TILAK MAHARASHTRA VIDYAPEETH, PUNE

TEACHING AND EXAMINATION SCHEME FOR DIPLOMA COURSE

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

DURATION OF COURSE : SIX SEMESTERS

SEMESTER : THIRD **DURATION : 16 WEEKS**

FULL TIME

SR. NO.	SUBJECT TITLE	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME											
			TH	PR	PAPER HRS	TH		INT	TOTAL		PR		OR		TW	
						Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
1	Mathematics-III	CO3001	04	--	03	80	32	20	100	40	--	--	--	--	--	--
2	Object Oriented Programming	CO3002	04	04	03	80	32	20	100	40	50**	20	--	--	25*	10
3	Digital Techniques	CO3003	04	02	03	80	32	20	100	40	--	--	50*	20	25*	10
4	Database Management Systems	CO3004	04	04	03	80	32	20	100	40	--	--	50**	20	25*	10
5	Visual basic	CO3005	--	04	--	--	--	--	--	--	50*	20	--	--	25*	10
6	Professional Practices-II	CO3006	--	02***	--	--	--	--	--	--	--	--	--	--	50*	20
7	Communication Skills	CO3011	03	02***	03	80	32	20	100	40					--	--
TOTAL			**19**	**18**	**--**	**400**	**--**	**100**	**500**	**--**	**100**	**--**	**100**	**--**	**150**	**--**

STUDENT CONTACT HOURS PER WEEK(FORMAL TEACHING) : **37 HRS**

Theory and Practical Periods are of 60 minutes each

* - INTERNAL ASSESSMENT , ** - EXTERNAL ASSESSMENT , *** - TUTORIAL

TOTAL MARKS – 850

ABBREVIATIONS : TH – THEORY , INT-INTERNAL , PR – PRACTICALS , OR –ORAL, TW – TERMWORK

All Practical, Orals and Term Work assessments are to be done as per the prevailing norms for implementation and assessment.

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : THIRD

SUBJECT TITLE : MATHEMATICS-III

SUBJECT CODE : CO3001

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme					
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**OR**	**TW**	**TOTAL**
04	--	03	80	20	---	---	100

Pre-requisites: The student must know the following concepts:

1. Factorization of polynomials.
2. Limits, Derivatives.
3. Formulae of factorization & expansion.
4. Factorization and de-factorization formulae of Trigonometry.
5. Formulae of Binomial Theorem.
6. Rules of algebraic expressions for the numbers with positive & negative signs.
7. Functions and their types.

Objectives: The student will be able to

1. Apply Mathematical term, concept, principles, and different methods.
2. Apply Mathematical methods to solve technical problems.
3. Use Mathematical techniques necessary for daily and practical problems.

Subject Title: MATHEMATICS-III **Subject Code: CO3001**

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**INTEGRATION** Definition of integration as anti-derivative. Integration of standard function. Rules of integration (Integrals of sum, difference, scalar multiplication). Methods of Integration: • Integration by substitution • Integration of rational functions • Integration by partial fraction • Integration by trigonometric transformation • Integration by parts Definite Integration: Definition of definite integral, Properties of definite integral with simple problems. Applications of definite integrals: • Area under the curve • Area between two curves • Mean and RMS values	**12**	**24**
02	**DIFFERENTIAL EQUATION** Definition of differential equation, order and degree of differential equation. Formation of differential equation for function containing single constant. Solution of differential equations of first order and first degree such as variable separable type, reducible to Variable separable, Homogeneous, Nonhomogeneous, Exact, Linear and Bernoulli equations. Applications of Differential equations. Laws of voltage and current related to LC, RC, and RLC Circuits.	**10**	**16**
03	**LAPLACE TRANSFORM** Definition of Laplace transform, Laplace transform of standard functions. Properties of Laplace transform such as Linearity, first shifting, second shifting, multiplication by t^n division by t. Inverse Laplace transforms. Properties- linearly first shifting, second shifting. Method of partial fractions. Convolution theorem. Laplace transform of derivatives. Solution of differential equation using Laplace transform (up to second order equation).	**08**	**16**
04	**FOURIER SERIES** Definition of Fourier series (Euler's formula). Series expansion of continuous functions in the intervals $(0,2l),(-l,l),(0,2\pi),(-\pi,\pi)$. Series expansions of even and odd functions, Half range series.	**08**	**08**

