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 2012-13**

SEMESTER : FIFTH **DURATION : 16 WEEKS**

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

SR. NO	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME									SW (17500)
							PAPER HRS.	TH (1)		PR (4)		OR (8)		TW (9)		
				TH	TU	PR		Max	Min	Max	Min	Max	Min	Max	Min	
1	Operating System β	OSY	17512	03	--	02	03	100	40	--	--	--	--	25@	10	50
2	Software Engineering β	SEN	17513	03	--	--	03	100	40	--	--	--	--	--	--	
3	Information Security	ISE	17518	03	--	02	03	100	40	--	--	--	--	25@	10	
4	Java Programming β	JPR	17515	03	--	04	03	100	40	50#	20	--	--	25@	10	
5	Communication Technology	CTE	17519	03	--	02	03	100	40	25#	10	--	--	25@	10	
6	Behavioural Science $	BSC	17075	01	--	02	--	--	--	--	--	25#	10	25@	10	
7	Network Management and Administration β	NMA	17061	01	--	04	--	--	--	50#	20	--	--	25@	10	
8	Professional Practices - III / Industrial Training (Optional)** β	PPT	17062	--	--	02	--	--	--	--	--	--	--	50@	20	
			TOTAL	**17**	**--**	**18**	**--**	**500**	**--**	**125**	**--**	**25**	**--**	**200**	**--**	**50**

Student Contact Hours Per Week: **35 Hrs.**

THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.

Total Marks **: 900**

@- Internal Assessment, # - External Assessment, [ ] No Theory Examination, $ - Common to all branches, #* Online Examination, β - Common to CO, CM, CW, CD

**** Students who have done Industrial Training of four week after fourth semester examination during summer vacation will be exempted from some of the activities of Professional Practices-III of fifth Semester and Assessment of Industrial raining will be done in fifth semester under Professional Practices-III**

Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Term Work, 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 and TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

Course Name : Computer Engineering Group

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

Semester : Fifth for CO/CM/CW/IF and Sixth for CD

Subject Title : Operating System

Subject Code : 17512

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:

Operating system is the software that makes a computers system operational. It is an interface between the human and machine. It drives all the hardware parts of the computer and is the first piece of software to run on the machine when the system boots.

OS is a core technology subject, the knowledge of which is mandatory for every user. If familiarizes a learner with the OS concepts, structure internal functionality and services and resource sharing. It will help a learner with OS design concepts. This subject will give a learner an overview of UNIX / LINUX OS.

General Objectives:

To develop following skills:

Intellectual skills:

1. Learn the various milestones in the history of Operating Systems and various Generations of computers as well as the modern trends in Operating Systems.
2. Understand the kernel architectures, the functions of operating systems and the use of system calls.
3. Understand the concept of processes, multiprogramming, Process Control Blocks, context switching.
4. Learn about the scheduler and implement various scheduling algorithms.
5. Understand about Deadlocks, Inter-process communications.
6. Learn about Memory Management and File Management techniques of the OS.
7. Understand the structure and file system structure of Unix OS.
8. Use UNIX commands, vi editor and file utilities and write shell scripts.

Theory:

Topic No.	Contents	Hours	Marks
01	**Introduction:** **Objectives:** ➢ Distinguish between various generation of computer. ➢ Classify different types of operating system. 1.1 Operating System - Evaluation, Generations 1st, 2nd, 3rd 1.2 Different Types of Operating systems- Batch operating system, Multi Programmed, Multitasking, Time Shared OS. Multiprocessor Systems, Distributed Systems, Cluster Systems, Real time systems.	04	12
02	**Operating System Structures**: **Objectives:** ➢ State services & functions of Operating Systems. ➢ Use system calls ➢ Distinguish between different kernel architecture. 2.1 Different Services of Operating System. 2.2 System Calls- Concept, Types and Uses 2.3 Simple Structure, Layered, Monolithic, Microkernel. 2.4 Components activities- Process Management, Main Memory Management, File Management, I/O System management, Secondary storage management.	08	18
03	**Process Management** : **Objectives:** ➢ Describe Process, process scheduling, schedulers. ➢ Describe inter-process communication & synchronization. ➢ Describe critical section problem & solution to ensure the consistency of shared data ➢ Describe multithreading models. 3.1 Process-Concept, process states, Process Control Block. 3.2 Process Scheduling- Scheduling Queues, Schedulers, Context switch. 3.3 Inter-process communication- Introduction, shared memory system & message passing system, critical section problem, semaphores. 3.4 Threads - Benefits, users and kernel threads, Multithreading Models - Many to One, One to One, Many to Many.	10	22
04	**Scheduling :** **Objectives:** ➢ Describe CPU scheduling. ➢ Describe various CPU-scheduling algorithms. ➢ Solve problems based on them. ➢ Describe deadlock and its algorithm. 4.1 Scheduling & its types - Objectives, concept, CPU and I/O burst cycles, Pre-emptive, Non- Pre-emptive Scheduling, Scheduling criteria. 4.2 Types of Scheduling algorithms - First come first served (FCFS), Shortest Job First (SJF), Shortest Remaining Time(SRTN), Round Robin (RR) Priority scheduling, multilevel queue scheduling 4.3 Deadlock - System Models, Necessary Conditions leading to Deadlocks, Deadlock Handling - Preventions, avoidance, Banker's	10	20

	algorithm		
05	**File System and Memory Management** : **Objectives:** ➢ Distinguish between memory allocation methods ➢ Distinguish between various file access methods. ➢ Describe files, file attributes and file structure. 5.1 Basic Memory Management - Partitioning, Fixed and Variable, Free Space management Techniques - Bitmap, Linked List. 5.2 Virtual Memory – Concept, Segmentation, Paging, Page table, Page fault. 5.3 File – Concepts, Attributes Operations, Types, and File System Structure. 5.4 Access Methods – Sequential, Direct, Swapping, File Allocation Methods- Contiguous, Linked, Indexed. 5.5 Directory Structure – Single level, Two levels.	10	20
06	**UNIX : A Case Study** **Objectives:** ➢ Draw system structure and file system structure of UNIX ➢ Distinguish between UNIX and LINUX system Introduction, Overview of UNIX, Structure of UNIX OS, Booting, File System Of UNIX, UNIX and LINUX Comparison.	06	08
	Total	**48**	**100**

List of Practical:

1. Understand concept structure of Operating System.
2. Implement the general purpose commands
3. Implement the radix interchange sort algorithm using 'C'
4. Implement address calculation sort algorithm using 'C'
5. Implement program for generating symbol table using 'C'.
6. Explore macro for a single pass assembles.
7. Explore compile & go loader.
8. Implement program to read & print its type using Lex.
9. Implement program for code generator using Lex / Yacc.
10. Implement a program for identifying Loop invariant using Lex / Yacc.
11. Implement a program to parse input to check that if belongs to given syntax of language using Lex.

Learning Recourses:

1. Books:

Sr. No	Book Title	Author	Publication
01	Operating System Concepts- VIIIth Edition	Silberschatz Galvin	John Wiley and Sons
02	Operating System	Achyut S. Godbole	Tata McGraw Hill
03	Operating System	William Stallings	Pearson
04	Modern Operating systems	Andrew tanenbaum-3rd edition	PHI
05	Unix Concept and Programming	Sumitabha Das	Tata McGraw Hill

06	UNIX Programming	Kumar Saurabh	Wiley India

2. Websites:

1. cs.wisc.edu/~ bart/537 lecture notes-University of Wisconsin Madison.
2. www.cs.kent.edu/osf o3/notes/index.html- Vilinius Gediminas Technical University
3. http://www.howstuffworks.com/operating-system1.htm
4. www.computerhope.com/jargon/o/os.htm
5. en.wikipedia.org/wiki/Operating system

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 : CO/CD/CM/CW/IF

Semester : Fifth for CO/CM/CW/IF and Sixth for CD

Subject Title : Software Engineering

Subject Code : 17513

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:

Today, Computer Software is the most important technology on the world stage. Software Engineering is the basis for Software development. Software Engineering helps pave a path towards easier, faster, and less expensive methods to build and maintain high quality softwares.

Software Engineering is about imagination and creativity, the process of creating something apparently tangible from nothing. It presents a framework for the Software Engineers that provides a road-map for building high quality software products, within time and cost constraints.

This Subject helps the students to wonderfully blend the knowledge they have acquired from the First Semester to the Fifth Semester into a practically feasible creative concept. The students will then be able to convert this creative concept/idea into commercially viable product in the Sixth Semester under the head Industrial Project.

