your Testing** **Automation Testing and test tools** The benefits of automation and tools, Test tools: - Viewers and Monitors, Drivers, Stubs, Stress and load tools, Interference injectors and noise generators, analysis tools. Software Test Automation: - Macro Recording and playback, programmed macros, Fully Programmable Automated Testing Tools. Random Testing: monkeys	**04**	**06**

	and gorillas, Dumb monkeys, Semi-smart monkeys, Smart Monkeys, Realities of using test tools and automation. **Bug Bashes and Beta Testing** Only as far as the eye can see, Test sharing, beta testing, outsourcing your testing.		
08	**Working With Test documentation** **Planning your test effort :** the goal of the test planning , test planning topics :- high level expectations , people , places , and things , definitions , Inter group Responsibilities , what will and won't be tested , test phases , test strategy , resource requirements , tester assignments , test schedule , test cases , bug reporting , Metrics and statistics , Risk and Issues. **Writing and Tracking Test Cases** The goal of test case Planning, Test case planning overview, test design, test cases, test procedures, test case organization & tracking. **Reporting What you Find** Getting your bugs fixed, isolating & reproducing bugs , Not all bugs are created equal , a bug's life cycle , bug tracking system :- The standard : The test incident Report , Manual Bug Reporting and Tracking , Automated bug reporting and tracking. -Measuring Your Success Using the information in the bug tracking database, Metrics that you'll use in your daily testing, Common Project level Metrics.	**06**	**08**
09	**The Future** **Software Quality Assurance :** Quality is free, testing and quality assurance in the workplace , software testing , Quality Assurance, other names for software testing groups, Test management and organizational structures, Capability Maturity Model (CMM), ISO 9000 **Your Careers As a Software Tester:** Your job as a software tester, finding software testing position, gaining hands-on experience, Internet links, Professional Organizations.	**04**	**04**
	Total	**64**	**80**

Practical:
Skills to be developed:

Intellectual Skills:

1. Use installation procedure
2. Creation of GUI objects and their applications
3. Know various tools
4. Know Test procedures

List of Practical: (Any 10)

Sr. No.	Practical Name
1	Introduction To Software Testing Concepts
2	Case Study:- Study any system specification and report bugs
3	Write Test Cases For any Application (e.g. Railway Reservation Form)

4	Display "Hello World"
5	Write a program to demonstrate use of 1) For …Loop 2) Switch … Case 3) Do…While 4) If….else
6	Automate Notepad Application.
7	Automate any installation procedure (e.g. WinZip)
8	Automate Microsoft Word Application 1) Open Microsoft Word 2) Type text (automatically) 3) Generate random file name. 4) Save file and close Microsoft Word.
9	Create GUI Objects.
10	Create any GUI Application e.g. Calculator
11	Assignment for Web Testing (use any Web testing tools e.g. Selenium)
12	Assignment for any Bug Tracking Tool (e.g. Bugzilla, Bugit)
13	Assignment for any test management tool (e.g. Test Director)

All above Practical may be performed on **Windows** ***or*** **Linux** Platform, using the tools mentioned below:

Sr. No	Testing Tools	Type of Tool
1	AutoIT	Free Ware
2	Ruby	Free Ware
3	Water	Free Ware
4	Sahi	Free Ware
5	Bugzilla	Licensed Software
6	Test Track	Licensed Software

Learning Resources:

1. **Books:**

Sr. No.	Author	Title	Publication
01	Ron Patton	Software Testing	SAMS Techmedia
02	Srinivasan Desikan Gopalaswamy Ramesh	Software Testing : Principals and Practical	Pearson Education

2. **Sources of Information –**

1) www.autoitv3.com 2) www.selenium.com

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 : 9165

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HOURS	TH	TEST	PR	OR	TW	TOTAL
03	--	04	03	80	20	50#	--	25@	175

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.

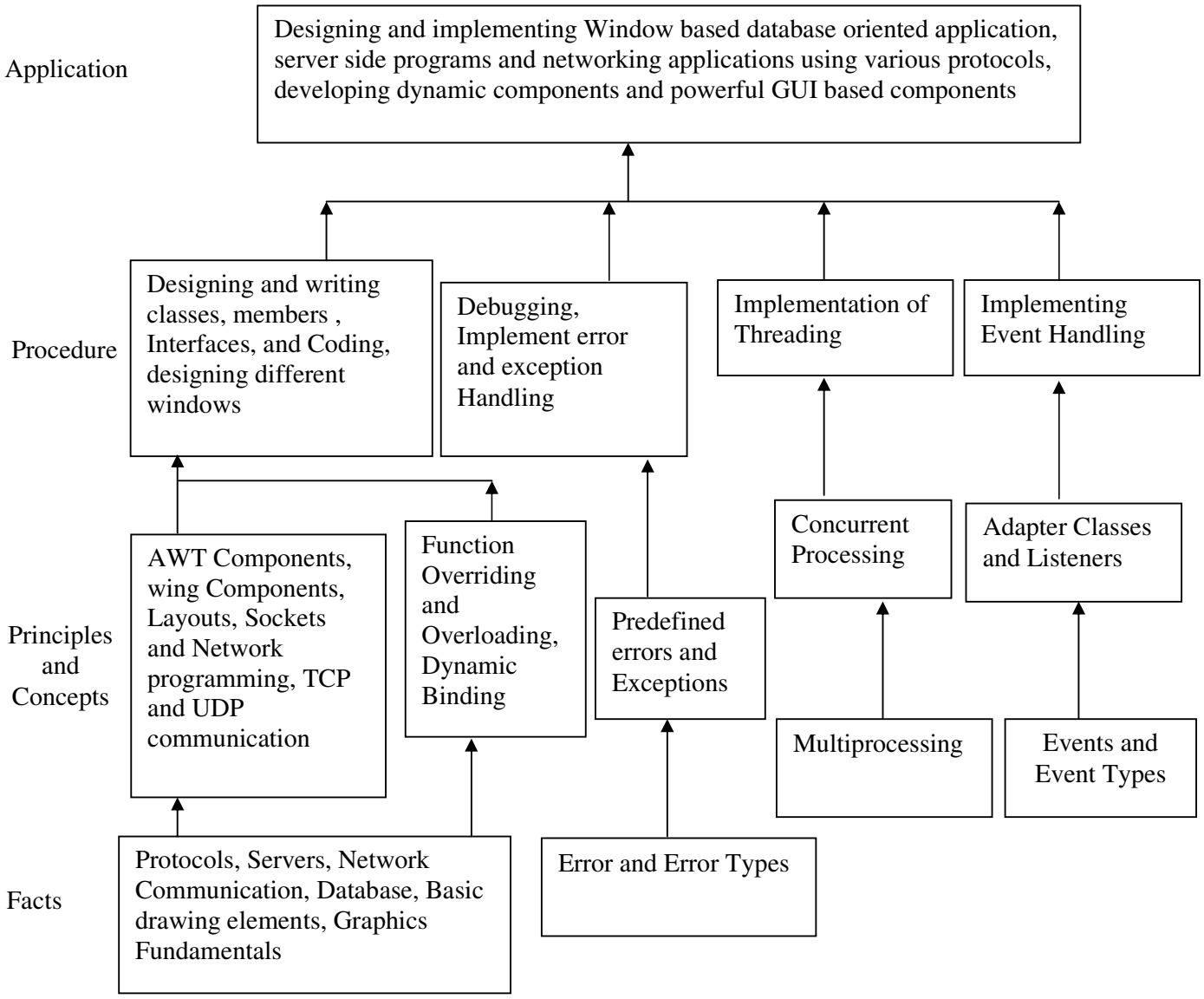
Advanced Java enhances the Java programming. After learning this subject, student will be able to develop network based software projects required in curriculum as well as industry