05	**NUMERICAL METHODS** Solution of algebraic equations: • Bisection method. • Regularfalsi method • Newton – Raphson method Solution of simultaneous equations containing 2 and 3 unknowns: • Gauss elimination method • Iterative methods – Gauss-Seidal and Jacobi's methods	**05** **05**	**08** **08**
	TOTAL	**48**	**80**

Recommended Books:-

Sr. No.	Title	Author	Publisher
01	Mathematics for polytechnic	S. P. Deshpande	Pune Vidyarthi Griha Prakashan, Pune
02	Calculus: single variable	Robert T. Smith	Tata McGraw Hill
03	Laplace Transform	Lipschutz	Schaum outline series.
04	Fourier series and boundary value problems	Brown	Tata McGraw Hill
05	Higher Engineering Mathematics	B. S. Grewal	Khanna Publication, New Dehli
06	Introductory Methods of Numerical analysis	S. S. Sastry	Prentice Hall Of India, New Dehli
07	Numerical methods for scientific & engineering computations	M. K. Jain & others	Wiley Eastern Publication.

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTRE : THIRD

SUBJECT TITLE : OBJECT ORIENTED PROGRAMMING

SUBJECT CODE : CO3002

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	04	03	80	20	50**	--	25*	175

Pre-requisites: The student must know the following concepts:

1. Knowledge of procedural language.
2. Knowledge of structure and union.

Objectives: The student will be able to

1. Write programs using objects & classes.
2. Develop programs to create and destroy the objects.
3. Use existing operators for different meanings.
4. Apply reusability concept.
5. Implement pointers for arrays, strings & object.
6. Describe polymorphism, concepts, its types, virtual function & write program for same.
7. Apply formatted & unformatted console I/O operation.

Subject Title: OBJECT ORIENTED PROGRAMMING Subject Code: CO3002

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**INTRODUCTION TO OBJECT ORIENTED PROGRAMMING** History & Features: It's need & Requirement, Procedure Oriented Programming versus Object Oriented Programming, and Basic concepts of Object Oriented Programming, Object oriented languages. Beginning with C++: Concepts & structure of C++ programming, Concepts of structure.	**06**	**10**
02	**OBJECTS & CLASSES** Specifying a class, Defining member functions, Arrays within a class, Creating objects, memory allocation for objects, static data & member function, Arrays of objects, objects as function argument.	**06**	**10**
03	**CONSTRUCTORS AND DESTRUCTORS** Concept of Constructor (default, parameterized, copy), Overloaded Constructors, Constructor with default argument, Destructors. Function overloading, Operator Overloading (Overloading Unary & Binary operators), Rules for Overloading Operators, Function Overriding.	**06**	**10**
04	**INHERITANCE** 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.	**08**	**16**
05	**POINTERS IN C++** 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).	**08**	**08**
06	**POLYMORPHISM** Concepts of polymorphism, types of polymorphism, Overloading & Overriding, Virtual function, Static & dynamic binding, Pure Virtual Function.	**06**	**08**
07	**I/O SYSTEM BASICS & FILE PROCESSING** Stream classes, using formatted & unformatted functions, using manipulator to format I/O, Basics of file system, opening and closing a file, reading and writing character from a file (get, put, get line, write), Command line arguments.	**06**	**10**

08	**EXCEPTION HANDLING** Try and catch blocks.	**02**	**08**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual skills:

1. Use of programming language constructs in program implementation.
2. Apply different logics to solve given problem.
3. Write program using different implementations for the same problem
4. Identify different types of errors as syntax semantic, fatal, linker & logical.
5. Debugging of programs.

Motor skills:

Handling of Computer System in proper way.

List of Practical:

1. Programs to input & output data (Simple programs).
2. Programs to create object of class.
3. Programs to create arrays of objects.
4. Program to access static member variables.
5. Programs using object as function arguments using friend function.
6. Programs to define Class using constructor & destructor.
7. Program using constructor with default argument.
8. Program to overload unary & binary operator.
9. Single inheritance & multilevel using protected member.
10. Multiple inheritance & virtual base class.
11. Program for pointers to arrays of integer.
12. Program for pointers to strings.
13. Program for pointers to objects.
14. Program for this pointer.
15. Program for (virtual functions) runtime polymorphism.
16. Programs for overload function.
17. Format output using manipulators & own manipulator.
18. Program for file processing.