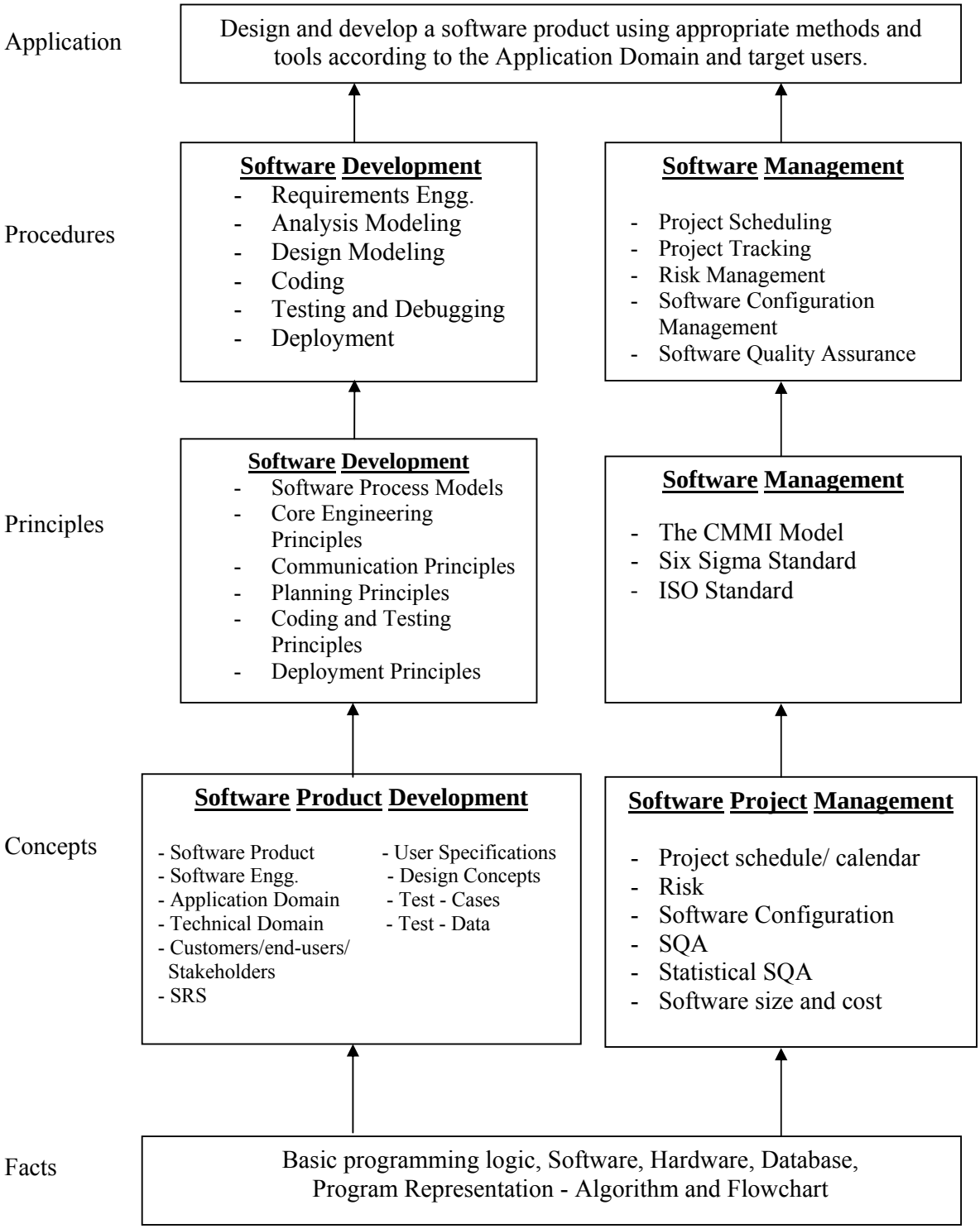
Objectives:

To develop following skills:

Intellectual Skills:

1. To develop awareness about the concepts of Software Development Life Cycle (SDLC).
2. To develop scientific and engineering approach towards software product development.
3. To develop both, the technical skills as well as managerial skills needed for software development.
4. Understand to conceive, plan, design, develop, and deploy software projects.
5. To be able to implement new ideas into real product.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Overview Of Software Engineering And The Software Development Process** **Objectives:-** ➢ To understand meaning of Software and the types of Software. ➢ To understand the Software Engineering approach and its need ➢ To understand role of a software process and a process model in a software project. ➢ To understand various activities in the Software Process. ➢ To know various models for the Software development process. 1.1 Definition of Software and Characterstics of Software 1.2 Types / Categories of Software 1.3 Software Engineering – Definition, Need 1.4 Relationship between Systems Engineering and Software Engineering 1.5 Software Engineering- A Layered Technology Approach 1.6 Software Development Generic Process Framework- Software Process, Software Product, Software Work-Product, Basic Framework Activities, Umbrella Activities 1.7 Personal and Team Process Models (PSP and TSP) – Concept, Significance with respect to Ongoing Process Improvement, Goals, List of framework activities included 1.8 Prescriptive Process Models- • The Waterfall Model (Nature, Situations in which applicable with example, Associated Problems) • The Incremental Model (Nature, Situations in which applicable with example, General steps, Drawbacks) • RAD Model (Nature, Situations in which applicable with example,General steps, Drawbacks) • Prototyping (Nature, Situations in which applicable with example, General steps, Drawbacks) • Spiral Model (Nature, Situations in which applicable with example, General steps, Advantages, Disadvantages) 1.9 Agile Software Development – • Difference between Prescriptive and Agile Process Model • Features of the Agile Software Development Approach • Concept of Extreme Programming.	08	20

02	**Software Engineering Practices And Software Requirements Engineering** **Objectives:-** ➢ To become familiar with the standard Software Engineering Practices. ➢ To understand to carry out Requirements Engineering Tasks. ➢ To understand the importance of the SRS Document in the software Project. 2.1 Software Engineering Practices - Definition, Importance, Essence 2.2 Core Principles of Software Engineering (Statements & Meaning of each Principle) 2.3 Communication Practices (Concept, Need of Communication, Statements and Meaning of each principle) 2.4 Planning Practices (Concept, Need of Planning, Basic Activities included, Statements and Meaning of each principle) 2.5 Modelling Practices • Concept of Software Modelling • Analysis Modelling (Concept, Name of the analysis domains represented, Analysis Modelling Principles - Statements & Meaning of each principle • Design Modelling (Concept, Name of the three design aspects, Design Modelling Principles - Statements & Meaning of each principle) 2.6 Construction Practices • Concept of Software Construction • Coding (Concept, Preparation Principles, Coding Principles, Validation Principles) • Testing (Concept, Testing Principles) 2.7 Software Deployment • Concept of Delivery Cycle, Support Cycle & feedback Cycle • Deployment Principles- statements & meaning of each principles 2.8 Requirements Engineering • Concept of Requirements Engineering • Requirement Engineering Tasks (Concept and sub-tasks included) 2.9 SRS (Software Requirements Specifications) • Concept of SRS • General Format of SRS • Need/Importance of SRS	06	16
03	**Analysis And Design Modelling** **Objectives:-** ➢ To understand to build Analysis Model for a Software. ➢ To understand to apply design concepts and to build design	12	18

	elements 3.1 Analysis Modelling • Concept and need of Analysis Modelling • Objectives of Analysis Modelling 3.2 Analysis Modelling approaches • Structured Analysis (Concept) • Object Oriented Analysis (Concept) 3.3 Domain Analysis • Concept of Technical Domain of the software (to be discussed with examples) • Concept of Application Domain of the Software (to be disscussed with the examples: Finance & Banking, Hospitability, Health care, Embeded Software, Inventory System, etc.) • Goals • Inputs and Output of Domain analysis 3.4 Building the Analysis Model • Data Modelling Concepts (Meaning of the Terms- Data Objects, Data Relationships, Data Attributes, Cardinality & Modality with Examples) • Flow- Oriented Modelling - DFD (Use, Standard Notations, Rules to be followed, DFD Construction – Using any case Study) - Data Dictionary(Concept, Use, contents to be incoporated, Advantages) - Creating a Control Flow Model (Nature of software applications where it is required and used, Guidelines used for creating the model) - Creating Control Specifications (CSPEC) - Creating Process Specifications (PSPEC) • Scenario- Based Modelling - Developing Use Cases - What is a Use Case? - Purpose of a Use Case - Use Case Diagram • Creating a behavioural model - Concept - General Steps involved 3.5 Design Modelling • Design Process - Concept of Software Design - Design Quality Guidelines • Design Concepts - Meaning and importance of the following eight concepts w.r.t. ease of design, development, testing and debugging- i) Abstration ii) Architecture iii) Patterns iv) Modularity v) Information Hiding vi) Functional Independence vii) Refinement viii)Refactoring 3.6 The Design model • Data Design Elements • Architectural- Design elements		

	• Interface Design Elements • Component-Level design elements • Deployment-Level Design Elements		
04	**Software Testing Strategies And Methods** Objectives:- ➢ To become familiar with concepts and strategies of Testing and Debugging. 4.1 Software Testing Fundamentals • Definition of Software Testing • Concept of - Good Test, Successful Test, Testing strategies, Test Plan, Test Cases, Test Data. 4.2 Characterstics of Testing Strategies 4.3 Software Verification and Validation (V&V) - Concept and difference between these two. 4.4 Testing Strategies • Unit Testing • Integration Testing - Top-Down Approach - Bottom-up Approach - Regression Testing - Smoke Testing 4.5 Alpha and Beta Testing (Concept and differences) 4.6 System Testing • Concept of System Testing • Types (Recovery, Security, Stress, Performance Testing) with examples 4.7 Concept of White-box and Black-Box Testing 4.8 Debugging • Concept and need of Debugging • Characterstics of bugs 4.9 Debugging Strategies • Concept of Brute Force, Back Tracking, Induction, Deduction	08	16

05	**Software Project Management** **Objectives:-** ➢ To understand the importance of Project Scheduling. ➢ To become familiar with Project Scheduling Techniques. ➢ To understand the concept of software risks and Risk Managemant. ➢ To understand the importance of Software Configuration Management. 5.1 Introduction to Software Project Management and its need. 5.2 The Management Spectrum – 4 Ps and their Significance 5.3 Project Scheduling • Concept of Project Scheduling • Factors that delay Project Schedule • Principles of Project Scheduling • Project Scheduling Techniques- Concept of Gantt Chart, PERT, CPM 5.4 Concept of Task Network 5.5 Ways of Project Tracking 5.6 Risk Management • What is Software Risk? • Concept of Proactive and Reactive risk strategies • Types of Software Risks 5.7 Risk Assessment • Risk Identification • Risk Analysis • Risk Prioritization 5.8 Risk control- Need, RMMM strategy 5.9 Software Configuration Management (SCM) • Need of SCM • Benefits of SCM • SCM Repository-Functions and Features supported • SCM Process- Change control and version Control	08	18
06	**Software Quality Management** **Objectives:-** ➢ To develop quality awareness for software products. ➢ To become familiar with the available Quality Standards. 6.1 Basic Quality Concepts 6.2 Software Quality Assurance (SQA) • Definition of SQA • SQA Activities 6.3 Concept of Statistical SQA 6.4 Quality Evaluation Standards • Six sigma for software - Concept of DMAIC and DMDAV Approach • ISO 9000 for software - concept and major considerations 6.5 CMMI- CMMI Levels, Process Areas considered. 6.6 CMMI Vs ISO. 6.7 McCall's Quality factors.	06	12
	Total	**48**	**100**