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:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Introduction the Advanced Web Technology: (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**	**20**
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 TCP/IP Client Sockets What is URL Format 2.5 URL connection 2.6 TCI/IP Server Sockets 2.7 Data grams Data gram packets, Data gram server & client	**08**	**16**
03	**Java Data Base Client/ Server** 3.1 Java as a Database front end Database client/server methodology	**08**	**14**

	Two-Tier Database Design Three-Tier Database Design **3.2 The JDBC API** 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**	**14**
05	**Servlets** 5.1 Background, The Life Cycle Of a Servlet,The Java Servlet Development Kit, The Simple Servlet, 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 Exploring Servlet	**08**	**16**
	Total	**48**	**80**

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.
21	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 : COMPUTER TECHNOLOGY/INFORMATION TECHNOLOGY
COURSE CODE : CM/IF
SEMESTER : SIXTH
SUBJECT TITLE : OBJECT ORIENTED MODELLING AND DESIGN (ELECTIVE-II)
SUBJECT CODE : 9166

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS.	TH	TEST	PR	OR	TW	TOTAL
02	--	04	3	80	20	-	25#	25@	150

Rationale:

Object oriented modelling 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 built 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.

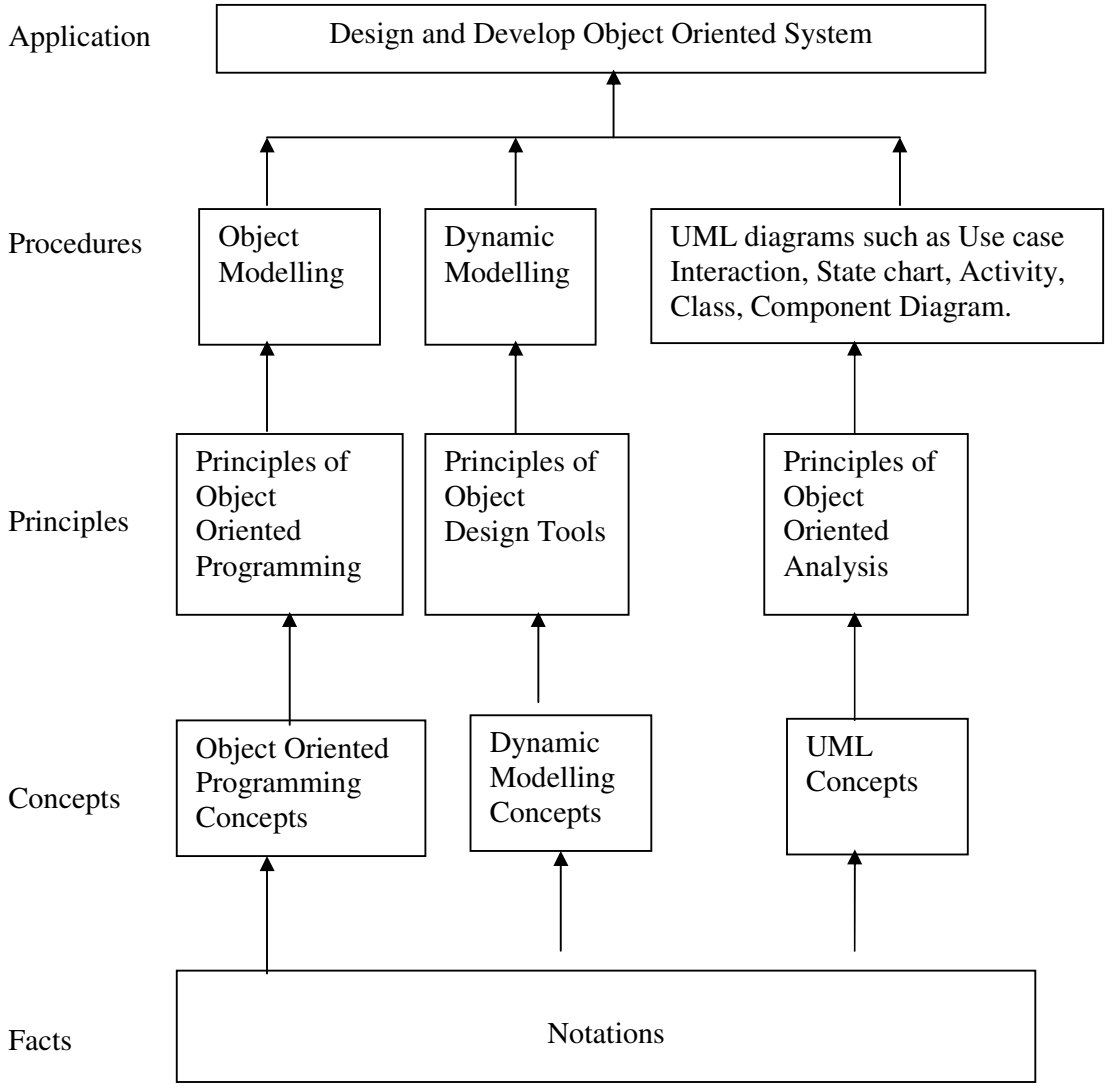
This subject will be useful for the student to understand the concepts of Object Oriented Programming System and to model these concepts using Unified Modelling Language (UML) for any application, before actually going for coding part.

Objectives:

The student will be able to:

1) Interpret / give the meaning of object-oriented concepts.
2) Understand different Modelling 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:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Importance of Modelling** 1.1 Brief overview of Object Modelling Technology (OMT) by Ram Baugh, Booch Methodology, Use Case driven approach (OOSE) by Jacobson, Overview of CRC card method by Cunningham.	**03**	**08**
02	**Object Modelling** 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 Modelling.	**07**	**20**
03	**Overview of UML** 3.1 Efforts of standardization / Integration,OMG approval for UML, Scope of UML, Conceptual model of UML,Architectural –Metamodel, Unified Software Development Lifecycle. 3.2 Introduction to UML Diagrams	**05**	**14**
04	**UML – Structural Modelling** 4.1 Advanced Class Diagrams: - Advanced Classes and Relationships, Interfaces, Types and Roles, Packages, Instances. Object Diagrams. 4.2 Component Diagrams: Terms and Concepts, Common modeling techniques. Deployment Diagrams: Terms and Concepts, Common modeling techniques.	**05**	**16**
05	**UML Behavioral Modeling** 5.1 Use case diagram: Terms and Concepts, Model ling techniques. 5.2 Interaction diagram (Sequence and collaboration diagram): Terms and Concepts, Model ling techniques. 5.3 State chart diagram: Terms and Concepts, Model ling techniques. 5.4 Activity diagram: Terms and Concepts, Modelling techniques.	**12**	**22**
	Total	**32**	**80**