Recommended Books:

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

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : THIRD

SUBJECT TITLE : DIGITAL TECHNIQUES

SUBJECT CODE : CO3003

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	02	03	80	20	--	50*	25*	175

Pre-requisites: The student must know the following concept:

Basic knowledge of Electronics.

Objectives: The student will be able to

1. Study digital IC.
2. Study Logic Gates.
3. Implement combinational Logic Design.
4. Study Flip flops, types of memories & A-D/D-A convertors.

Subject Title: DIGITAL TECHNIQUES **Subject Code: CO3003**

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**INTRODUCTION TO DIGITAL TECHNIQUES** Use of digital circuits and digital signals. Advantages and disadvantages of digital circuits. Generation of digital signal, Introduction to digital ICs, Characteristics of digital ICs. Logic families comparison of TTL, CMOS and ECL logic families (No circuits) (To be covered in Practical). Number System - Introduction to Binary, Octal, Decimal, Hexadecimal number systems, Conversion of number systems, 1's complement and 2's complement. Binary arithmetic (addition, subtraction). BCD code, BCD arithmetic (addition, subtraction)	**08**	**16**
02	**LOGIC GATES AND BOOLEAN ALGEBRA** Logical symbol, logical expression and truth table of AND, OR, NOT, NAND, NOR, EX-OR and EX-NOR gates. Universal gates - NAND and NOR gates. Logical circuits of basic gates using universal gates. Gates using more than two inputs. TTL and CMOS logic gate ICs and their pin configurations (to be covered in Practical). Basic laws of Boolean algebra, Duality theorem. De Morgan's theorems.	**06**	**16**
03	**COMBINATIONAL LOGIC DESIGN / CIRCUITS** Simplification of Boolean expression using Boolean algebra. Construction of logical circuits from Boolean expressions. Boolean expressions using Sum of products and product of sums forms. K-map representation of logical functions. Minimization of logical expressions using K-map (2, 3, 4 variables). Standardization of SOP & POS equations. Concept of Adders / Subtractors: 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. Block diagrams, Truth tables, Logical expression and logic diagram of Multiplexers (4:1 and 8:1), Multiplexer IC. Block diagram and Truth table of Demultiplexer (1:4; 1:8; 1:16), Demultiplexer IC. Block diagram and Truth table of Encoders, Priority Encoders ICs and Decoder. 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), Digital comparator IC (7485). Block diagram and pin functions of ALU 74181.	**12**	**16**

04	**FLIP FLOPS AND SEQUENTIAL LOGIC DESIGN** One-bit memory cell: clock signal symbol and Logic diagram using NAND gates. Working and truth table of R S flip-flop. Symbol and Logic diagram using NAND gates. Working of truth table and timing diagram of Clocked RS flip flop. Triggering: edge triggering and level triggering. Working truth table and timing diagram of J-K flip flop. Block diagram and truth table of Master slave J-K flip flop. Symbol, working and truth table of D- flip flop and T-flip flop. Applications of flip flops Modulus, Working truth table, timing diagram of a counter. Asynchronous counter (3 bit, 4 bit). Design of mod N-counter: working, truth table and timing diagram. 3-bit Synchronous counter: working, truth table and timing diagram. Block diagram, Working, Truth Table and waveforms of Shift register: SISO, SIPO, PISO, PIPO (4-bit) and Universal Shift register (4-bit). Applications of Counters and Registers.	**12**	**10**
05	**MEMORIES** Classification of memories: RAM, ROM, PROM, EPROM, EEPROM. Circuit diagram using CMOS transistors and working of Static and dynamic RAM.	**05**	**12**
06	**A-D AND D-A CONVERTERS** Circuit diagram and working of R-2R Ladder DAC and Weighted resistor DAC. DAC specifications Block diagram and working of Ramp ADC, Dual slope ADC and successive approximation ADC. ADC specification, advantages and disadvantages of various methods.	**05**	**10**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual Skills:

1. Identification of digital IC's of logic gates, Flip flops, multiplexer & demultiplexer.
2. Ability to test different digital IC's.
3. Ability to design the combinational & sequential logic circuit.