Learning Resources:
1) Books:

Sr. No.	Title	Author	Publisher
1	Software Engineering- A Practitioner's Approach	Roger S. Pressman	TATA McGraw-Hill
2	Software Engineering-Principals and Practices	Rohit Khurana	Vikas Publishing House
3	Software Engineering	Pankaj Jalote	Wiley India
4	Software Engineering	S. A. Kelkar	PHI Learning

Websites:-

www.sei.emu.edu
www.ieee.org
www.rational.com/UML
www.iso9001compliance.com
www.wileyindia.com

Course Name : Diploma in Information Technology

Course Code : IF

Semester : Fifth

Subject Title : Information Security

Subject Code : 17518

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:

The goal of Information Security is to familiarize students with the security issues and technologies involved in modern information systems. Students will gain an understanding of the various ways in which information systems can be attacked and tradeoffs in protecting networks. Students will gain an appreciation of the need to develop an understanding of underlying system applications and potential security issues early in the design process.

New communication systems and digital technology have made dramatic changes in the way we live and the means to transact our daily business. Businessmen are increasingly using computers to create, transmit and store information in electronic form instead of traditional paper documents. It is cheaper, easier to store and retrieve and speedier to communicate.

This will enable them to develop a sound knowledge and analytical ability facilitating their intellectual and professional development and future employment.

Objectives:

To develop following skills:

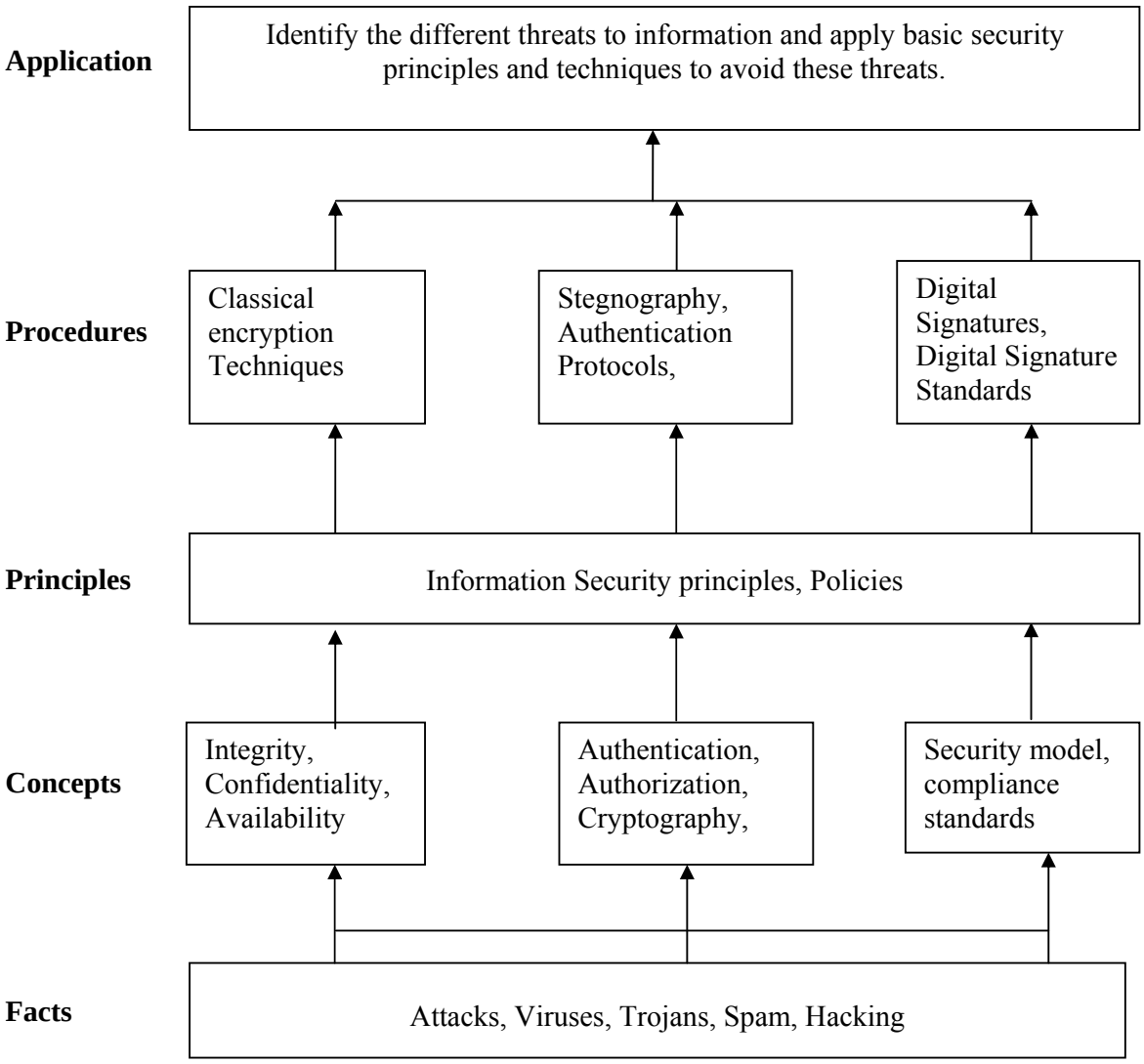
Intellectual Skills:

- Understand basics of information security
- Know about legal, ethical, and professional issues in information security
- Will gain knowledge about cyber crime and cyber security
- Will know about data recovery and email recovery
- Know about information quality and audit

Motor Skills:

- Proper Handling of Computer System.
- Basics knowledge of computer network.

Learning Structure:



Theory:

Topic No	Contents	Hours	Marks
1	**Introduction to Information Security** **Objectives:** ➢ Understand basic of Information ➢ Learn three pillars of information security ➢ Understand information classification ➢ Learn principles of information security **1.1** Information, Need and Importance of Information, information classification, criteria for information classification **1.2** Security, need of security, Basics principles of information security **1.3** Three pillars of information security, data obfuscation, event classification	08	12
2	**Information security architecture and model** **Objectives:** ➢ Understand the information security management ➢ Learn about security policies and standard. ➢ Understand concept of TCB ➢ Understand common criteria for information security evaluation 2.1 Information security and Risk Management, Security policies, guidelines, standards 2.2 Trusted computing base, Rings of Trust, Protection Mechanisms in a trusted Computing Base 2.3 System security assurance concepts, Trusted computer security Evaluation Criteria 2. 4 Information Technology security Evaluation Criteria, Confidentiality and Integrity Models.	12	24
3	**Cryptography** **Objectives:** ➢ Common term related to field of cryptography ➢ Demonstrate how to encrypt and decrypt messages using transposition and substitution method ➢ Learn about stenography ➢ Purposes and uses of digital signatures. **3.1** Introduction, Application of cryptography, Classical encryption Techniques, Symmetric cipher **3.2** Substitution cipher • Ceasor cipher • Playfair cipher • Hill cipher **3.3** Transposition cipher • Row transposition cipher • One Time Pad **3.4** Stegnography, Digital Signatures, Authentication Protocols, Digital Signature Standards	12	24
4	**Data Recovery and cyber security** **Objectives:**	08	20

	➢ Understand recovery of data from different ways ➢ Learn about different cyber crimes ➢ Understand IT acts in India **4.1** Introduction to Deleted File Recovery Formatted Partition Recovery, Data Recovery Tools, Data Recovery Procedures and Ethics. **4.2** Introduction to Cyber Crimes – Hacking, Cracking, Viruses, Virus Attacks, Pornography, Software Piracy, Intellectual property, Legal System of Information Technology, Mail Bombs, Bug Exploits, Cyber Crime Investigation **4.3** Introduction Cyber Laws- Introduction to IT act 2000 and IT act 2008, Introduction to the cyber laws.		
5	**Access, physical control and compliance standards** **Objectives:** ➢ Understand the need of physical security ➢ Different Authorization and Authentication mechanism ➢ Overview of different standards and frameworks **5.1** Identification, Authorization , Authentication, Biometrics, Single Sign –on, Kerberos, Remote user access and Authentication, **5.2** Physical access control, Physical access threats, providing physical security **5.3** Compliance standards : Implementing and Information Security Management System , ISO 27001, ISO 20000, BS 25999, PCI DSS, ITIL framework, COBIT framework	08	20
	Total	**48**	**100**

List of Practical:

Sr. No.	Title of Experiment	No. of Hours
1	Knowing the security provided with windows operating system	02
2	Recovery the password of windows machines using password recover utility (John the ripper) or any other utility	02
3	Tracing of email origin using eMailTracePro utility	02
4	Use of Keylogger and anti-keylogger to secure your system	02
5	Encrypt and decrypt the message using Simple Transposition – Permutation(Cryptool)	04
6	Encrypt and decrypt the message using Caesar Cipher With Variable Key(Cryptool)	04
7	Encrypt and decrypt the message using 3 X 3 Hill Cipher(Cryptool)	04
8	Create Digital Signature document using (Cryptool)	04
9	Send and receive secret message using stegnography techniques using steghide	04
10	Recover the data from formatted Pen drive and Hard Disk using PowerdataRecovery utility or any other utility	04

