 MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES																
COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING / COMPUTER TECHNOLOGY / INFORMATION TECHNOLOGY.																
COURSE CODE : CO/CM/IF/CD																
DURATION OF COURSE : SIX SEMESTERS for CO/CM/IF and EIGHT SEMESTERS for CD											WITH EFFECT FROM 2009- 10					
YEAR / SEMESTER : THIRD SEMESTER											DURATION : 16 WEEKS					
FULL TIME / PART TIME : FULL TIME											SCHEME : E					
SR. NO.	SUBJECT TITLE	Abbreviation	SUBJECT CODE	TEACHING SCHEME			EXAMINATION SCHEME & MAXIMUM MARKS									
				TH	TU	PR	PAPER HRS	TH		PR		OR		TW		SW (16003)
								Max	Min	Max	Min	Max	Min	Max	Min	
1.	Applied Mathematics	AMT	12062	03	--	--	03	100	40	--	--	--	--	--	--	
2.	Object Oriented Programming	OOP	12063	04	--	04	03	100	40	50#	20	--	--	25@	10	
3.	Digital Techniques	DTE	12064	03	--	02	03	100	40	--	--	--	--	25@	10	50
4.	Relational Data Base Management Systems	RDB	12065	04	--	04	03	100	40	--	--	25#	10	25@	10	
5.	Visual Basic	VBA	12066	--	--	04	--	--	--	50@	20	--	--	--	--	
6.	Professional Practices-III	PPR	12067	--	--	05	--	--	--	--	--	--	--	50@	20	
TOTAL				14	--	19	--	400	--	100	--	25	--	125	--	50

Student Contact Hours Per Week: **33 Hrs.**
THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.
Total Marks : **700**
@ Internal Assessment, # External Assessment, No Theory Examination.
Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Termwork, SW- Sessional Work.

- Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subjects is to be converted out of 50 marks as sessional work (SW).
- Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms.
- Code number for TH, PR, OR, TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

Course Name : Computer Engineering Group

Course Code : CO/CM/IF/CD

Semester : Third

Subject Title : Applied Mathematics

Subject Code : 12062

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:

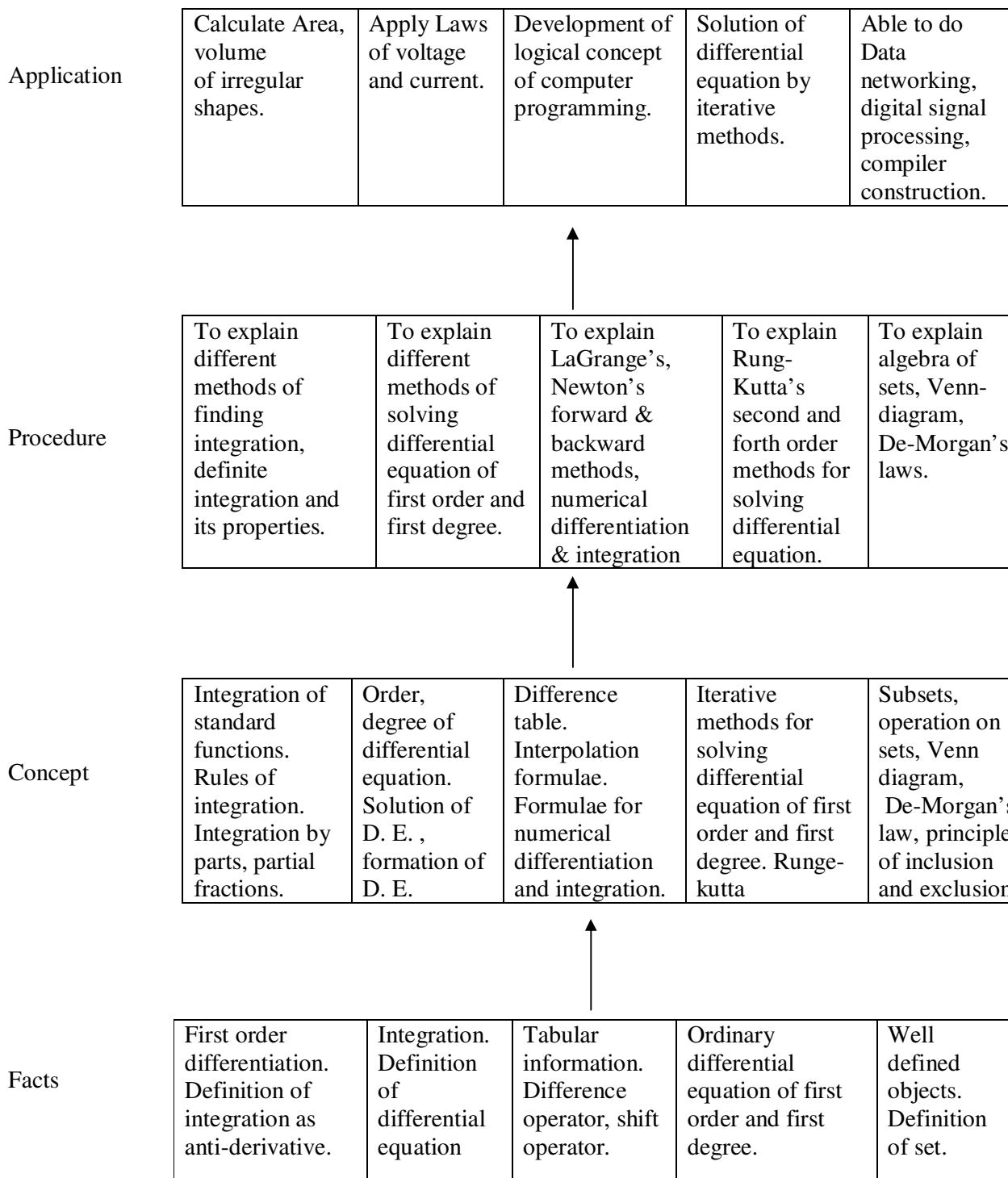
The study of mathematics is necessary to develop in the student the skills essential for new technological development. This subject introduces some applications of engineering, through which the student can understand the link of Mathematics with engineering principles.