Motor Skills:

1. Ability to build the circuit.
2. To observe the result & handling the equipments.

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. D to A Converter.
13. A MINI PROJECT (Design, Assemble, Test and Troubleshoot) integrating minimum two digital ICs.

Recommended Books:

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

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : THIRD

SUBJECT TITLE : DATABASE MANAGEMENT SYSTEMS

SUBJECT CODE : CO3004

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	04	03	80	20	---	50**	25*	175

Pre –requisites: The student must know the following concept:

Basic knowledge of computer fundamental and data.

Objectives: The student will be able to

1. Understand database architecture.
2. Create database.
3. Manage user, its roles and objectives.

Subject Title: DATABASE MANAGEMENT SYSTEMS Subject Code: CO3004

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**DATABASE SYSTEM CONCEPT & DATA MODELING** Basic concepts, Advantages of a DBMS over file processing system, Data Abstraction, Database Languages, Data Independence. Components of a DBMS and overall structure of a DBMS. Data Models: Network Model, Hierarchical Model, E-R model. Client Server Architecture.	**08**	**16**
02	**RELATIONAL DATA MODEL, SECURITY AND INTEGRITY SPECIFICATION** Relational Model: Basic concepts, attributes and domains, Keys concept: Candidate and primary key. Integrity constraints: Domain, Entity Integrity constraints and On delete cascade. Security and Authorization. Query Languages: Relational Algebra, Relational Calculus. Views.	**06**	**16**
03	**SQL AND PL-SQL** Introduction to SQL queries, Creating, Inserting, Updating and deleting tables and using constraints, Set operations & operators, Aggregate functions, string functions and date, time functions, Null values, Nested sub queries, Complex queries, Join concepts. PL/SQL Introduction, PL/SQL block structure ,variables, SQL statements in PL/SQL, PL/SQL control Structures , Cursors, Triggers, Functions, Packages, procedures. Error handling in PL/ SQL.	**12**	**16**
04	**RELATIONAL DATABASE DESIGN, STORAGE AND FILE SYSTEMS** Purpose of Normalization, Data redundancy and updating anomalies, Functional Dependencies and Decomposition, Process of Normalization using 1NF, 2NF, 3NF, multi - valued dependencies and BCNF. E-R Model details. File Organization, Organization of records in files, Storage of Object Oriented databases, Basic concept of Indexing and Hashing.	**08**	**16**

05	**QUERY PROCESSSING AND TRANSACTION PROCCESSING** General strategies for query processing, Equivalence Expressions, Selection & join operation. Concept of transaction, States of transactions, Concurrent executions, Serializability, Recoverability, Transaction definition in SQL. Lock based protocols : share & exclusive models, Protocols: 2 phase locking , Time-Stamp based, Validation based. Multiple granularity, Deadlock handling, Deadlock prevention, Detection & recovery.	**14**	**16**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual Skills

1. Use of programming language constructs in program.
2. Apply different logics to solve given problem.
3. Identify different types of errors as syntax semantic, fatal, linker & logical.

Motor Skills:

1. Proper handling of Computer System.
2. Development of programs using database connectivity.

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.

Recommended Books:

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

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : THIRD

SUBJECT TITLE : VISUAL BASIC

SUBJECT CODE : CO3005

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
---	04	---	---	---	50*	---	25*	75

Pre-requisites: The Student must know the following concepts:

1. Knowledge of Procedural Language.
2. Knowledge of structure and union.

Objectives: The Student will be able to

1. Describe the concepts of constants, variables, data types and operators.
2. Develop programs using input and output operations.
3. Write programs using different looping and branching statements.
4. Write programs to handle strings and pointers.
5. Write programs to handle array and structure, functions.
6. Provide base to learn advance languages like C++, Java etc.