Learning Resources:

1. **Books:**

Sr. No.	Author	Title	Publisher
1	Whitman	Principles of Information Security	Cengage india
2	Godbole Nina	Information System Security	John Wiley
3	Mark Merkov & Jim Breithaupt	Information Security Principles and Practices	Pearson
4	V.K.Pachghare	Cryptography and Information Security	Prentice Hall India
5	Saurabh Sharma	Information Security and Cyber Laws	Vikas Publishing House
6	Tularam M. Bansod	Computer Networking	Dreamtech Press

2. **CDs, PPTs Etc.:**

3. **Websites:**
   - CrypTool 1.4.21 (www.cryptool.org)
   - http://www.emailtrackerpro.com
   - http://www.kmint21.com (Keylogger)
   - http://www.jjtc.com/Steganography/tools.html
   - http://steghide.sourceforge.net/ (stegnography)
   - http://www.powerdatarecovery.com/ (data recovery)

Course Name : Computer Engineering Group

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

Semester : Fifth for CO/CM/IF/CW and Sixth for CD

Subject Title : Java Programming

Subject Code : 17515

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:

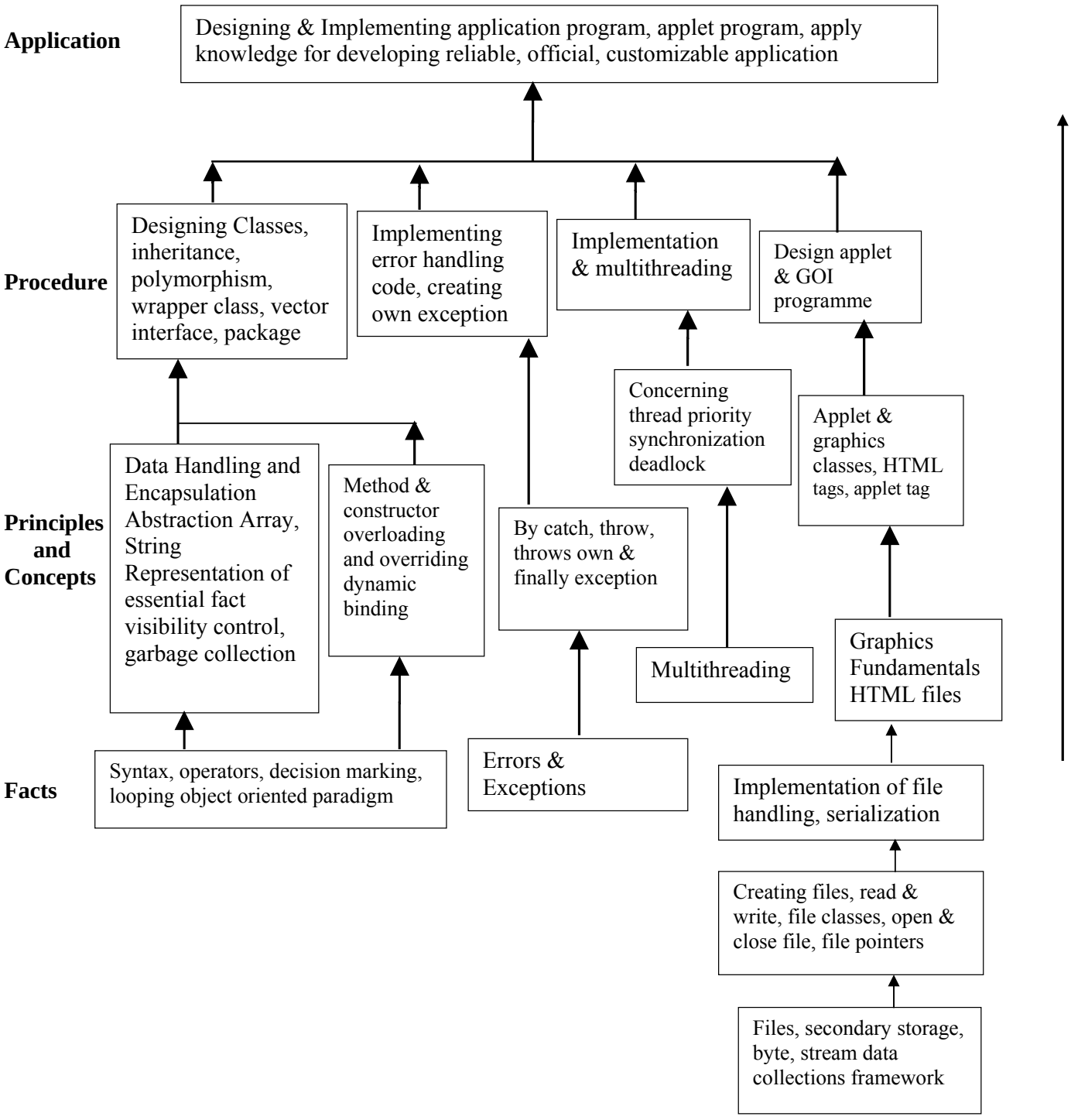
Nowadays, object oriented paradigm is of utmost importance for programming. Java language supports and is a very good means of understanding and implementing the OOP concepts. Java language enables the easy development of robust, secure, reusable and portable application. An application may be a standalone or it may be a web based. This subject provides an insight to understand and implement the OOP concepts, do the applet, graphics and multithreaded programming and Interact with the files. It also builds strong foundation for advanced java programming.

General Objectives:

Intellectual skills:

- Use of programming language constructs.
- To know apply different logics to solve the given problem.
- To be able to write program using different implementations for the same problem.
- Study different types of errors.
- Debugging of programs.
- Understand different steps to develop program such as
  a. Problem definition
  b. Analysis
  c. Design of logic
  d. Coding
  e. Testing
  f. Maintenance

Learning Structure:



Contents:

Chapter	Content	Hours	Marks
01	**Introduction to Java** Specific Objectives: ➢ To understand the features, Data types, Decision making and looping, constructs of java language. 1.1 Java Features and the Java Programming Environment. Object Oriented, Compiled, Interpreted, Platform independent, Portable, Robust and Secure, Dynamic. 1.2 Java Tokens & Data types Constants & Symbolic Constants, variables, dynamic initialization, data types, array & string, scope of variable, type casting, standard default values. 1.3 Operators & Expressions Arithmetic Operators, Relational Operators, Logical Operators, Increment & Decrement, Conditional Operators, Bit wise Operators, Instance of Operators, Dot Operators, Operator precedence & associativity, Evaluation of Expressions, Type conversions in expressions, Mathematical Functions - min(), max(), sqrt(), pow(), exp(), round(), abs(). 1.4 Decision making & looping If statement, if else statement, nested if else statement, if else if ladder, the switch statement, nested switch statement, The ?: operator, The while statement, the Do while statement, the 'for' statement, break, continue & return statement, nested loops, labeled loops, for-each version of the for loop.	08	16
02	**Classes, Objects & Methods** Specific Objectives: ➢ To create classes, objects and make use of arrays and strings. ➢ They will also learn the concepts of inheritance and garbage collection. 2.1 Defining a class, creating object, accessing class members, Constructors & methods, types of constructors, nesting of methods, argument passing the 'this' keyword, command line arguments, varargs: variable-length arguments, garbage collection, finalize() method, the object class. 2.2 Visibility Control Public, Private, Protected, default, friendly private Protected access. 2.3 More on Arrays & Strings Types of arrays, creating an array, strings, string classes & string buffer, vectors, wrapper, classes, enumerated types. 2.4 Inheritance Types of Inheritance, single Inheritance, multilevel Inheritance, Hierarchical Inheritance, method & constructor Overloading & overriding, dynamic method dispatch, final variables, final methods, use of super, abstract methods & classes, static members.	12	24

03	**Interface and Package** Specific Objectives: ➢ To create and use interface and packages. ➢ They will also learn the package naming, conventions and about the static import. 3.1 Interface Define Interface, implementing interface , accessing interface, variables& methods, extending interfaces, interface references, nested interfaces 3.2 Package Define package, type of package naming & creating packages, accessing package, import statement, static import, adding class & interfaces to a package.	06	12
04	**Exception Handling & Multithreaded Programming** Specific Objectives: ➢ To handle the exceptions in programs effectively. ➢ They will also learn 'how to make their programs multithreaded', set thread priorities, and the concept of deadlock. 4.1 Errors & Exception Types of errors, exceptions, try & catch statement, nested try statement, throws & Finally statement, build-in exceptions, chained exceptions, creating own exception, subclasses. 4.2 Multithreaded Programming Creating a Thread: By extending to thread class & by implementing runnable Interface. Life cycle of thread: Thread Methods: wait(), sleep(), notify(), resume(), suspend(), stop(). Thread exceptions, thread priority & methods, synchronization, inter-thread communication, deadlock.	08	16
05	**Java Applets & Graphics Programming** Specific Objectives: ➢ The students will be able to write interactive applets and make use of graphics in programming. ➢ They will also learn to change the background and the foreground color and to use the different fonts. 5.1 Introduction to applets Applet, Applet life cycle (skeleton), Applet tag, Adding Applet To HTML file, passing parameter to applet, embedding <applet>tags in java code, adding controls to applets. 5.2 Graphics Programming Graphics classes, lines, rectangles, ellipse, circle, arcs, polygons, color & fonts, setColor(), getColor(), setForeGround(), setBackGround(), font class, variable defined by font class: name, pointSize, size, style, font methods: getFamily(), getFont(), getFontname(), getSize(), getStyle(), getAllFonts() & getavailablefontfamilyname() of the graphics environment class.	10	20

06	**File I/O & collection frame work** Specific Objectives: ➢ The students will be able to work with File IO and collections frame work. ➢ They will also learn the concept of serialization**.** 6.1 File classes Stream classes, byte stream (FileInputStream&FileOutputStream), character stream (FileReader&FileWriter) serialization. 6.2 Introduction to collections frame work Array list, date class, set class, Iterator, map class.	04	12
	Total	**48**	**100**

List of Practical:

1. Understand the java programming environment to learn the different available tools
2. Develop a program to display all the even numbers between 1 to 20 using for loop & if statement
3. Develop a program to create a class Student with data membersstudent_name, roll_no& branch. Initialize and display values of data members.
4. Develop a program to convert a string from lowercase to uppercase using method of String class.