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 : 9167

Teaching and Examination Scheme:

Teaching Scheme			**Examination Scheme**						
TH	TU	PR	PAPER HRS.	TH	TEST	PR	OR	TW	TOTAL
02	--	04	03	80	20	--	25#	25@	150

Rationale:

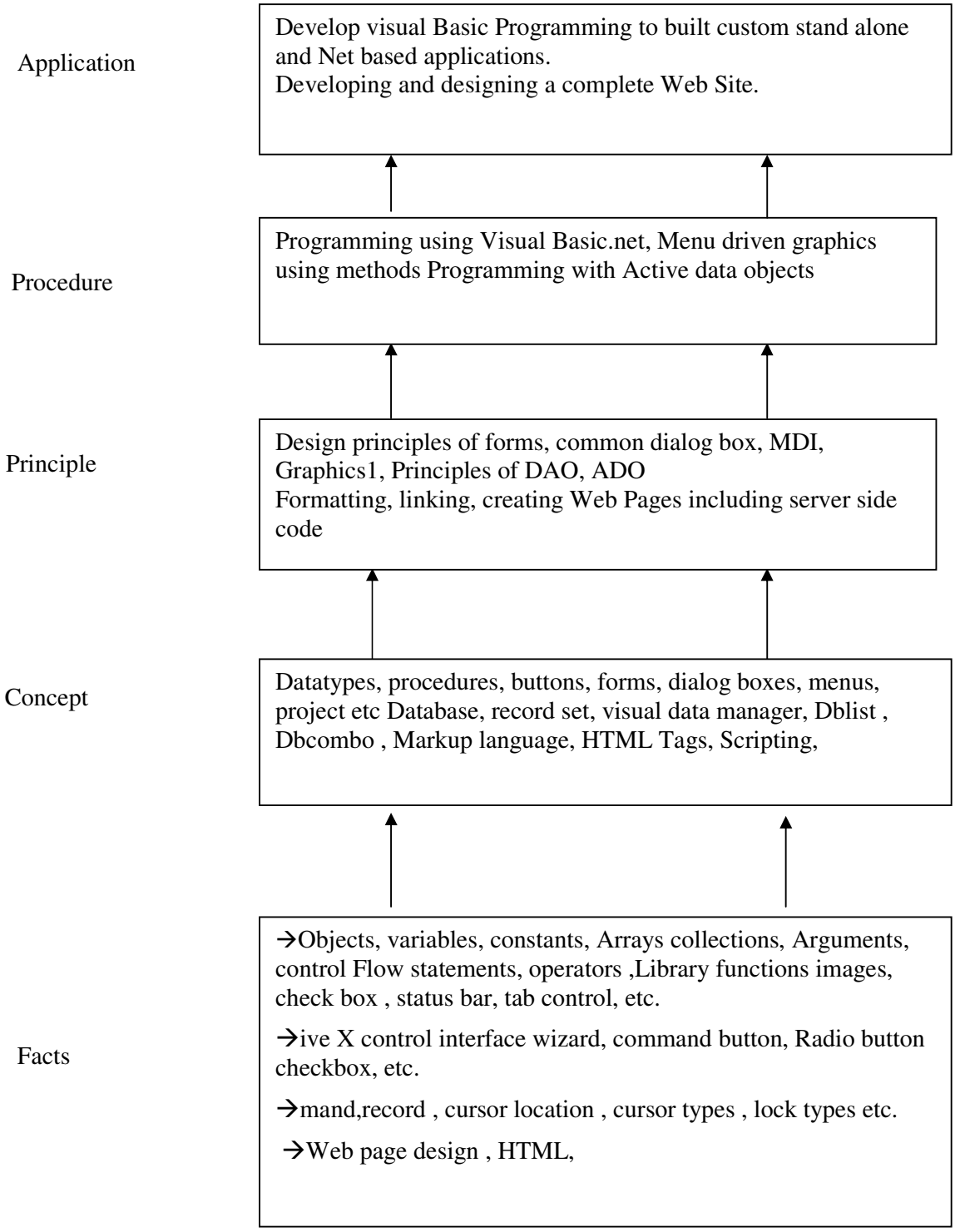
This subject is the technology subject, subject knowledge of Web Page Design and Visual Basic is essential for studying this subject. Advanced Web Technologies is based on dot net technology, which is a frame work, which supports many languages so that application designed in one language(like C++, COBOL, 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:



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 VB.Net - VB.Net overview. - Difference between VB and VB.Net 1.3 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** 2.1 Introduction to VB.Net - Features. - VB.Net IDE. - Data Types, Loops, Control structures, Cases, Operators. - Creating forms. - Procedures and functions. - Form controls. 2.2 Implementation of OOP - Creation of class and objects. - Inheritance. - Constructors. - Exception handling. 2.3 Component based programming - Working with Private assembly, shared assembly. - Using COM components developed in VB or other language.	04	12
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. - 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	08	20

	- 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 to ASP.Net** - Difference between ASP and ASP.Net - Introduction to IIS. - What is web application? Why it is used? - ASP.Net IDE. - Creation of web forms. - Using web form controls.	**02**	**04**
05	**ASP.Net objects and components** - Response. - Server. - Application. - Session. - ASP.Net scope, state, view state, post back and configuration. - Object creation: Scripting, Drive, folder, file. - How to use objects? - Server components : Ad rotator, Content linker, Browser capabilities. - Use and creation of global .asa 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.	**08**	**20**
06	**ADO.Net** 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 techniques - Understand data access in .Net using ADO.Net - Understand various Server Control Templates available for Data Binding like Repeater. - Data List and Data Grid Controls.	**04**	**16**
07	**ASP transactions and e-mail** - Transactions. - Transaction db design. - CDONTS object. - Email sending web page creation.	**02**	**04**
	Total	**32**	**80**

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 curriculam

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	Anthony Jones	.net Framework	TATA Mc Grow Hill
04	Robert LandLizer	Designing Application with Microsoft VB.net	TATA Mc Grow Hill
05	-	Operating .net Framework	TATA Mc Grow Hill
06	Grun grundgier	Prog. In VB.net	Oerilly
07	Thwan ThAI , Hoang Lan	.Net Frame Work Essential	Oreilly

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING & ELECTRONICS ENGINEERING GROUP

COURSE CODE : CO/ET/EJ/EN/EX/CD

SEMESTER : SIXTH FOR CO / ET / EJ /EN /EX AND SEVENTH FOR CD

SUBJECT TITLE : EMBEDDED SYSTEMS (ELECTIVE II)

SUBJECT CODE : 9168

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
02	--	04	03	80	20	--	25#	25@	150

Rationale:

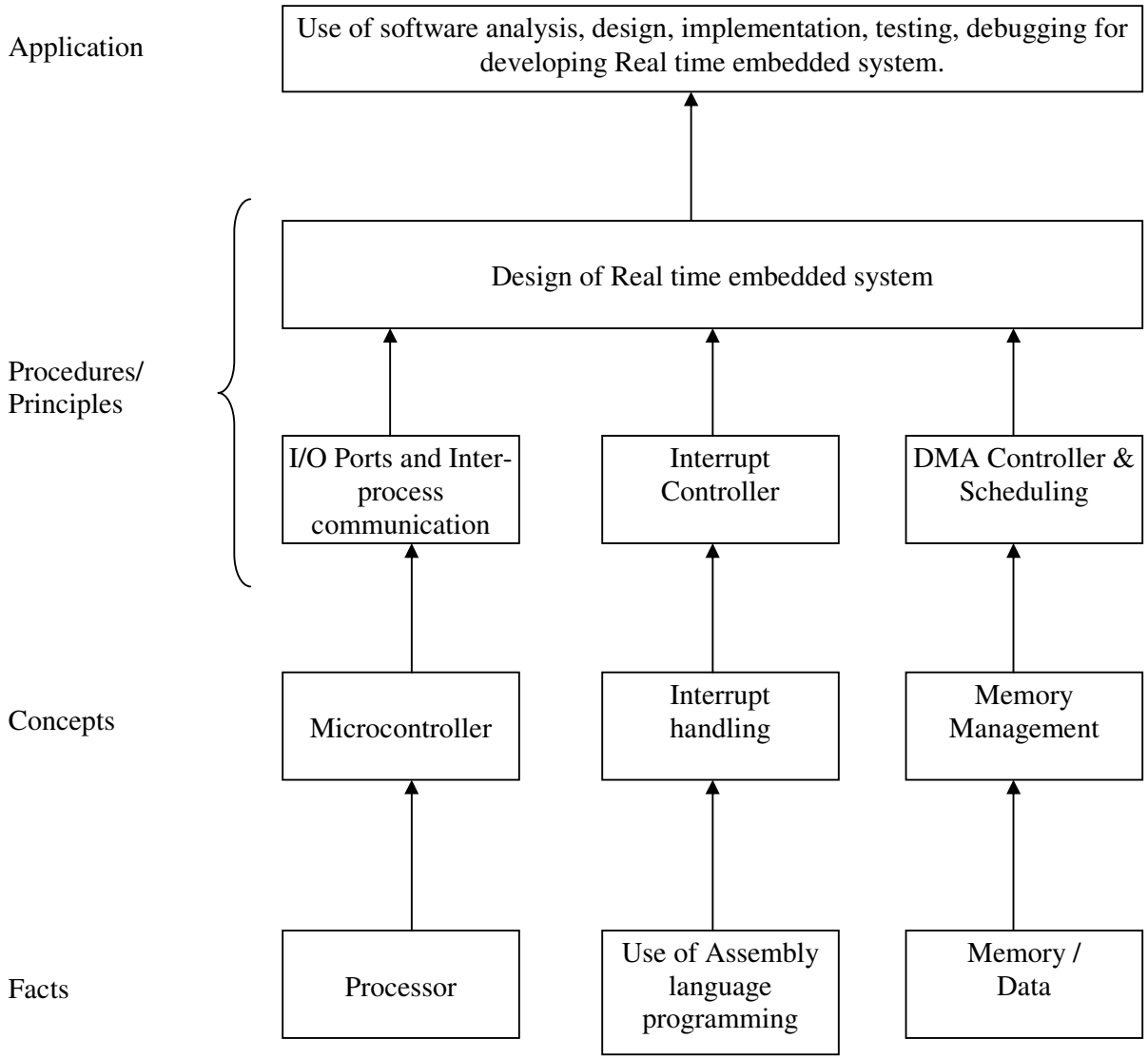
The study of embedded systems is essential part of Computer Science. It deals with computer hardware with software embedded in it. This subject will enable student to develop logical thinking and use of "Firmware". It is practical oriented subject having theoretical prerequisites of Microprocessor, Digital Techniques, Data Structures and Computer Architecture. Students will be able to develop Real Time Systems, Device drivers, use interrupt service mechanism, program timing and counting devices and develop embedded C-Programs for Microcontroller.

Objectives:

The student will be able to:

1. Access embedded systems hardware units like processor, I/O device, On-chip and Off-chip device, Power supply etc.
2. Interface various devices using ports.
3. Write embedded program.
4. Develop programmable interrupt controller.
5. Perform software analysis, design, implementation, testing, debugging for embedded systems.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**8051- Microcontrollers** **1.1 Overview of 8051 family.** **1.2 Architecture.** **1.3 Memory organization.** **1.4 Functional pin, Ports & circuit.** **1.5 Addressing mode, Instruction Set.**	03	08
02	**Hardware overview** 2.1 Study of interrupt structure. 2.2 Port structure. & Programming. 2.3 Study of SBUF, TCON, TMOD, SMOD, SCON Register. 2.4 Timer/Counter & Serial Communication Programming	04	12
03	**Serial Communication & Parallel communication** 3.1 Serial Communication – RS-232, I^2C, CAN 3.2 Parallel Communication – ISA, PCI, PCI-X 3.3 Advance I/P O/P buses. 3.4 Study of RS-232 Pinout.	05	10
04	**Embedded System** 4.1 Introduction. 4.2 Processor in the system. 4.3 Different Hardware Units. 4.4 Software Embedded into System. 4.5 Exemplary Embedded system. 4.6 System –On-Chip (SOC) & VLSI system.	03	10
05	**Memory organization** 5.1 Structure unit in processor 5.2 Processor selection 5.3 Memory devices & Selection 5.4 Allocation of memory 5.5 DMA 5.6 Interfacing processor & I/P O/P device	04	08
06	**Device Driver & Interrupts Servicing Mechanism** 6.1 Device Drivers	05	12

	6.2 Parallel port device driver 6.3 Serial port device driver 6.4 Internal Programmable timing devices 6.5 Interrupts handling Mechanism 6.6 Context switching		
07	**RTOS & Interprocess Communication** 7.1 Concepts of RTOS 7.2 Requirement, Need, Specification of RTOS in Embedded systems 7.3 Multitasking 7.4 Task synchronization & Mutual Exclusion 7.5 Starvation, Deadlock, Multiple process 7.6 Problem of sharing data by Multiple task and routines 7.7 Interprocess communication	08	20
	Total	**32**	**80**

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:

It is expected that students should perform at least 8 experiments from the following list. Out of which any one of the experiment shall be performed on 8051 kit & remaining can be performed using pc & kit either using Assembler or "C" programming language.