Objective:

The Student will be able to:

1. Acquire knowledge of Mathematical term, concept, principals, and different methods.
2. Develop ability to apply Mathematical methods to solve technical
3. Solve problems, execute management plans with precision.
4. Acquire sufficient Mathematical techniques necessary for daily and practical problems.
5. Understand relation between Mathematics and applications in engineering.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	Integration 1.1 Definition of integration as anti-derivative. Integration of standard function. 1.2 Rules of integration (Integrals of sum, difference, scalar multiplication). 1.3 Methods of Integration. 1.3.1 Integration by substitution 1.3.2 Integration of rational functions. 1.3.3 Integration by partial fractions. 1.3.4 Integration by trigonometric transformation. 1.3.5 Integration by parts.	10	16
	1.4 Definite Integration. 1.4.1 Definition of definite integral. 1.4.2 Properties of definite integral with simple problems.	04	08
	1.5 Applications of definite integrals. 1.5.1 Area under the curve. 1.5.2 Area between two curves.	02	04
02	Differential Equation 2.1 Definition of differential equation, order and degree of differential equation. Formation of differential equation for function containing single constant. 2.2 Solution of differential equations of first order and first degree such as variable separable type, reducible to Variable separable, Homogeneous, Non-homogeneous, Exact, Linear and Bernoulli's equations.	08	18
	2.3 Applications of Differential equations. 2.3.1 Laws of voltage and current related to EC, RC LRC Circuits.,	02	04
03	Interpolation 3.1 Interpolation 3.1.1 Introduction, Lagrange's interpolation formula. 3.1.2 Difference operator, relation between them. Difference Table. 3.1.3 Newton's forward and backward difference interpolation formulae. 3.1.4 Concept of extrapolation.	08	16

04	<p>Numerical Differentiation & Integration.</p> <p>4.1 Newton's forward and backward difference formulae for differentiation $\left(\frac{dy}{dx}, \frac{d^2y}{dx^2}\right)$ at any point and at $x = x_0$ or x_n</p> <p>4.2 Numerical integration Trapezoidal rule and Simpson's 1/3 rd rule.</p>	06	14
05	<p>Numerical Solution Of Ordinary Differential Equation</p> <p>5.1 Introduction.</p> <p>5.2 Runge Kutta's 2nd and 4th order methods.</p>	04	08
06	<p>Discrete Mathematics</p> <p>6.1 Relational algebra.</p> <p>6.2 Sets, subsets (Venn diagram) Operation on sets, De-Morgan's laws. Principal of inclusion and exclusion with simple problems.</p>	04	12
Total		48	100

Learning Resources:**Books:**

Sr. No.	Authors	Title	Publications
01	S. P. Deshpande	Mathematics for polytechnic	Pune Vidyarthi Griha Prakashan
02	Robert T. Smith	Calculus: single variable	Tata McGraw Hill
03	Murray R Spiegel	Advanced Mathematics for Engineers and Scientist	McGraw Hill
04	F. Ayres	Schaum outline of differential and integral calculus	Tata McGraw Hill
05	Frank Ayres	Differential Equation: SI Metric	Schaum Outline series.
06	B. S. Grewal	Higher Engineering Mathematics	Khanna Publication,
07	S. S. Sastry	Introductory Methods of Numerical analysis	Prentice Hall Of India
08	Chapra	Numerical methods for Engg. 4 th ed.	Tata McGraw Hill
09	M. K. Jain & others	Numerical methods for scientific & engineering computations	Wiley Eastern
10	Colman, Busby and Ross	Discrete Mathematical structure	Prentice Hall of India

Course Name : Computer Engineering Group

Course Code : CO/CM/IF/CD

Semester : Third

Subject Title : Object Oriented Programming

Subject Code : 12063

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
04	--	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:

Object oriented programming has become the preferred approach for most software projects. Object oriented programming offers a new and powerful way to cope with complexity. Object oriented programming concepts are useful for constructing complex physical systems such as car, airplanes etc.

Instead of viewing the program as a series of steps to be carried out ,it views as a group of objects that have certain properties and can take appropriate actions . Among the Object oriented programming languages available C++ is most widely used language.

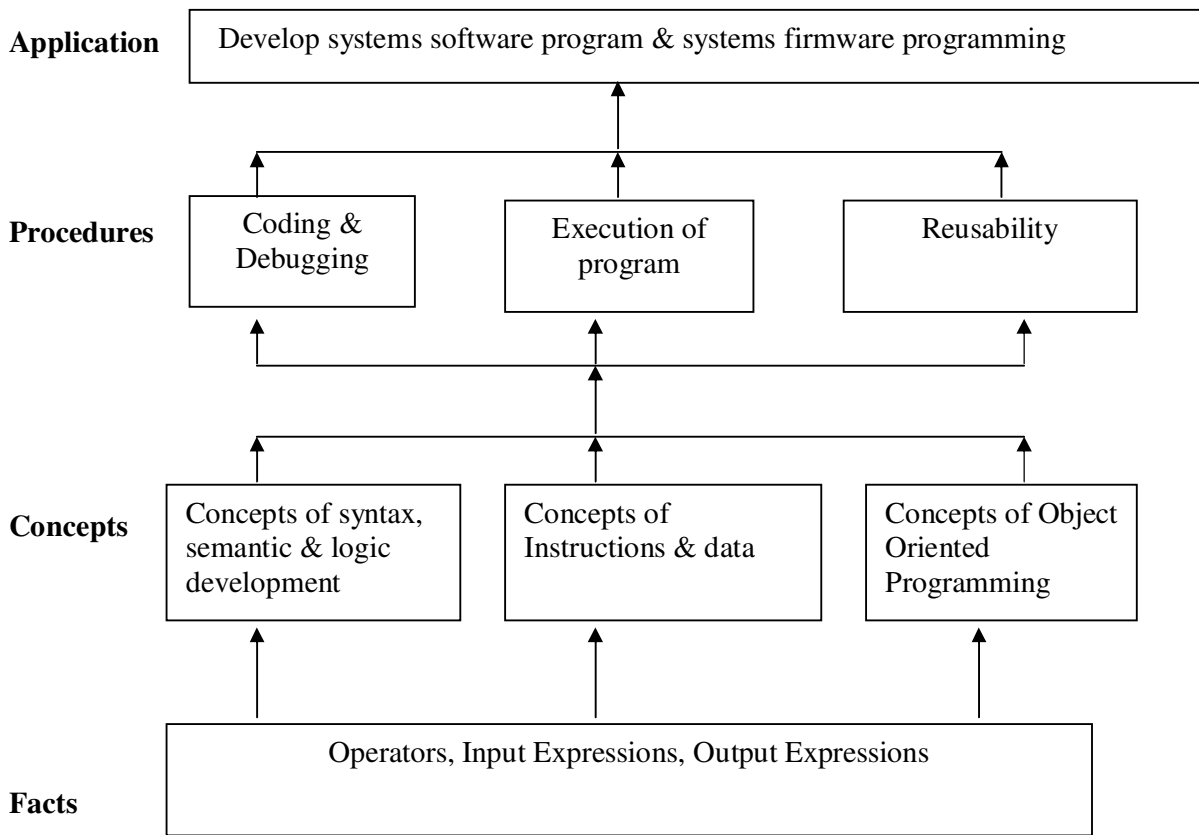
Different programs based on Inheritance, polymorphism, encapsulation, overriding requires knowledge of C++. This subject acts as a base for languages JAVA, VC++ & UML.