Practice Exercise/ Experiments

5. Develop a program that creates a vector toinsert and display five elements of different data types.
6. Develop a program to create a class "Chocholate" having data members 'ChocoName'& 'ChochoQuantity'.Derive a class "ChochoFlavor" having data member 'FlavorName'. Initialize the values for two objects of 'ChochoFlavor' class using constructor and display it.
7. Define a package named ''myPackage''to include a class named 'DisplayMsg' with one method to display some message. Develop a program to import this package in a java application and call the method defined in the package.
8. Develop a program to throw a user defined exception if the given number is not positive.

Practice Exercise/ Experiments

9. Develop a program to create two threads such that one threads displays the message "How do you do?" and the other thread displays the message "Fine, Thank you!"
10. Develop a program to create an applet to display the message "Welcome to the world of Applet".
11. Develop a program to copy the contents of the file "abc.txt" into a new file "xyz.txt".
12. Design & Develop a mini project. (With optional activity at the end)

Learning Resources:

Books:

Sr. No	Author	Title	Publisher
1	Junaid Khateel & Dr. G. T. Thampi	Computer Programming in JAVA	DreamTech Press
2	Sharnam Shah & Vaishali Shah	Core JAVA for Beginners	SPD
3	E Balagurusamy	Programming in JAVA a primer	TMH
4	Sachin Malhotra & Saurabh Chaudhary	Programming in JAVA	Oxford University Press
5	Rashmi Kanta Das	Core Java for beginners	Vikas Publishing House Pvt. Ltd

Course Name : Diploma in Information Technology

Course Code : IF

Semester : Fifth

Subject Title : Communication Technology

Subject Code : 17519

Teaching and Examination Scheme

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

Rationale:

Now-a-days communication is being used in every aspect of area starting from Telephone (i.e. wired communication), to data communication, mobile communication as well as satellite communication (i.e. wireless communication) and also in the entertainment media like Television.

During the last three decades there has been tremendous growth in communication. Cellular mobile communication enables us to communicate instantly. Various forms of communication like Television, radio, FAX Email etc. have all become an integral part of our daily lives.

Electronic Communication Techniques is a core technology subject which will help students to study how the analog/digital signals are coded/decoded, transmitted and received in different mediums of communication.

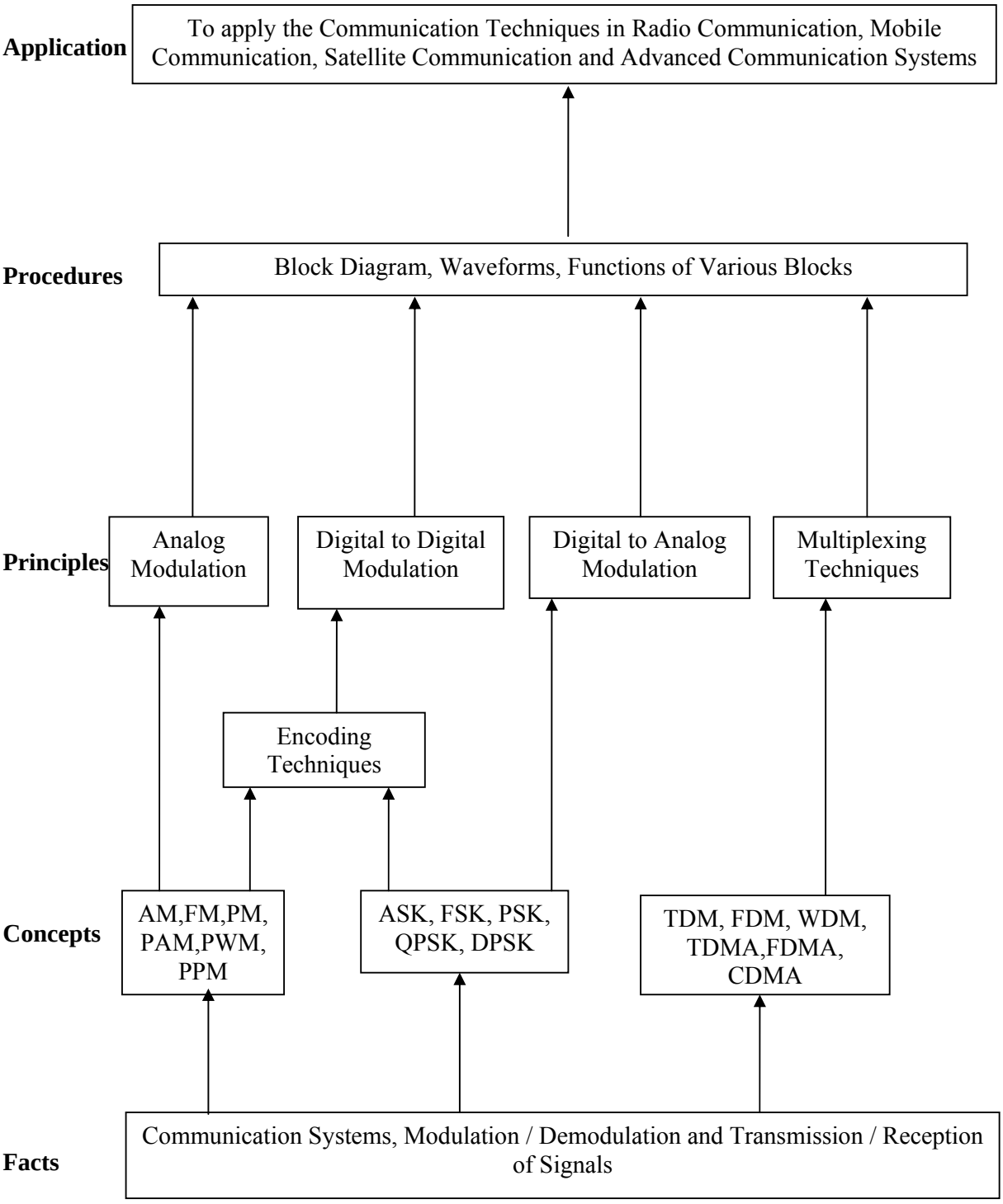
This subject will lay the foundation for mobile communication systems and data communication systems.

General Objectives:

The students will be able to:

1) Understand types of communication.
2) Understand transmission modes.
3) Understand modulation techniques.
4) Understand encoding and decoding methods.

Learning Structure:



Theory:

Topic No.	Name of the Topic	Hours	Marks
01	**ANALOG COMMUNICATION** **Specific Objectives:-** ➢ Describe the Electronic Communication System ➢ Identify the need for modulation, Demodulation ➢ Compare between modulation, Demodulation • Introduction to Electronic Communication-(Block Diagram, Classification, Electromagnetic Spectrum, Concept of noise) • Analog Modulation Techniques- Need for modulation, Classification AM, FM, PM -Defination, wave forms, (time domain & Frequency Domain) Bandwidth requirement, Modulation Index. • AM,FM-Transmitter and Receiver, block diagram, Explanation and simple numerical problems. • Advantages, Disadvantages and Applications of Analog Communication. • Wave Propagation-Ground, Ionosphere, sky, space	10	20
02	**PULSE MODULATION TECHNIQUES** **Specific Objectives:-** ➢ Explain digitised version of analog modulation. • Advantages of Pulse Modulation over Amplitude Modulation. • Basics of Pulse Modulation-Sampling Theorem, Nyquist Rate, Types of sampling. (Natural & Flat top) • Classification of Pulse Analog Modulation Techniques- PAM, PWM, PPM- working principle, Block diagram for generation, wave forms, Advantages, disadvantages & Applications of PAM, PWM & PPM. • Classification of Pulse Digital Modulation Techniques- PCM, DM, ADM- Working Principle, Block diagram for Generation, Waveforms- Advantages, disadvantages & applications of PCM, DM, ADM.	10	20
03	**DIGITAL MODULATION TECHNIQUES** **Specific Objectives:-** ➢ Classfy different Digital Modulation Techniques based on convential analog modulation techniques. • Introduction to Digital Communication system- Baseband & Passband Trasmission, Block diagram of Digital Modulation System. • Classification of Digital Modulation-ASK, FSK, PSK, DPSK, QPSK- Working Principle-block diagram for Generation, waveform-Advantages, Disadavantages & Applications of ASK, FSK, PSK, DPSK, QPSK-channel capacity:- Shanon's Theorm-Channel bandwdth.	10	22

04	**DATA ENCODING AND TRANSMISSION** **Specific Objectives:-** ➢ Apply digital to digital conversion techniques for information trasmission in computer Networks • Introduction to Encoding Digital Data to Digital signal. • Defination-Data Rate, Baud Rate, Bit Rate • Classification of Encoding Techniques-Unipolar, Polar, Bipolar & their types- advantages & disadvantages of Encoding Techniques-Comparision of various techniques.	06	12
05	**WIRED & WIRELESS COMMUNICATION SYSTEMS** **Specific Objectives:-** ➢ Describe the Wired Communication Systems. ➢ Explain the concept of Multiplexing ➢ Apply Multiplexing in Wireless Communication. • Telephone system- Introduction & Block diagram. • Multiplexing- Need of Multiplexing-Multiplexing Techniques-FDM, TDM, WDM- Principles, Block Diagram, Applications, Advantages & Disadvantages- Multiple Access- TDMA, FDMA, CDMA-Principle, Block Diagram, Advantages, Disadvantages & Applications. • Satelite Communication Systems-Frequency band used, block Diagram, Principle & Application. • Mobile Communication systems- Frequency Band, Block diagram, Principles- Concept of Frequency reuse & Cell splitting-Call processing-Forward & Reverse Direction (Handset to Handset) & (Handset to Landline)-Concept of Handoff.	12	26
	Total	**48**	**100**

Intellectual Skills:

1) Understand modulation/demodulation techniques and apply in communication systems.
2) Apply digitized version of Analog modulation, digital modulation, digital to digital modulation and digital to analog modulation.
3) Understand the applications of communication techniques.