Student must also do a mini project covering practical knowledge gained in the subject & submit a brief project report with subject Journal. This report should also include the importance of the Project from industry point of view

1. Write a Program on Block Move.
2. Assume 1 Hz. Frequency pulse is connected to I/P P3.4 Write a Program to display count on LCD kit.
3. Write a Program to find the frequency of square wave generated on pin P1.0.
4. Write a Program to generate a square wave of 50 Hz. Frequency on pin P1.2 using interrupt for timer.
5. Write a Program to connect INT 1 pin to a switch that is normally high whenever it goes low LED should turn ON which is connected to P1.3 & LED is normally OFF. LED should be ON as long as switch is pressed.
6. Write a Program to transfer massage "Yes" serially at 9600 baud rate 8-bit, data, 1 stop-bit & do this continuously.
7. Write a Program for Interfacing ADC & DAC.
8. Write a Program to Interface keyboard.
9. Write a Program to Interface LCD.
10. Write a Program to Interface stepper motor.
11. Mini project :

    This project should be at least of level of interfacing some devices. "C"-Programming language can also be used for development of project.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
01	Raj Kamal	Embedded Systems	--
02	David E. Simon	An Embedded Software Primer	Pearson Education
03	--	The 8051 Microcontroller And Embedded Systems	Pearson Education
04	Frank Vahid, Toney Givargis	Embedded System Design: A unified Hardware/Software Introduction	John Wiley
05	Craig Hollabaugh	Embedded Linux	Pearson Education

06	Daniel Lewis	Fundamentals of Embedded Software	Pearson Education
07	Barnett, Cox, O'Cull	Embedded C Programming and the Atmel AVR	Thomson Learning
08	Mike Predko	Programming and Customizing the 8051 Microcontroller	Tata Magrow Hill

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING
COURSE CODE : CO/CD
SEMESTER : SIXTH FOR CO AND SEVENTH FOR CD
SUBJECT TITLE : SYSTEM PROGRAMMING (ELECTIVE-II)
SUBJECT CODE : 9169

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS.	TH	TEST	PR	OR	TW	TOTAL
02	--	04	03	80	20	--	25#	25@	150

Rationale:

System Programming are the set of software's, which aide in effective communication with the system and makes the user interface more friendly. The main of system programming is to teach procedures for the design of system software like Assemblers, Loaders, and Compliers.

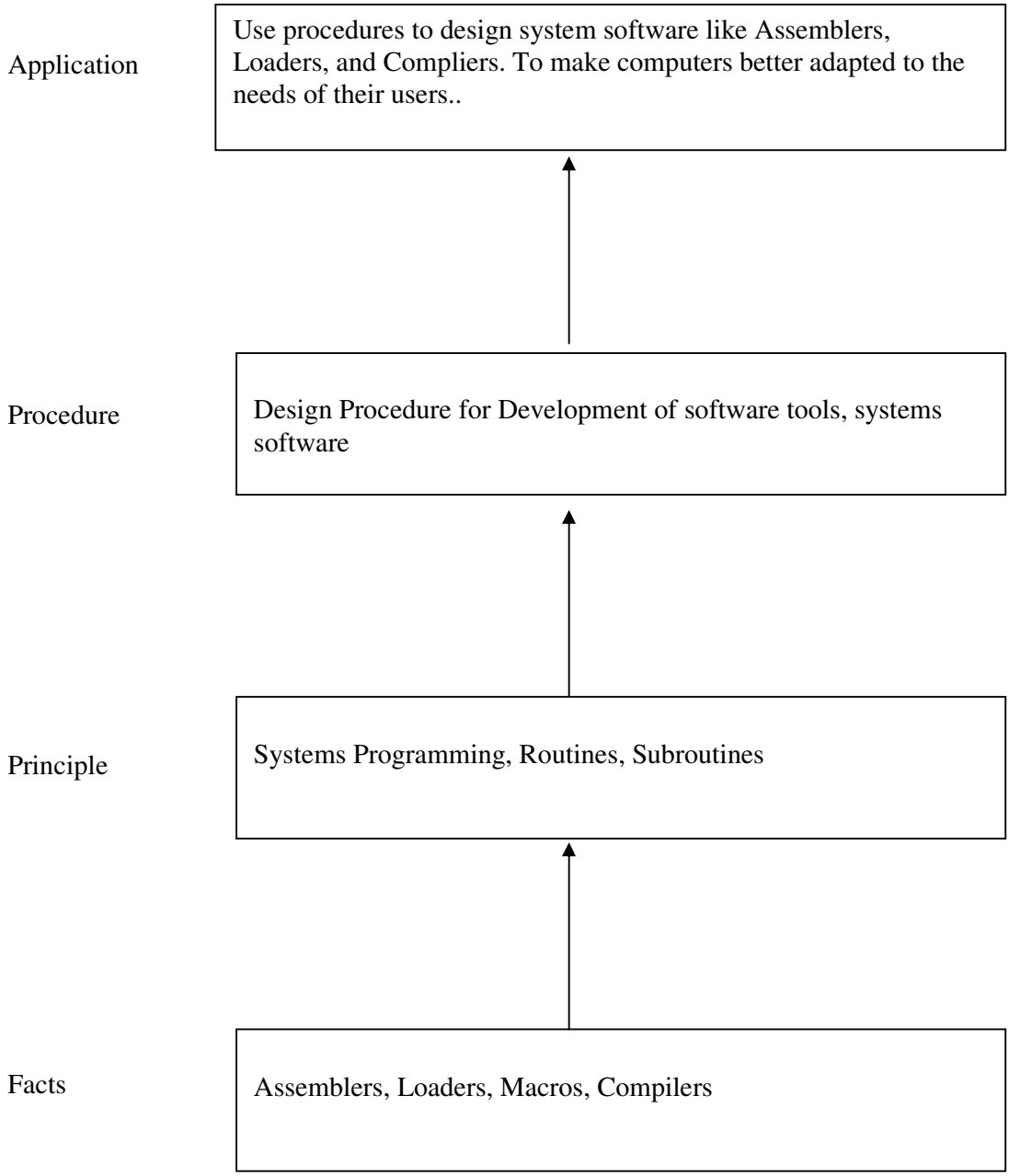
Present day computers cannot understand such language without the aid of system programs. System programs e.g. compliers, loaders, macro processors were developed to make computers better adapted to the needs of their users. Farther, people wanted more assistance in the mechanics of preparing their problems.