Objectives:

The Student will be able to:

- Write programs using objects & classes.
- Develop programs to create and destroy the objects
- Use existing operators for different meanings.
- Using reusability concept.
- Implement pointers for arrays, strings & object.
- Describe polymorphism, concepts, it's types, virtual function & write program for same.
- Apply formatted & unformatted console I/O operation & perform file related activities using C++ streams.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	Concept of Object Oriented Programming.	06	08
	History & features: It's need & requirement, procedure oriented programming versus object oriented programming, basic concepts object oriented programming, object oriented languages. Beginning with C++: Concepts & structure of C++ programming, concepts of structure.		
02	Objects & classes	12	18
	Specifying a class, Defining member functions, Access specifiers (public, private) Arrays within a class, Creating objects, memory allocation for objects, static data & member function, Arrays of objects, objects as function argument.		
03	Constructors and Destructors.	10	14
	Concept of Constructor, Types of constructors (Default, Parameterized, copy,), Overloaded Constructors (Multiple Constructor), Constructor with default argument, Destructors. Function overloading, Operator overloading (overloading unary & binary operators), rules for overloading operators.		
04	Inheritance	08	16
	Concepts of inheritance, Derived classes, Member declaration (Protected), Types of inheritance (Single, multilevel, multiple, hierarchical, Hybrid inheritance), Virtual base classes, Abstract classes, Constructors in derived classes, Member classes.		
05	Pointers in C++	12	14
	Concepts of pointer (Pointer declaration, pointer operator, address operator, pointer expressions, and pointer arithmetic), Pointers & functions (Call by value, call by reference, pointer to functions, passing function to another function), Pointers in arrays (Searching, insertion & deletion), Pointers to string (Searching, finding length, comparison, concatenation, reverse), Pointers & objects (Pointers to objects, this pointer, and pointer to derived classes).		
06	Polymorphism	06	14
	Concepts of polymorphism, types of polymorphism, function Overloading & function overriding, Virtual function, Static & dynamic binding.		
07	Basic function of I/O system basics & File Processing	10	16
	Stream classes, using formatted & unformatted functions, using manipulator to format I/O, Basics of file system, opening & closing a file, reading & writing character from a file (get(), put(), getline(), write()), Command line arguments.		
Total		64	100

Practical:

Skills to be developed:

Intellectual skills:

- Use of programming language constructs in program implementation.
- To be able to apply different logics to solve given problem.
- To be able to write program using different implementations for the same problem

- Study different types of errors as syntax semantic, fatal, linker & logical
- Debugging of programs
- Understanding different steps to develop program such as
 - Problem definition
 - Analysis
 - Design of logic
 - Coding
 - Testing
 - Maintenance (Modifications, error corrections, making changes etc.)

Motor skills:

- Proper handling of Computer System.

List of Practical:

Sr. No.	Title of Experiment	No of practical
1.	Programs to input & output data (Simple programs).	01
2.	Programs to create object of class	01
3.	Programs to create arrays of objects	02
4.	Program to access static member variables	01
5.	Programs using object as function arguments using friend function.	01
6.	Programs to define Class using constructor & destructor.(Default constructor ,Multiple constructor, Copy constructor, Overloaded constructor)	01
7.	Program using constructor with default argument	01
8.	Program to overload unary & binary operator	02
9.	Single inheritance & multilevel using protected member	02
10.	Multiple inheritance & virtual base class	02
11.	Program for pointers to arrays of integer	02
12.	Program for pointers to strings	02
13.	Program for pointers to objects	02
14.	Program for this pointer.	01
15.	Program for (virtual functions) runtime polymorphism	01
16.	Programs for overload function	01
17.	Format output using manipulators & own manipulator.	02
18.	Program for file processing	02

Learning Recourses:

1. Books:

Sr.No.	Author	Title	Publisher
01	Schilt	C++ The complete reference	Tata McGraw Hill
02	Balgurusamy	Object oriented programming with C++	Tata McGraw Hill
03	Lafore Robert	Object oriented programming in Turbo C++.	Galgotia
04	Kanetkar	Let's C++	BPB

2. Website for mini projects:

- www.sourcecodesworld.com
- www.softteam.com
- www.cplusplus.com/od/beginnerctutorial

3. Magazines:

- Express computers.
- C / C++ journal

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/CM/IF/CD

Semester : Third

Subject Title : Digital Techniques

Subject Code : 12064

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:

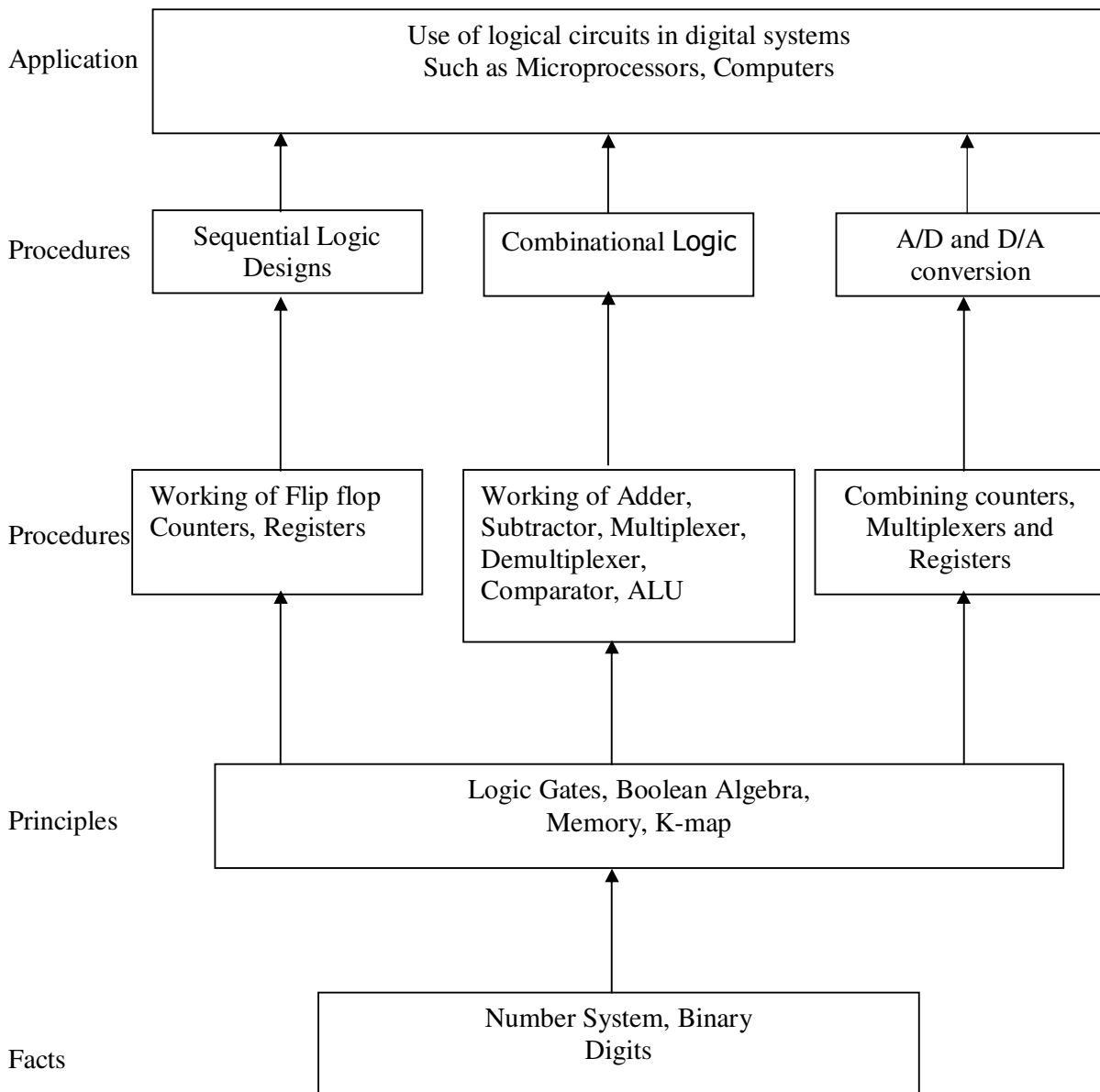
In the present era, applications of digital circuits are prevalent in consumer products right from calculators, digital diaries, digital watches, computers, mobile phones, to industrial products. So the digital technique has been introduced as a core technology subject in Computer Engineering curriculum. It will enable the students to assemble, design, test and troubleshoot logical circuits such as ALU, MUX, DEMUX, A/D and D/A converters. It deals with topics ranging from logic gates, to combinational and sequential logic circuits and memories. It lays a foundation for the knowledge of microprocessors and computers.

Objectives:

The student will be able to

1. Design simple logic circuits.
2. Assemble logic circuits.
3. Test the logic circuits.
4. Observe outputs of logic circuits.
5. Troubleshoot digital circuits.

Learning structure:



Contents: Theory

Chapter	Contents	Hours	Marks
1	Introduction To Digital Techniques 1.1 Digital circuit. 1.2 Digital signal. 1.3 Use of digital circuit and digital signal. 1.4 Advantages and Disadvantages of Digital circuits. 1.5 Generation of digital signal 1.6 Introduction to digital ICs, Characteristics of digital ICs 1.7 Logic families comparison of TTL, CMOS and ECL logic Families (No circuits) (To be covered in Practical) 1.8 Number System - Introduction to Binary, Octal, Decimal, Hexadecimal number system 1.9 Conversion of number systems 1.10 1's complement and 2's complement 1.11 Binary arithmetic (addition, subtraction). 1.12 BCD code, BCD arithmetic (addition, subtraction).	08	16
2	Logic Gates And Boolean Algebra 2.1 Logical symbol, logical expression and truth table of AND, OR, NOT, NAND, NOR, EX-OR and EX-NOR gates. 2.2 Universal gates – NAND and NOR gates 2.3 Logical circuits of basic gates using universal gates 2.4 Gates using more than two inputs. 2.5 TTL and CMOS logic gate ICs and their pin configurations. (To be covered in Practical) 2.6 Basic laws of Boolean algebra, Duality theorem. 2.7 De Morgan's theorems.	06	14
3	Combinational Logic Design / Circuits 3.1 Simplification of Boolean expression using Boolean algebra. 3.2 Construction of logical circuits forms Boolean expressions. 3.3 Boolean expressions using Sum of products and product of sums forms. 3.4 K-map representation of logical functions. 3.5 Minimization of logical expressions using K-map (2, 3, 4 variables). 3.6 Standardization of SOP & POS equations 3.7 Concept of Adders / Subtractors. 3.8 Truth table, K-map, Simplified logical expression and logical circuit using basic gates and universal gates of : (a) Half adder and full adder. (b) Half subtractor and full subtractor. 3.9 Block diagram, Truth table, Logical expression and logic diagram of Multiplexers (4:1 and 8:1), Multiplexer IC. 3.10 Block diagram and Truth table of Demultiplexer (1:4; 1:8; 1:16), Demultiplexer IC. 3.11 Block diagram and Truth table of Encoders, Priority Encoders ICs and Decoder. 3.12 Block diagram, Truth table, working principle, Applications, pin functions of Decimal to BCD Encoder (IC 74147) and BCD to 7-segment Decoder. Block diagram and function table of Parity generator (IC 74180),	12	24

	Digital comparator IC (7485); Block diagram and pin functions of ALU 74181		
4	Flip Flops And Sequential Logic Design 4.1 One-bit memory cell, clock signal 4.2 Symbol and Logic diagram using NAND gates, working and truth table of R S flip-flop. 4.3 Symbol and Logic diagram using NAND gates, working, truth table and timing diagram of Clocked R S flip flop. 4.4 Triggering: edge triggering and level triggering 4.5 Symbol and Logic diagram using NAND gates, working, truth table and timing diagram of J-K flip flop. 4.6 Block diagram and truth table of Master slave J-K flip flop. 4.7 Symbol, working and truth table of D- flip flop and T-flip flop. 4.8 Applications of flip flops 4.9 Concept, Modulus, Working, truth table, timing diagram of a counter. 4.10 Asynchronous counter (3 bit, 4 bit); 4.11 Design of mod N-counter: working, truth table and timing diagram 4.12 3-bit Synchronous counter: working, truth table and timing diagram 4.13 Block diagram, Working, Truth Table and waveforms of Shift register: SISO, SIPO, PISO, PIPO (4-bit) and Universal Shift register (4-bit). 4.14 Applications of Counters and Registers.	12	24
5	Memories 5.1 Classification of memories 5.2 RAM, ROM, PROM, EPROM, E ² PROM. 5.3 Circuit diagram using CMOS transistors and working of Static and dynamic RAM	04	08
6	A-D And D-A Converters 6.1 Circuit diagram and working of R-2R Ladder DAC and Weighted resistor DAC. 6.2 DAC specifications 6.3 Block diagram and working of Ramp ADC, Dual slope ADC and Successive approximation ADC. 6.4 ADC specification 6.5 Advantages and Disadvantages of various methods.	06	14
Total		48	100

Practical:

Skills to be developed:

Intellectual Skills:

1. Interpret the results
2. Verify the tables

List of Practical: (Any TEN) including MINI PROJECT

- 1) Study of Digital IC datasheets and noting down the characteristics for TTL & CMOS logic families.