Motor Skills:

1) Measure different parameters on CRO.
2) Troubleshoot Circuit connected to CRO in case of fault.
3) Test and Perform analysis of Equipment used for modulation.

List of Practicals:-

1. Generate and observe AM waveform using Collector Modulator and Calculate Modulation index. Also observe the effect of change in modulating signal voltage on modulation index.
2. Generate and observe FM waveform and Calculate Modulation index and observe the effect of change in modulating signal voltage and frequency on modulation index
3. Generate PAM and draw input and output waveform and measure amplitude of each pulse; also observe the demodulated output and measure its amplitude and frequency
4. Generate PWM and draw input, output waveform and measure width of each pulse. Also observe the demodulated output and measure its amplitude and frequency
5. Generate PPM and draw Input, Output waveforms and measure the shift in position of pulse. Also observe the demodulated output and measure its amplitude and frequency
6. Generate PCM and draw Input, Output waveforms. Also observe the demodulated output waveform of a PCM signal

Practice Exercise

7. Generate ASK signal and draw Input, Output waveform.
8. Generate FSK and draw Input, Output waveform
9. Generate PSK and draw Input, Output waveform
10. Implement the various Encoding Techniques for a specific data stream consisting of 12 bits and draw the waveform
11. Seminar on any advance topic on Communication technique. (To be conduct in PPR and valuation on CTQ)
12. Visit to any telecommunication station and a technical report of visit shall be submitted as a part of term work.

(This experiment shall be performed in PPR and Valuation of the same shall be done in CTQ) Exercise on objectives. (As an assignment)

Learning Resources:
Reference Books:

Sr. No.	Title	Author	Publisher
01	Electronic Communication System	Kennedy	Tata McGraw Hill
02	Electronic Communication	Roddy Collen	Pearson Education
03	Data Communication & Networking	Forouzan	Tata McGraw Hill
04	Communication Electronic	Frenzel	Tata McGraw Hill
05	Electronic Communication System	Wayne Tomasi	Pearson Education
06	Principles of Communication systems	Taub & Schilling	Tata McGraw Hill

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/PS/CD/ED/EI/CV/FE/FG/IU/MH/MI/TX/TC/DC/AU

Semester : Fifth for EJ/EN/ET/EX/EV/IC/IE/IS/MU/DE/ME/PG/PT/AE/CE/CS/CR/ CO/CM/IF/EE/EP/CH/PS/AU and Sixth for CD/MH/IU/CV/FE/FG/MI/ ED/EI/DC/TC/TX

Subject Title : Behavioural Science

Subject Code : 17075

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	02	--	--	--	25 #	25 @	50

Rationale:

With increased globalization and rapid changing business expectations, employers are looking for wide cluster of skills to cater to the changing demand. Personality traits and soft skills are playing a key role in a student's career in this changing scenario. Corporate houses look for soft skills that supplement hard skills.

Addition of behavioural science in curriculum is intended to enhance the efficiency of a person so that he can contribute to overall growth of organisation. It aims at developing insight into leadership, team building, motivation, interpersonal relationship, problem solving, decision making and aspects of personality in a technician's profile. Addition of the topic of organizational culture will further mould him/ her in the organisational role.

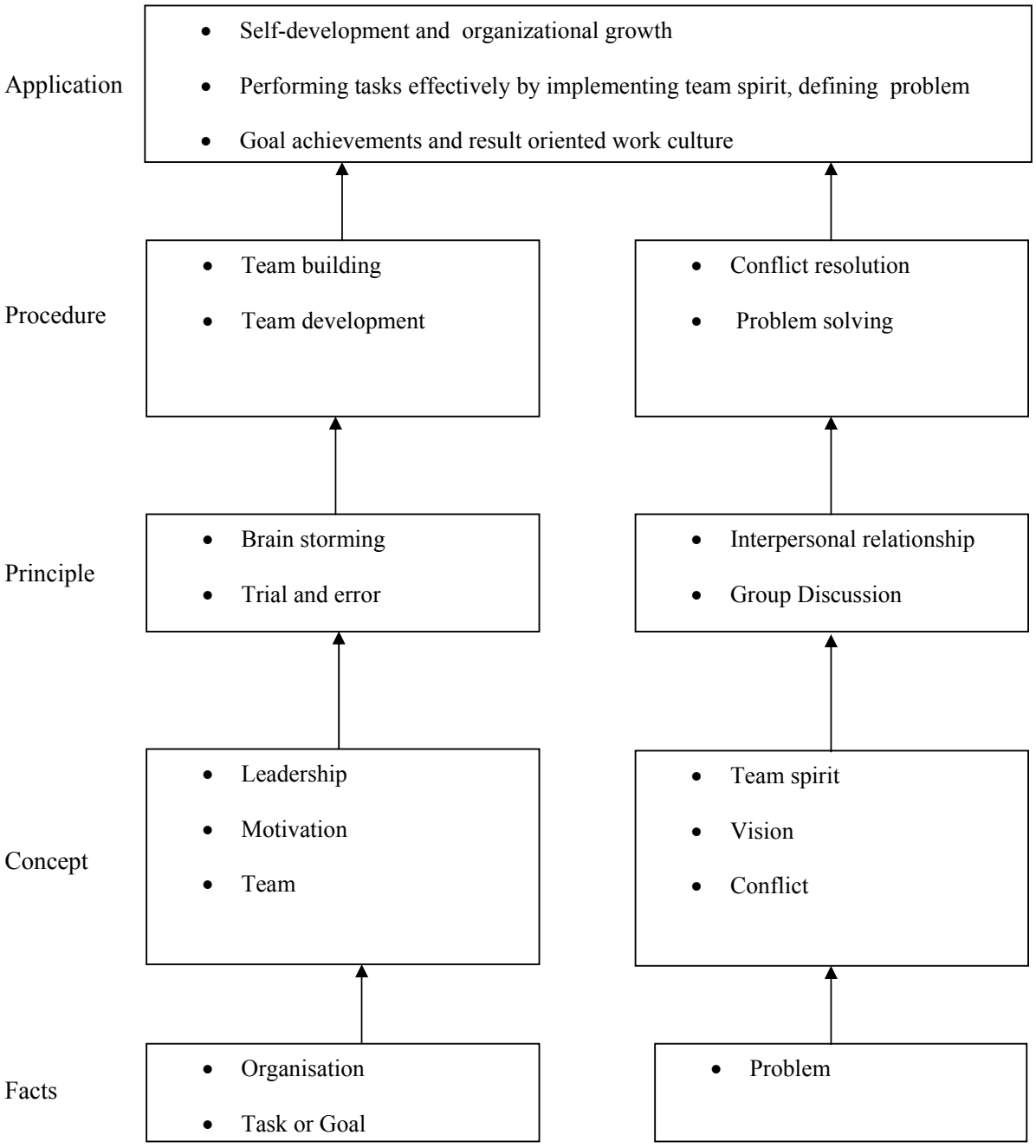
This subject of 'Behavioural Science' provides a broad base in which a technician can develop a successful career in the world of work.

General Objectives:

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

1. Develop him/her as Team leader.
2. Use self-motivation and motivate others.
3. Build a team and develop team spirit among the team members.
4. Improve the interpersonal relationship skills.
5. Learn Problem solving and decision making skills.
6. Discuss a particular topic in a group and face the interview.

Learning Structure:



Theory:

Topic and Contents	Hours
Topic 1: Leadership 1.1 Management Education-History, Development, Importance, Areas of specialization, need and importance of behavioural science 1.2 Meaning and Types of Leaders, Qualities of leader, Examples 1.3 Leadership- Definition, importance, leadership in various organizations 1.4 Leadership styles-task -people matrix. Persuasive, Authoritative, Democratic, Delegative Leadership styles. Maturity of followers, situational leadership	02
Topic 2: Motivation 2.1 Meaning 2.2 Importance of Motivation 2.3 Types of Motivation- Intrinsic, Extrinsic, Examples 2.4 Maslow's motivation theory- pyramid of needs, individual and industrial applications 2.5 Tips for Motivation	02
Topic 3: Emotional Intelligence 3.1 Major concepts - emotion, families of emotion, components of emotional expressions 3.2 Emotional intelligence, cognitive intelligence 3.3 Basic emotional competencies	02
Topic 4: Team Building 4.1 Team- Need, Definition, Difference between group and team 4.2 Characteristics of a good team 4.3 Steps in team formation- forming, norming, storming, performing, adjourning 4.4 Roles of team members 4.5 Characteristics of a good team member 4.6 Types of teams-Work, mgmt, cross functional, quality circle, self-managed team	03
Topic 5: Conflict Resolution 5.1 Definition, types (interpersonal, intrapersonal, groups), indicators of conflicts 5.2 Sources of conflict - ego, poorly defined authority and responsibility, power, interests, greed, difference in value system, complex work situations 5.3 Skills for conflict resolution 5.4 Steps in conflict management -Mapping of conflict, negotiation- steps in negotiation, 5.5 Styles of conflict management- collaborating, competing, cooperating, avoiding, compromising	03
Topic 6: Decision Making 6.1 Importance of decision making 6.2 Definition Characteristics of good decision 6.3 Characteristics of good decision	02

6.4 Types of decisions- programmed, non programmed, strategic, tactical, impulsive 6.5 Group decision making 6.6 Steps of decision making	
Topic 7: Interview Techniques 7.1 Job search opportunities 7.2 Development of résumé´ and cover letter- essentials of a good résumé´, contents of Résumé´, layout of résumé´, cover letter 7.3 Group discussion- objectives, do's and don'ts for effective participation, evaluation parameters, suggested topics 7.4 Psychometric tests- Aptitude test, guidelines for preparations for aptitude test, Personality test 7.5 Personal interview-guidelines for preparing for job interviews, common questions	**02**
Total	**16**

Practical:
Skills to be developed:

Intellectual Skills:

- Develop ability to find his strengths
- Select proper source of information.
- Follow the technique of time and stress management.
- Set the goal.