Objective:

After studying the subject students will be able to

a) Understand various design aspect of the system software.
b) Develop software tools like editors and debuggers.
c) Develop various system software's.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Features of System Programming** 1.1 What is System Software 1.2 Components of System Software : Assemblers; Loaders; Macros; Compilers 1.3 Evolution of System Software 1.4 Foundations of system Programming.	**02**	**12**
02	**Assemblers** 2.1 General design procedure 2.2 Design of the assembler - Statement of the problem; Data Structure; Format of databases; Algorithm; Look for modularity. 2.3 Table Processing: Searching and Sorting- Linear Search; Binary Search Sorting: Interchange sort; Shell sort; Bucket sort; Radix exchange sort; Address calculation sort; Comparisons of sort; Hash or Random entry searching	**05**	**16**
0 3	**Macro Language and Macro Processors** 3.1 Macro Instructions 3.2 Features of a Macro facility - Macro Instruction Arguments; Conditional macro expansion; Macro call within Macros; Macro Instruction defining Macros. 3.3 Implementation - Implementation of restricted faculty : Two Pass Algorithm, A Single Pass Algorithm, Implementation of macro calls within Macros, Implementation within an assembler	**05**	**12**
04	**Loaders** 4.1 Loaders Schemes - "Compile and go" loaders; General Loader Schemes; Absolute Loaders; Subroutine linkages; Relocating loaders; Direct linking loaders; Other loaders scheme: Binders, Linking loaders Overlays, Dynamic Binders. 4.2 Design of Absolute loaders 4.3 Design of Direct Linking Loaders: Specification Problem; Specification of data structures; Format of database; Algorithm	**10**	**20**
05	**Compliers** 5.1 Statement of a problem - Recognizing basic elements; Recognizing Syntactic units and Interpreting meaning; Intermediate from: Arithmetic statements, Non-Arithmetic statement, Non-executable statements; Storage Allocation; Code Generation: Optimization(M/c independent), Optimization(M/c dependent); Assembly Phase; General Model of Compiler. 5.2 Phases of Compiler - Lexical Phase: Tasks, Databases, Algorithm; Syntax Phase: Databases, Algorithm; Interpretation Phase: Databases, Algorithm; Optimization:	**10**	**20**

	Databases, Algorithm; Storage Assignment: Databases, Algorithm; Code Generation: Databases, Algorithm; Assembly Phase: Databases, Algorithm; Passes of a Compiler		
	Total	**32**	**80**

Practical:

Skills to be developed:

1. Programming skills
2. Design of assemblers
3. Logical Thinking

List of Practical:

Sr. No.	Practical Name
1	Programming on sorting and searching techniques Liner search, Binary search, Interchange sort; Shell sort; Bucket sort; Radix exchange sort; Address calculation sort; Comparisons of sort; Hash or Random entry searching.
2	Design of a single pass assembler or two pass assembler.
3	Design of Macro Processor.
4	Design of Loaders.
5	Design of various phases of Compiler.

Learning Resources:

Books:

Sr. No.	Author	Title	Publication
1	John J. Donovan	System Programming	Tata McGraw-Hill Edition 2003
2	Mr. Dhamdhere	System Programming and Operating System	Tata McGraw-Hill Edition

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 : 9167

Teaching and Examination Scheme:

Teaching Scheme			**Examination Scheme**						
TH	TU	PR	PAPER HRS.	TH	TEST	PR	OR	TW	TOTAL
02	--	04	03	80	20	--	25#	25@	150

Rationale:

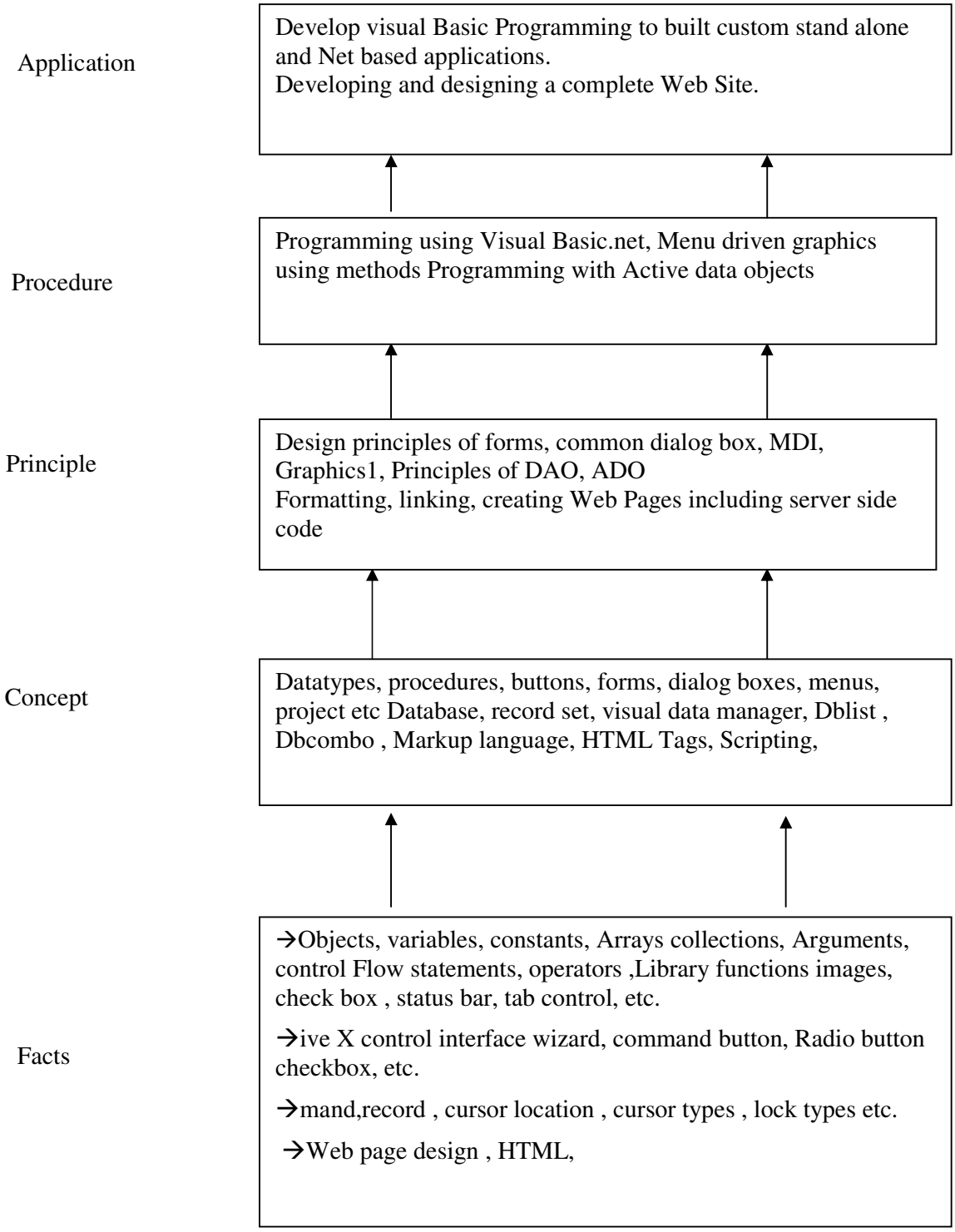
This subject is the technology subject, subject knowledge of Web Page Design and Visual Basic is essential for studying this subject. Advanced Web Technologies is based on dot net technology, which is a frame work, which supports many languages so that application designed in one language(like C++, COBOL, 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.
8. Build net based applications.
9. Transfer code form VB to VB.net.
10. Can do Asp Transaction.