- 2) Verification of truth table of logic gates.
- 3) Verification of De Morgan's theorem.
- 4) Construction of Half adder and Full adder.
- 5) Implementation of Combinational Circuit using Multiplexer.
- 6) Construction of 7-segment decoder driver.
- 7) Verification of truth table of Flip flops.
- 8) Universal Shift Register
- 9) Decade counter using IC 7490.
- 10) Design of 3-bit Synchronous counter.
- 11) A to D Converter.
- 12) Study of data sheets related to digital ICs like _____.
- 13) A MINI PROJECT (Design, Assemble, Test and Troubleshoot) integrating minimum two digital ICs.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
01	R.P. Jain	Modern Digital Electronics	Tata McGraw Hill
02	Malvino Leach	Digital Principles	Tata McGraw Hill
03	Tokheim	Digital Electronics	Tata McGraw Hill
04	S.P. Bali	2000 solved problems in Digital Electronics – Sigma series	Tata McGraw Hill

Course Name : Computer Engineering Group

Course Code : CO/CM/IF/CD

Semester : Third

Subject Title : Relational Database Management Systems

Subject Code : 12065

Teaching and Examination Scheme:

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

NOTE:

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

Rationale:

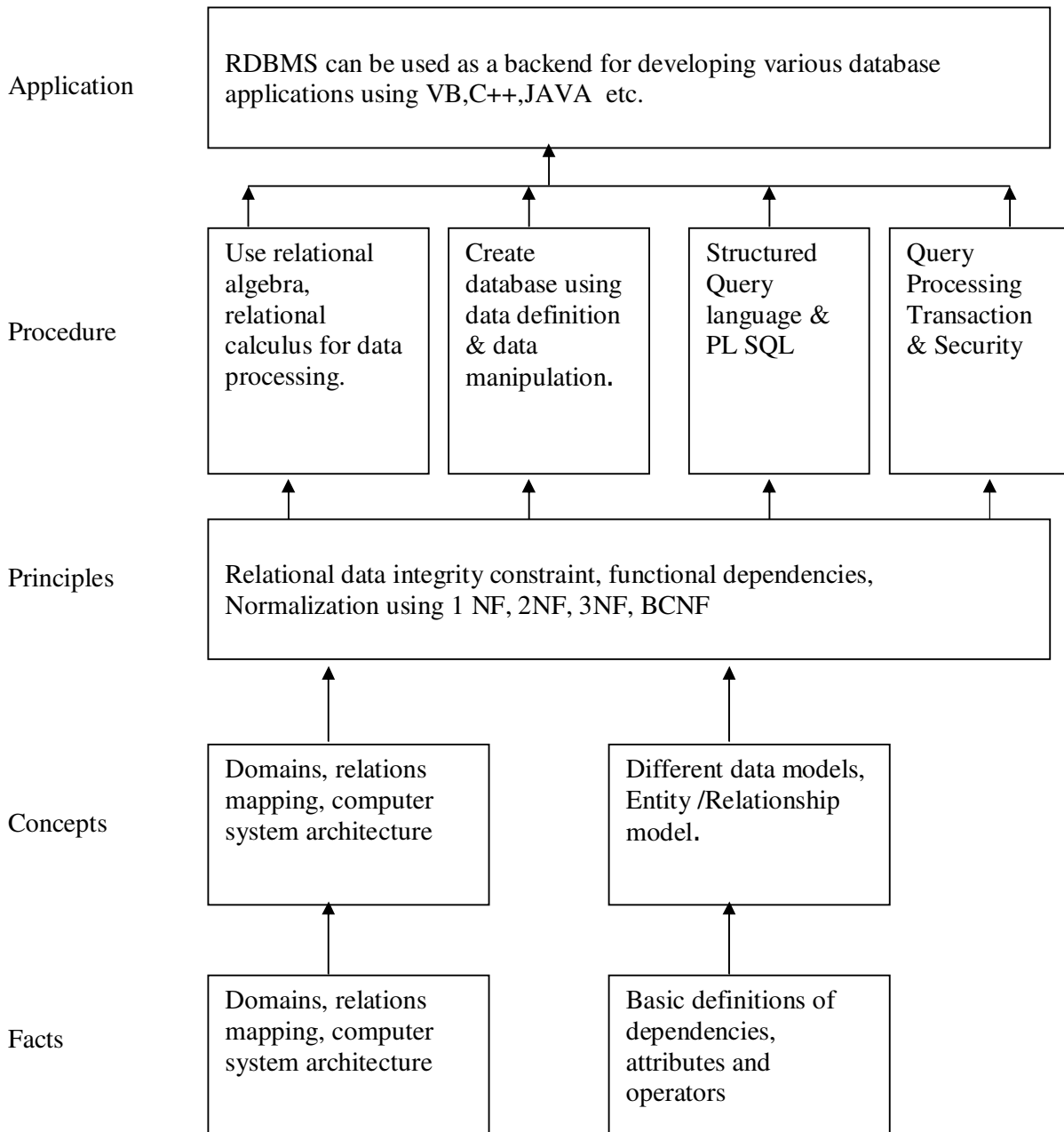
The primary resource that fuels knowledge power is the database. Organizations are employing mechanisms to effectively manage and utilize the data stored in the databases. Relational Database management system has been developed to harness the information stored in the database.

The database management system is a collection of programs that enables to store, modify and extract information from a database. After learning this subject, the students will be able to understand the designing of RDBMS and can use any RDBMS package as a backend for developing database applications.

Objectives: The student will be able to:

- 1) Understand the concept of Database system and Client Server Architecture
- 2) Understand and develop the concepts of Data Modeling, Security and Integrity.
- 3) Understand and execute different SQL queries and PL / SQL programs.
- 4) Normalize the database using normal forms.
- 5) Understand the concept of query processing and Transaction processing.