Motor Skills:

- Follow the presentation of body language.
- Work on internet and search for information.
- Prepare slides / transparencies for presentation.

List of Assignments:

01	Case study: Employee motivation and leadership.
02	To build a tower from a given material as a team activity
03	To prepare Jigsaw puzzles (common shapes) from the given jigsaw pieces as a team.
04	Case study on conflict Resolution
05	Assess your style of conflict resolution
06	Decision making activity: of Selection of the best suitable company.
07	Participate in a guided group discussion
08	Assessment of self-aptitude in numerical computation, estimation, data interpretation, mechanical, spatial and abstract reasoning
09	Assessment of self-aptitude in Verbal ability and data checking.
10	Development of résumé´ and covering letter

Note: Subject teacher shall guide the students in completing the assignments based on above practicals.

Learning Resources:
Books:

Sr. No.	Author	Name of Book	Publication
1	Subject Experts-MSBTE	Handbook and assignment book on Development of Life Skills-II	MSBTE
2	Dr. Kumkum Mukherjee	Principles of management and organizational behaviour	Tata McGraw Hill Education Pvt Ltd.
3	Dr.T.Kalyana Chakravarti Dr.T.Latha Chakravarti	Soft Skills for Managers	Biztantra
4	Barun K Mitra	Personality Development and soft skills	Oxford University Press
5	Priyadarshini Patnaik	Group discussion and interview skills	Foundation Books

Course Name : Computer Engineering Group

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

Semester : Fifth for CO/CM/CW/IF and Sixth for CD

Subject Title : Network Management and Administration

Subject Code : 17061

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	04	--	--	50#	--	25@	75

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:-

The world in the information era has become network centric. It provides comprehensive, self-contained tour of information which deals with data transmission and wiring, network technologies and internetworking protocols.

This subject provides the right balance between theoretical background and practical aspects of network. It is designed for the students to understand basics of computer network, but who want to begin an education about network management and administration.

Network manager is responsible for management of network system, applications in data and telecommunication services whereas network administrator is responsible for operations of key parts of the network.

The contents of the subject cover installation and configuration of network operating system and server which enables the students to manage and administer the network resources.

Objectives:-

Intellectual Skills:-

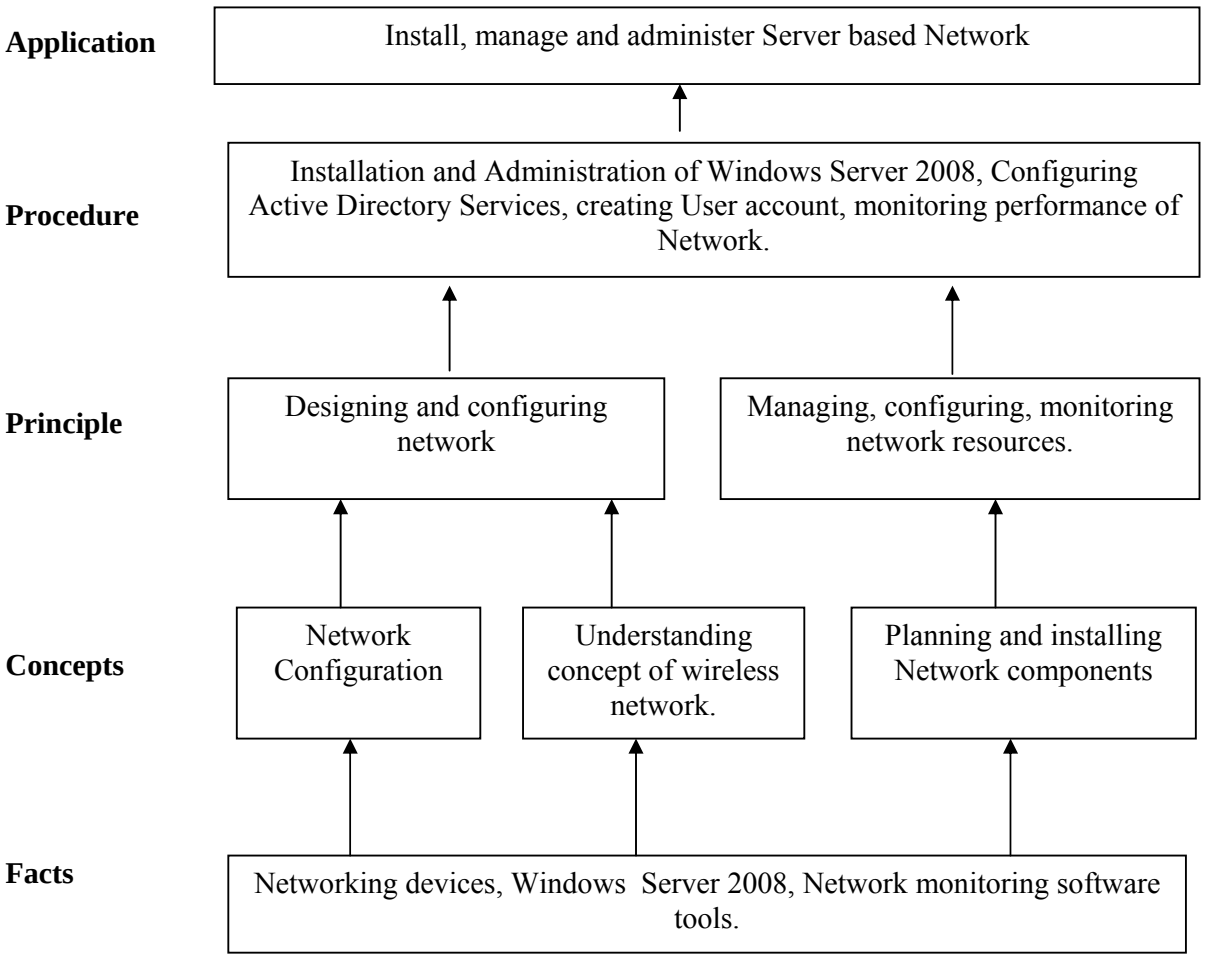
Students will be able to

1. Identify different network components.
2. Install, manage and administer the network.
3. Understand requirements of Windows Server 2008.
4. Use of resource sharing on network.
5. Manage different roles of Servers.

Motor Skills:-

1. Handling of Computer systems.
2. Handling of different network devices.

Learning Structure:



Contents:

Chapter	Name of the Topic	Hours
01	**Concepts Of Networking** **Objectives:-** ➢ To understand basic hardware & software requirement for building a network. **1.1** Network configuration- Peer-to-Peer Network, Server based Network - Network Topologies & Types. - Basic Network Media. **1.2** Planning & Installing Network Hardware - Types of Server- File, Print, Mail, Web & Database Servers. - Installing a NIC, Twisted Pair Cable, fiber optic Cable, Switches etc.	**02**
02	**Windows Server 2008** **Objectives:-** ➢ To understand Network operating System & Concept of Active Directory Services. **2.1** Installing & Configuring Windows Server - Checking System Requirements. - Choosing a File System. - Planning Partitions. - Deciding TCP/IP Configuration. - Choosing Workgroups or domains. **2.2** Dealing with Directory Services - Define directory services, (NDS), Windows NT Domains, Microsoft Active Directory Service (ADS), X.500 Directory Access Protocol (DAP), and LDAP. - Understanding ADS Structure, Objects, Domains, Organizational Units (OU), Trees, Forests.	**04**
03	**Managing User Accounts & Resource Services** **Objectives:-** ➢ Managing user accounts, shared folders and network printers. **3.1** Understanding user accounts - Creating a new user. - Setting user properties. - Deleting or disabling user accounts. - Working with groups:- Group types, Group Scope, Creating a Group & adding member to a Group. -Understanding Group Policies. **3.2** Managing Resource Services **3.2.1** Managing File Server: - Understanding permissions, sharing files & folders, configuring File Server. **3.2.2** Managing Print server: - Network Printing Process. - Managing Shared Printer. - Adjustment Print Server settings.	**04**

04	**Configuring Dhcp And Dns** **Objectives:-** ➢ To understand configuration of DHCP and DNS. **4.1** DHCP (Dynamic Host Configuration Protocol) - Understanding DHCP- IP Address Assignment, DHCP Architecture. - Working with DHCP Server – Installing, configuring and managing DHCP Server. **4.2** DNS (Domain Name System) – - Understanding DNS Names- Domain, domain-naming, top level domains, sub-domains, Name Resolution. - Managing DNS server and DNS Clients	**03**
05	**Network Administration And Security** **Objectives:-** ➢ To understand network administration and maintaining security. 5.1 Role of Network Administrator. 5.2 Use of Software tools for monitoring & administration of Network. 5.3 Securing user accounts. 5.4 Securing the Network using Firewall, Disabling unnecessary Services. 5.5 Role of SNMP in Network Management. 5.6 Working with Windows-2008 backup software.	**03**
	Total	**16**