Learning structure:



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 VB.Net - VB.Net overview. - Difference between VB and VB.Net 1.3 Introduction to .Net - Types of application architecture. - .Net initiative. - .Net framework: components of .Net framework, Advantages, requirement of .Net.	04	04
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	- 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 to ASP.Net - Difference between ASP and ASP.Net - Introduction to IIS. - What is web application? Why it is used? - ASP.Net IDE. - Creation of web forms. - Using web form controls.	**02**	**04**
05	ASP.Net objects and components - Response. - Server. - Application. - Session. - ASP.Net scope, state, view state, post back and configuration. - Object creation: Scripting, Drive, folder, file. - How to use objects? - Server components : Ad rotator, Content linker, Browser capabilities. - Use and creation of global .asa 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.	**08**	**20**
06	ADO.Net 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 techniques - Understand data access in .Net using ADO.Net - Understand various Server Control Templates available for Data Binding like Repeater. - Data List and Data Grid Controls.	**04**	**16**
07	ASP transactions and e-mail - Transactions. - Transaction db design. - CDONTS object. - Email sending web page creation.	**02**	**04**
	Total	**32**	**80**

Practical:
Skills to be developed:

Intellectual skills:

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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.
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    (d) Display details (student, employee, product, etc.) using data list. (4 cols per line)
15. Application which sends email.

Mini Project :

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Learning Resources:
Books:

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02	Dave Mercer	ASP.net	TATA Mc Grow Hill
03	Anthony Jones	.net Framework	TATA Mc Grow Hill
04	Robert LandLizer	Designing Application with Microsoft VB.net	TATA Mc Grow Hill
05	-	Operating .net Framework	TATA Mc Grow Hill
06	Grun grundgier	Prog. In VB.net	Oerilly
07	Thwan ThAI , Hoang Lan	.Net Frame Work Essential	Oreilly

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 : --

Teaching and Examination Scheme:

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

Rationale:

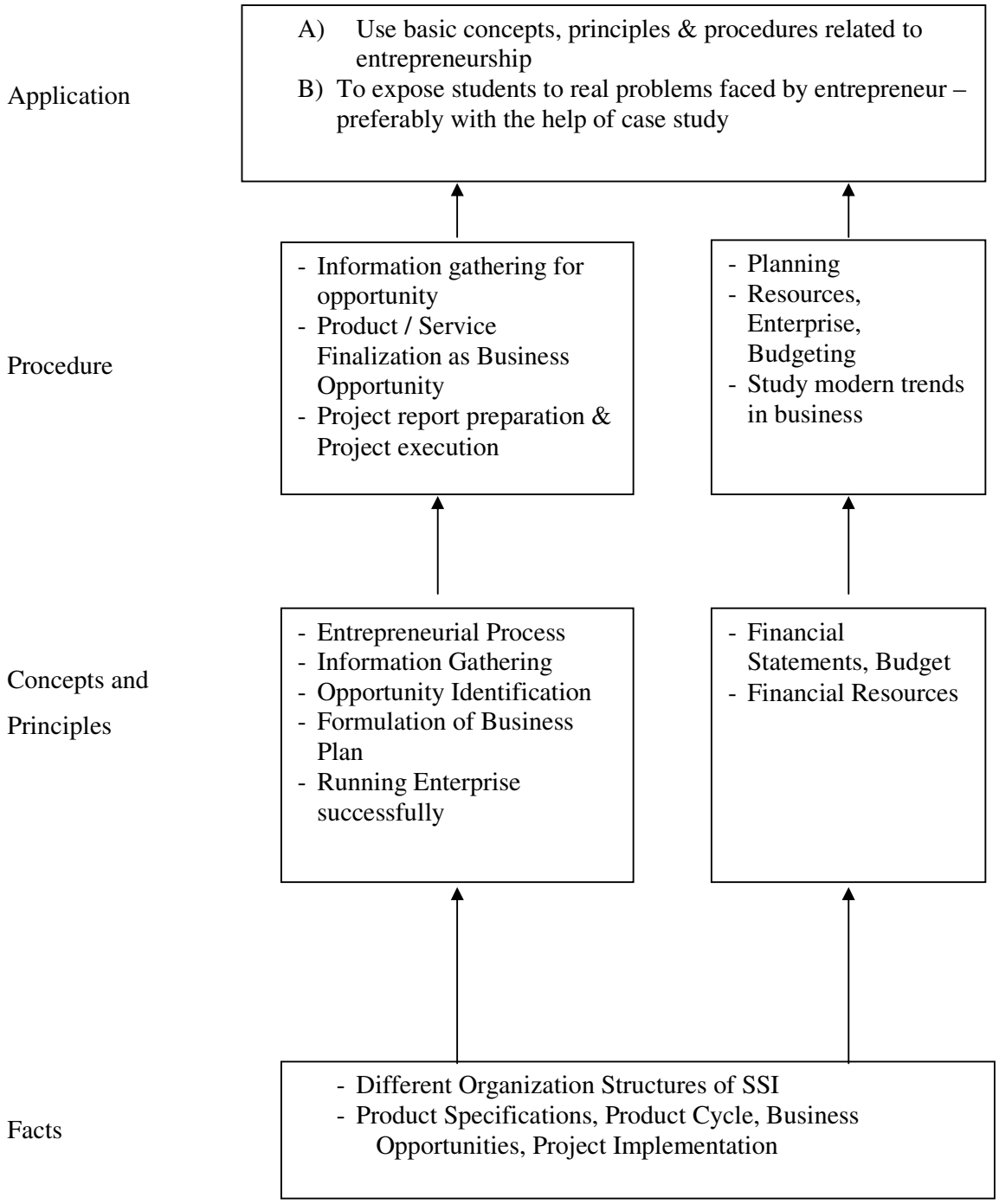
Globalization, liberalization & privatization along with revolution in Information Technology, have thrown up new opportunities that are transforming lives of the masses. Talented and enterprising personalities are exploring such opportunities & translating opportunities into business ventures such as- 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:



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 Managnment And Modern Trends** 6.1 **Enterprise Managnment**: 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 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
06	A Manual on Business Opportunity Identification & Selection	J.B.Patel S.S.Modi	
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 : --

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	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.