Learning Structure:



Contents : Theory

Chapter	Name of the Topic	Hours	Marks
01	Database System Concept & Data Modeling	12	20
	1.1 Basic concepts, Disadvantages of file processing system, Advantages of a DBMS over file processing system, Data Abstraction, Database Languages, Instance and Schema, Data Independence-Logical and Physical data Independence. 1.2 Database Users, Functions of Database Administrator Components of a DBMS and overall structure of a DBMS- Query Processor and Storage Manager. 1.3 Data Models: <ul style="list-style-type: none"> • Network Model • Hierarchical Model • E-R Model-Entity Sets, Mapping Cardinalities. • Comparison of all models 1.4 Introduction to Client Server Architecture.		
02	Relational Data Model and Security and Integrity Specification	10	16
	2.1 Relational Model: Basic concepts, attributes and domains, Keys concept: Candidate and primary Key, Integrity constraints: Domain, Entity Integrity constraints, Referential constraints and On delete Cascade. 2.2 Security and Authorization, Data Control language 2.3 Query Languages: <ul style="list-style-type: none"> • Relational Algebra • Relational Calculus-Domain and Tuple Calculus. 2.4 Creating Views and all options of views.		
03	SQL and PL-SQL	18	24
	3.1 Introduction to SQL queries, <ul style="list-style-type: none"> • Creating, Inserting, Updating and deleting tables (DDL), DML Statements. • Using constraints. • Renaming attributes, logical, relational, Set operators, In and NOT In, Is NULL and Is NOT NULL, Aggregate functions, group by and having clause, string functions, date and time functions, Nested sub queries, Join concepts-Equi Join, Self Join, Non Equi Join, Outer joins. 3.2 PL/SQL Introduction, PL/SQL block structure, variables, SQL statements in PL/SQL, PL/SQL control Structures 3.3 Cursors, Triggers, Functions		
04	Relational Database Design, Storage and File systems.	12	20
	4.1 Purpose of Normalization, Data redundancy and updating anomalies, Functional Dependencies and Decomposition, Process of Normalization using 1NF, 2NF, 3NF, multivalued dependencies and BCNF. 4.2 E-R Model details-Types of attributes, Role Indicator, Weak		

	4.3 and Strong entity sets, Specialisation and Generalisation. File Organization, Organization of records in files, Basic concept of Indexing-Order Indices, Primary and Secondary Indices ,Dense and Sparse Index, Sequential Indexing ,Multilevel Indexing and Hashing.		
05	Query Processing and Transaction Processing	12	20
	5.1 General strategies for query processing, Laws of Equivalence Expressions. 5.2 Concept of transaction, States of transactions, Serial Execution, Concurrent Execution, Serializability Recoverability, Transaction Definition in SQL. 5.3 Lock based protocols: share & exclusive mode, Protocols: <ul style="list-style-type: none"> • 2 phase locking • Time-Stamp based • Validation based 5.4 Deadlock handling, Wait for graph <ul style="list-style-type: none"> • Deadlock prevention Scheme, • Deadlock Detection Scheme & recovery scheme 		
Total		64	100

Practical:

Skills to be developed:

Intellectual skills:

1. Develop the fields of data base
2. Decide proper specifications
3. Query Processing and transaction processing

Motor skills:

1. Prepare appropriate data tables
2. Sequential writing of steps

List of Practical:

- 1) Creating & Executing DDL in SQL.
- 2) Creating & Executing Integrity constraints in SQL.
- 3) Creating & Executing DML in SQL.
- 4) Executing relational, logical and mathematical set operators using SQL.
- 5) Executing group functions
- 6) Executing string operators & string functions.
- 7) Executing Date & Time functions.
- 8) Executing Data Conversion functions.

- 9) Executing DCL in SQL.
- 10) Executing Sequences and synonyms in SQL.
- 11) Execute 50 SQL queries (operators, functions, clauses, join concepts)
- 12) Program for declaring and using variables and constant using PL/SQL.
- 13) Program using if then else in PL/SQL
- 14) Program using for loop & while loop in PL/SQL.
- 15) Program using nested loop in PL/SQL.

Learning Resources:

Books:

Sr .No.	Author	Title	Publisher
01	Korth	Database System Concepts	Sudarshan
02	2006 ISRD Group	Introduction to Database Management Systems	Tata McGrawHill.
03	Bipin Desai	An Introduction to Database System	Galgotia Publication
04	C.J Date	An Introduction to Database System	--
05	Allen	Introduction to Relational Databases and SQL programming	Tata McgrawHill

Course Name : Computer Engineering Group
Course Code : CM/CO/IF/CD
Semester : Third
Subject Title : Visual Basic
Subject Code : 12066

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
--	--	04*	--	--	50@	--	--	--

* 2 sessions of 2 hours per week each.

NOTE:

As the world turns to graphical user interfaces, computer programming languages are also changing to accommodate the shift.

Visual Basic is graphical user interface programming language which has excellent tools for understanding programming language concepts.

Multimedia techniques deal with Flash and 3D Max which are basic tools for audio, video presentations.

In this subject with equal weightage to Visual Basic and Multimedia techniques, students will be able to learn graphical user interface programming and multimedia presentations.

Rationale:

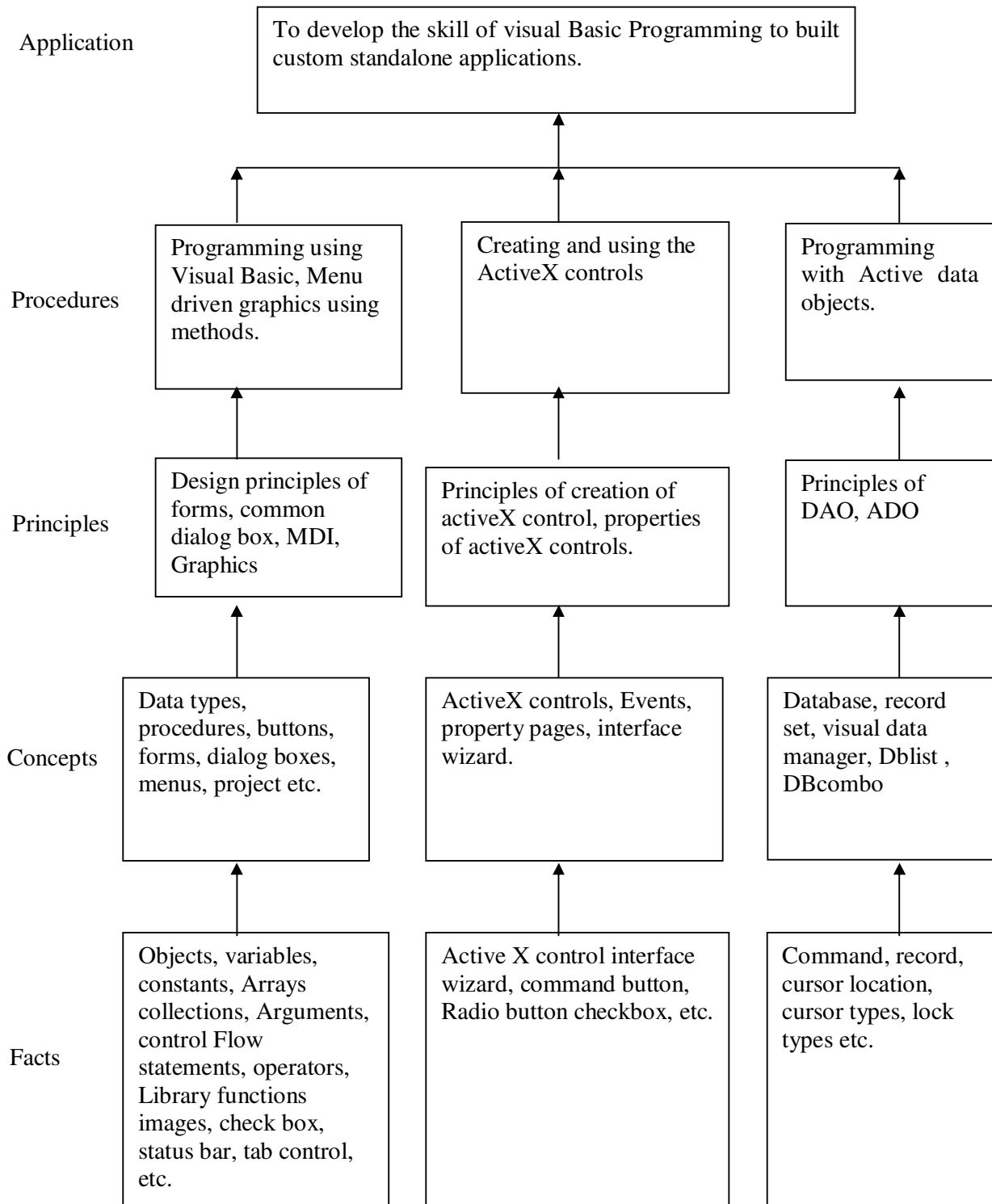
This subject helps to understand the principles and techniques involved in developing applications with Visual Basic. The course content is designed to understand & implement the Event Driven Architecture of Visual Programming. The student would be able to identify and use the different categories of controls, learn working with forms and different data access techniques, establish a data base connection and identify the categories of ActiveX controls and creating them.