List of Practicals:

Sr No.	Name of Practical
1	Understand the networking in the laboratory and determination of various networking hardware and software components with their technical specification.
2	Install and Configure Network Interface card and configure TCP/IP in the laboratory.
3	Install Windows server 2008
4	Set up Domain Name System (DNS) Server and Install Active Directory Server on windows server 2008.
5	Creating and Managing user accounts in windows server 2008
6	Create folders and manage folders in windows server 2008
7	Configure and manage Print Services
8	Install and configure DHCP Server
9	Tuning and monitoring network system
10	Working with Windows Server 2008 Back up utilities and services.
11	Study of wireless network
12	Study of Cloud Computing as Network Infrastructure Component

Learning Resources:

1. Books:

Sr. No.	Author	Title	Publisher
1.	Mark Minasi	Mastering Windows Server 2008	Wiley India
2.	Hassell	Windows Server 2008 : definitive guide	Oreilly
3.	Doug Lowe	Networking for Dummies	Wiley India
4.	Richard Burke	Network Management Concepts and practice.	Pearson
5.	Microsoft Press	MCSE Training Kit	Tata Mc graw Hill
6.	George Reese	Cloud Application architectures	Oreilly

2. Web References:

1. www.snmp.com
2. www.triti.com
3. www.cisco.com

Course Name : Computer Engineering Group

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

Semester : Fifth for CO/CM/CW/IF and Sixth for CD

Subject Title : Professional Practices-III

Subject Code : 17062

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
--	--	02	--	--	--	--	50@	50

Rationale:

A recent global research report has indicated that the Indian IT industry and academic institute are expecting multifold growth in technical communication. An effective technical communication helps students to express their ideas either orally or in writing technical reports.

Man's main task in life is to give birth to himself to become what he potentially is. The most important product of his effort is his own personality. Professional Practices helps to develop student's personality to get acquainted with industrial environment. This content enhances the students for sharing knowledge technical competency, aiding education & information of career opportunity.

Bigness comes from doing many small things such as Industrial visits, Expert lectures, Seminars on technical topics, group discussions and by using techniques of information search which helps the students to bridge the gap between industry and institute environment.

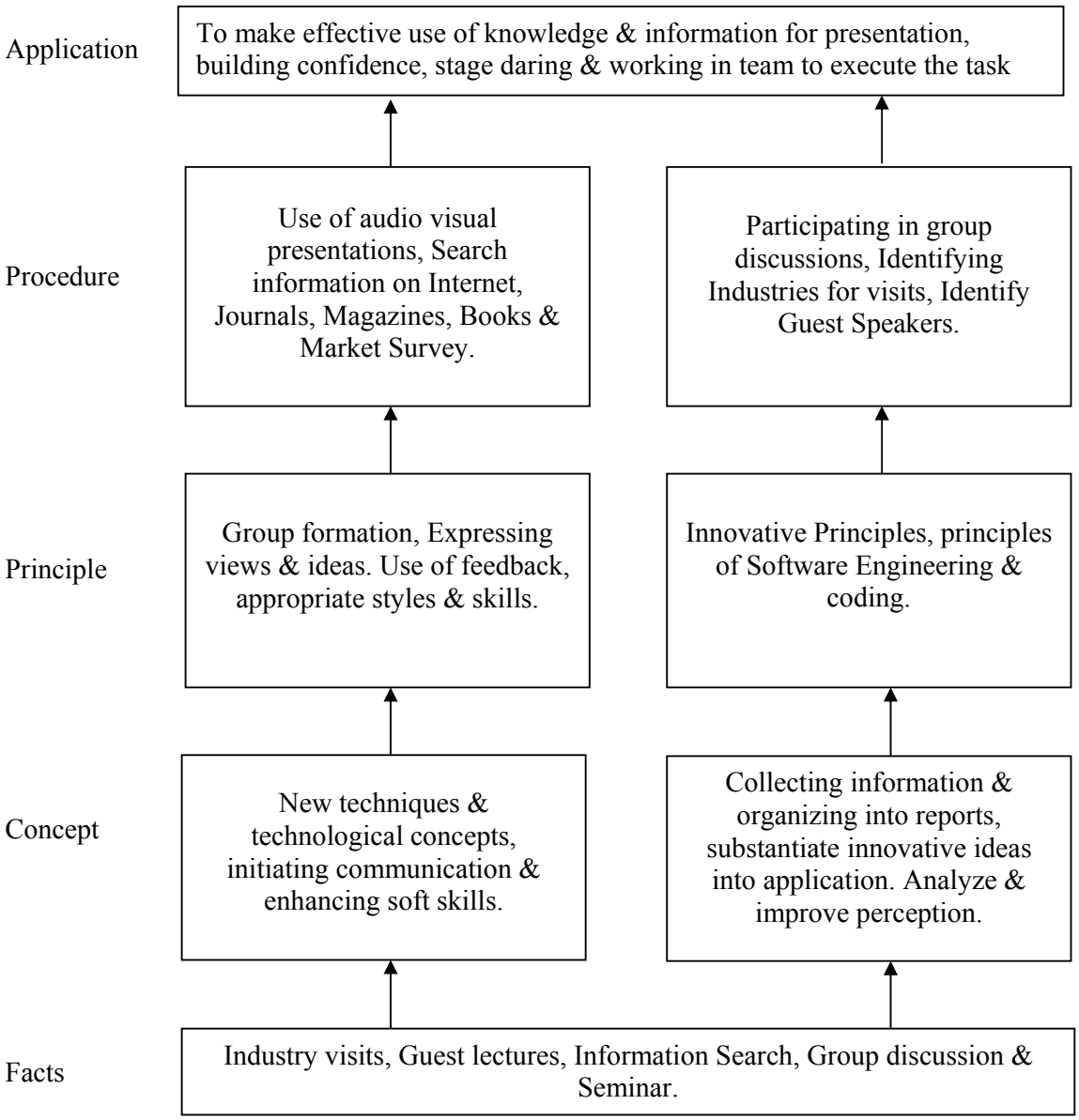
Objectives:

Intellectual Skills:

Students will be able to:

1. Acquire Information & Knowledge from different resources
2. Write the reports Industry Visits & Guest Lectures.
3. Deliver Seminars on a given topic which will help them to build self confidence & Knowledge.
4. Interact with each other through group discussion.
5. Present the feedback of various activities.

Learning Structure:



Contents:

Activity	Name of Activity
01	**Industry Visit : (At least One)** Industry visit should be arranged and each student should submit the technical report individually as a part of term work. Visits can be arranged in any industry which focuses on computer automation, data processing, computer network and computer control machine.
02	**Guest Lectures : (Any Two)** Guest lectures by industry experts, other professional are to be arranged from the following topics or any other suitable technical area. The brief report is to be submitted by individual student as part of term work. a. 3 – D animation techniques. b. Stress management. c. IT Act 2008. d. Linux installation & administration. e. Resume writing & preparation of C.V. f. Introduction of "Python" programming language. g. Career opportunities in IT industry. h. Plastic Memory i. Psychological Personality Development. j. Managing emotional quotient k. Internet Marketing.
03	**Information Search: (Any Two)** Form a group of 2 students. Information should be collected from various resources like Internet, books, journals etc.on the following allocated topics or any other suitable topic suggested by teacher. Prepare Individual technical report on selected topics of 8-10 pages & deliver seminar on at least one topic. a. Android O.S. of mobile systems. b. Autonomic computing to manage complexity of network components. c. Cloud computing – application (any one). d. Biometrics – in secure E-transactions. e. Pervasive Computing f. E – MINE: A novel web mining approach g. 4 G wireless systems h. Jini – advanced set of network protocols i. Parasitic Computing j. E – wallet k. Nano – technology and applications l. DNA computing m. Artificial neural networks & their applications.
04	**Group Discussion : (Any One)** Form a group of 5 students and write a brief report on selected topic as a part of term work. Some of the suggested topics:- a. Role of UN in peace keeping b. Effect of cinema on youth c. Government contribution to IT d. Balance between professionalism & family e. Position of women India compare to other nations

	f. Present state of Indian Cricket Team g. Is globalization really necessary? h. Is India growing spiritually? i. Any other suitable topic.
05	**Prepare Yourself : (Any Two)** Preparation towards Interview. Write a brief report on selected topic as a part of term work. a. Mock Interview b. Mock aptitude test & puzzle solving.(Attach answer paper) c. CV Preparation.(Attach CV).
06	**Seminar:** Form a group of 4 students Seminar should be on Final year Industrial Project synopsis & week wise plan for completion of project. Each student shall submit a report of at least 10 pages and deliver a seminar.

References:

1. Books on personality development & soft skills.
2. Engineering Subjects Reference books.
3. Journals & Magazines –IEEE journals, IT Technologies, PC Quest, Linux for You, CSI, Computer Today etc.
4. Local News Paper.
5. Books on General Knowledge, Aptitude Test, Puzzle Solving by – R .S. Agarwal, Shakuntala Devi
6. Websites - www.groupdiscussion.com
   - www. Seminarprojects.com

OR

Industrial Training (Optional)

- Students who have completed industrial training in summer vacation after 4th Semester will be granted exemption for activities related to topic 1 to 4.
- Students shall submit a brief report on topic No. 5 of Professional Practices-III
- Student shall give seminar on industry training as activity No. 6.
- These students shall submit report of Industrial training signed and certified by authorities from Industry.
- Evaluation will be done on seminar and report submitted by student.

Note:

For the students who have undergone industrial training of four weeks duration in the summer vacation of fourth semester will be assessed as follows:

1. Industrial Training report duly certified by competent authority in the industry: **30 Marks**
2. Brief report on topic no. 5 **05 Marks**
3. Seminar on industrial training: **15 Marks**