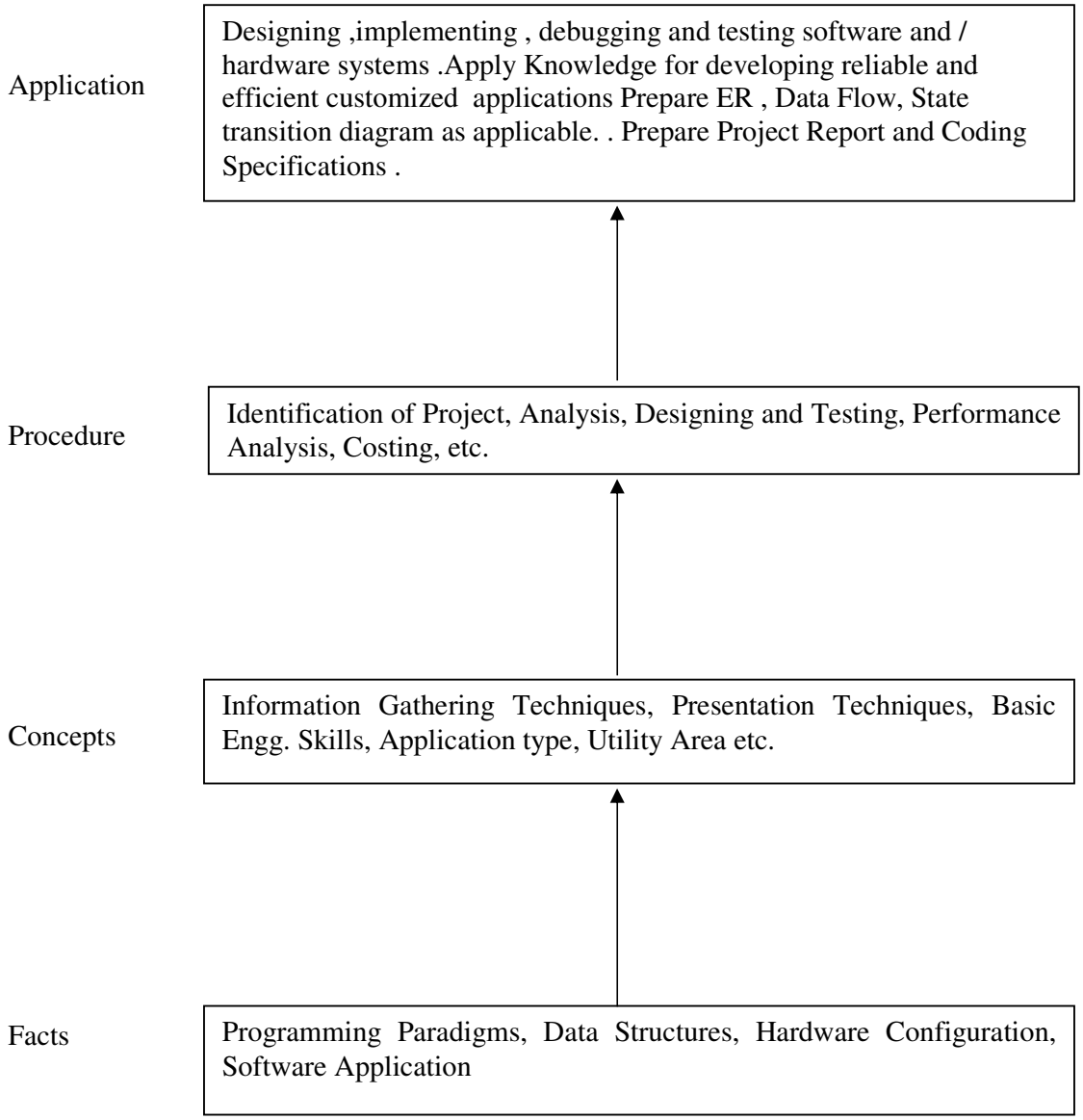
Furthermore the student will be able to find out various sources of technical information and develop self-study techniques to prepare a project and write a project report.

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:



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 : --

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	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.

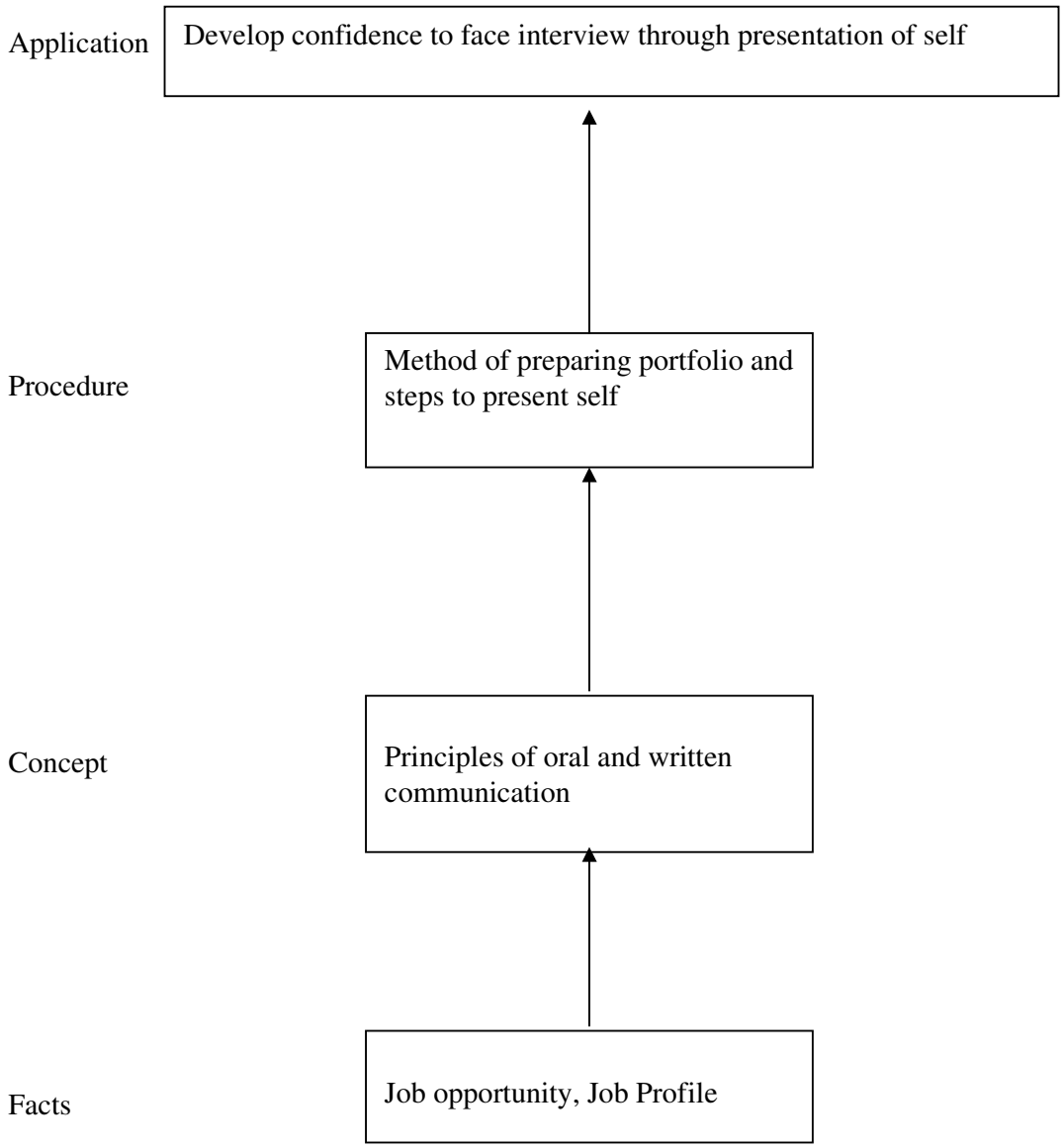
The purpose of introducing professional practices is to provide opportunity to students to undergo activities which will enable them to develop confidence. Industrial visits, expert lectures, seminars on technical topics and group discussion are planned in a semester so that there will be increased participation 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:



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). ii) Collect information regarding latest requirement for a job from any industry	16
	Total	**80**