Objectives:

The Student will be able to:

1. Use GUI tools of Visual Basic Programming.
2. Use basic and advance VB controls.
3. Interface back-end and front-end.
4. Generate report using Data Report and Crystal Reports.
5. Build Visual Basic applications.

Learning Structure:



Contents: Theory

Chapter	Contents
01	<p>Introduction to Visual Basic Environment</p> <ul style="list-style-type: none"> • Concept of VB program. • Class, object, property, methods, events. • Environment of VB. • Concept of project forms etc. • Managing with menus. • Drag and Drop operation. • Validating and processing user inputs.
02	<p>Introduction to Visual Basic</p> <ul style="list-style-type: none"> • Data types, Variants. • Variables, Constants. • Arrays – REDIM statement, Array related functions. • Collection, procedure, functions. • Argument passing and return values. • Input box and message box. • Control flow statement. • Loop statement. • Nested control structure. • Exit statement. • Operators – arithmetic, logical, relational, string. • Functions – String, Maths, Date and Time. • Date and time formats. • Design form to demonstrate. • Control loops (do, for, while) • Control statements (if-then, if-then-else, Selection option) • Using text box, Command button, Label, options, combo box, input and message box.
03	<p>Controls and Events</p> <ul style="list-style-type: none"> • Scroll bar. • Slider. • Container – picture box, frame. • Image. • File system controls – drive, file, directory list box. • Timer control. • OLE control. • Basic controls like – line, shape, circle, Pset, RGB, Paint picture, load picture.
04	<p>Module, Class Module MDI, Menu Editor And Graphics</p> <ul style="list-style-type: none"> • Concept of module, class module, MDI, DLL's and how to use them. • Creating own menu using menu editor, popup m • Advanced controls: Common dialog box, Tree view, List view, rich text box control, windows common controls, status bar, tab control, image list, MS chart. • Concept of class module, module MDI, DLL and how to use them Using RTF control

05	<p>Database, Report Generator</p> <ul style="list-style-type: none"> • Concept of database, record, record set, connection DSN and DSN less connection • Data bound controls – text box, combo box, list box, DB grid • DB combo, MS flex grid. • Visual Data Manager. • Programming with ADO, DAO, RDO, • Object, connection, record set, parameter, cursor types, • lock types. • Creating report using Data Report. • Creating report using Crystal reports.
06	<p>Introduction to Active X Controls</p> <ul style="list-style-type: none"> • The user control object- initialize Event, Terminate event, Init properties Event, Paint/Resize Event, Observing the Events in the Data controls, • Exploring the Properties of Active X controls- Debugging the Properties, extend Properties, Ambient Properties, creating Designed time only properties, creating a Clock control, Events in Active X control • Using the active X control interface wizard- Adding the wizard to visual basic • Property pages- using the property page wizard, creating property pages without the wizard. • Creating a simple active x control
07	<p>File Handling in VB</p> <ul style="list-style-type: none"> • File commands • file handling functions • Sequential files • Reading information from a file • Adding to an existing file • General sequential files • Sending special characters to sequential files. • Making changes inside a sequential file • The rich text box control & file handling • Random access files • Headers and indexes for random access files. • Binary files • Binary files handling

Practical:

Skills to be developed:

Intellectual skills:

- 1) Design various types of forms

- 2) Use image control and scroll bar
- 3) Selection of windows for different operations

Motor skills:

1. Develop various types of forms

List of Practical:

1. Study of VB environment with following details :
 - Form and their types.
 - Intrinsic components – text box, label, combo, list, heck box, and option button.
 - Design time properties.
 - Different windows and their uses.
2. Design forms to perform mathematical operations like addition, subtraction, multiplication and division using:
 - Text box, labels.
 - Options to be selected using option, check box and combo box.
3. Design forms to use Date, Time, String, Mathematics functions with help of text box, label, radio button, check box, combo box and command button.
4. Using image control and scroll bar, design form to change height, width of image, movement to image. Using picture box and image list, flip the image on click of command button.
5. Design explorer using Directory, drive, file list box and common dialog controls.
6. Design text editor with menu having copy, cut, paste, select, search, replace the text and load and save the file.
7. Design stop watch with faculty of start, stop, reset using timer control, option, label, text box.
8. Practical including Data bound controls like DBgrid, DBcombo, Textbox, Combo, List, MS Flex grid and Database control like ADO, DAO, RDO to perform insertion, deletion, updation, display, Search.
9. Design MDI form including Menu bar, Toolbar, Status bar.
10. Design the interface to perform following operation on the file like create, open, read, write, delete, search.
11. Design the Active X control for login form and transport it to browser.
12. Design the Active X control to perform database operation with get and let property.
13. Design the experiment using RTF box to create file, load, save search and edit the file.
14. Integrate all above practical to form mini project including login form and splash form.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
01	Bradley, Millstaugh	Programming in VB6	Tata McGraw Hill
02	Nel Jerka	The complete reference – VB6	Tata McGraw Hill
03	Evangelos Petront Sos	Mastering VB6	BPB
04	Content Development group	VB6 Programming	Tata McGraw Hill
05	--	VB6 Black book	--

Course Name : Computer Engineering Group

Course Code : CO/CM/IF/CD

Semester : Third

Subject Title : Professional Practices-III

Subject Code : 12067

Teaching and Examination Scheme:

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

Rationale:

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

While selecting candidates a normal practice adopted is to see general confidence, ability to communicate and attitude, in addition to basic technological concepts.

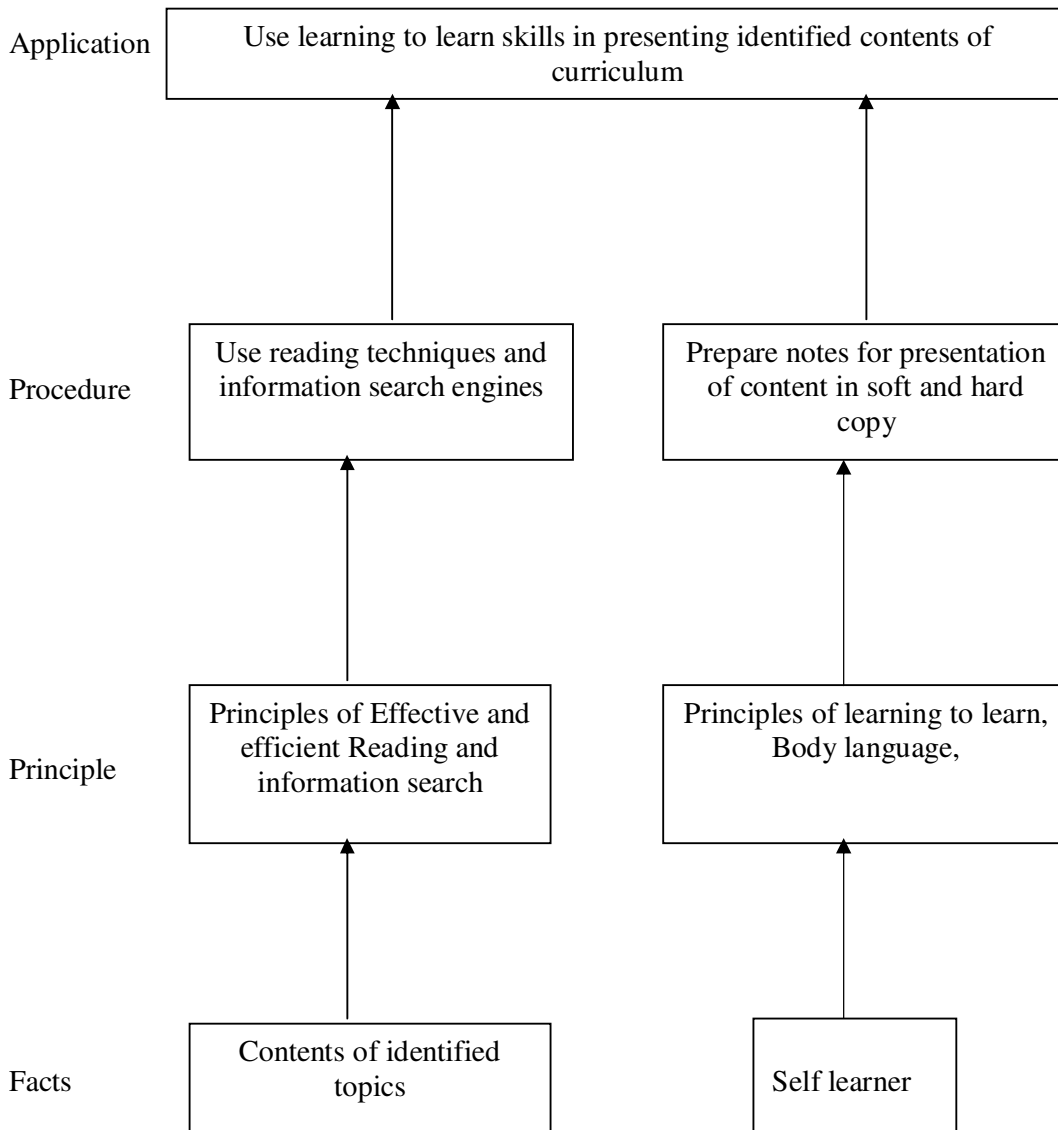
The purpose of introducing professional practices is to provide opportunity to students to undergo activities which will enable them to develop confidence. Industrial visits, expert lectures, seminars on technical topics and group discussion are planned in a semester so that there will be increased participation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

Objectives:

Student will be able to:

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

Learning Structure:



Activity	Name of the Activity	Hours
01	<p>Information Search: Collect information from internet/newspaper/periodicals/magazines etc. Students (Group of 4 to 5 students) have to search /collect information about the topic through. Students will have to submit a report of about 5 -10 pages.</p> <ol style="list-style-type: none"> i) Advanced Techniques in RDBMS ii) Manufacturers and cost of Computer, Printers iii) Any other suitable topic 	12
02	<p>List of Mini Projects</p> <ol style="list-style-type: none"> 1) Implementing DOS commands using command line arguments e.g. copy ,type, copy con. 2) Develop games using classes <ul style="list-style-type: none"> • Piano game: On pressing the key many types of tunes will be produced. 3) Hotel reservation. – Using Structure & arrays 4) Library management – Using Structure & arrays 5) Student data management – Using Structure & arrays 	20
03	<p>Lectures by Professional / Industrial Expert to be organized from of the following areas (any Two)</p> <ol style="list-style-type: none"> i) .Net Technology ii) spoken English iii) Personality Development iv) Current trends in IT v) How to improve positive thinking vi) Any other suitable topic 	12
04	<p>Seminar : Any one seminar on the topics suggested below: Students (Group of 4 to 5 students) has to search /collect information about the topic through literature survey, visits and discussions with experts/concerned persons: Student will have to submit a report of about 5 -10 pages and deliver a seminar for 10 minutes.</p> <ol style="list-style-type: none"> 1. Importance of object oriented Concept in software development 2. Comparison of different object oriented programming languages. 3. Computer Virus 4. Advanced computer peripherals <ul style="list-style-type: none"> • Specifications • Working principles • Use • Cost 5. Read a book “I Can Win” by Shiv Khera and present major points 6. Any other suitable topic 	18
05	<p>Market Survey: A group of four students is expected to collect five advertises from news papers showing job opportunities for C++. Visit any one industry and find knowledge required of C++ in industry.</p>	18
Total		80