Subject Title: VISUAL BASIC **Subject Code: CO3005**

Contents: Theory

Unit	Name of the Topic	Hours
01	**INTRODUCTION TO VISUAL BASIC ENVIRONMENT** Concept of VB program: Class, object, property, methods, events. Environment of VB. Concept of project forms. Managing with menus. Drag and Drop operation. Validating and processing user inputs.	02
02	**INTRODUCTION TO VISUAL BASIC** Data types, Variants, Variables, Constants. Arrays - REDIM statement, Array related functions. 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.	02
03	**CONTROLS AND EVENTS** 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.	02
04	**MODULE, CLASS MODULE, MDI, MENU EDITOR AND GRAPHICS** Concept of module, class module, MDI, DLL's and how to use them. Creating own menu using menu editor, pop-up menu. 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.	03
05	**DATABASE, REPORT GENERATOR** Concept of database, record, record set, connection with 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, and RDO. Object connection, record set, parameter, cursor types. Lock types. Creating report using Data Report, creating report using Crystal reports.	03

06	**INTRODUCTION TO ACTIVE X CONTROLS** The user control object- To 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 design time 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.	**02**
07	**FILE HANDLING IN VB** File commands, File handling functions, Sequential files, Reading information from a file, Adding information 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 file handling.	**02**
	TOTAL	**16**

Practical:

Skills to be developed:

Intellectual skills:

1. Use of programming language constructs in program implementation.
2. Apply different logics to solve given problem.
3. Write program using different implementations for the same problem.
4. Identify different types of errors as syntax semantic, fatal, linker & logical.
5. Debugging of programs.

Motor skills:

1. Proper handling of Computer System.
2. Basic understanding of GUI.

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 form 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 form to use Date, Time, String, Mathematical 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, move the 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 the file. Save the file.
7. Design stop watch with facility of start, stop, reset using timer control, option, label, text box.
8. Practical including Data bound controls like DBgrid, DBcombo, Textbox, Combo box, List, MS Flex grid and Database control like ADO, DAO, RDO to perform insertion, deletion, update, display, Search.
9. Design MDI form including Menu bar, Toolbar, Status bar.
10. Design the interface to perform following operations 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 set 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 & splash form.

Recommended Books:

Sr. No.	Title	Author	Publisher
01	The Complete reference – VB6	Nel Jerka	Tata McGraw Hill
02	Mastering VB6	Evangelos Petroutsos	BPB
03	VB6 Black book	---------	----------

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : THIRD

SUBJECT TITLE : PROFESSIONAL PRACTICES-II

SUBJECT CODE : CO3006

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**TUT**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
---	02***	---	---	---	---	---	50*	50

Pre-requisites: The Student must know the following concept:

1. Basic English.
2. Good communication skill.

Objectives: The student will be able to

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

Subject Title: Professional Practices-II **Subject Code: CO3006**

Contents: Theory

Sr. No.	Activity	Hours
01	**INFORMATION SEARCH:** Students (Group of 4 to 5 students) have to search /collect information on any one of the topics. They will have to submit a report of about 5 -10 pages. 1. Advanced Techniques in RDBMS. 2. Manufacturers and cost of Computer, Printers. 3. Any other suitable topic. (Collect Information From Internet/Newspaper/Periodicals/Magazines Etc.)	**8**
02	**LIST OF MINI PROJECTS** Students are expected to do mini project on any one of the following mentioned topics: 1. Implementing DOS commands using command line arguments e.g. copy, type, copy con. 2. Develop games using classes. 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. 6. Any other database system.	**8**
03	**LECTURES BY PROFESSIONAL / INDUSTRIAL EXPERT TO BE ORGANIZED FROM THE FOLLOWING AREAS (ANY TWO)** 1. .Net Technology. 2. Spoken English. 3. Personality Development. 4. Current trends in IT. 5. How to improve positive thinking. 6. Any other suitable topic.	**8**

04	**SEMINAR** Students (Group of 4 to 5 students) have to search /collect information about the topic through literature, survey, visits and discussion with experts/concerned persons. They will have to submit a report of about 5 to 10 pages and deliver a seminar for 10 minutes. Any one of the following topics suggested below: 1. Importance of Object Oriented Concept in software development. 2. Comparison of different object oriented programming languages. 3. Computer Virus. 4. Advanced computer peripherals - Specifications, - Working principles, - Use, - Cost. 5. Read a book "You Can Win" by Shiv Khera and present major points. 6. Any other suitable topic.	**6**
05	**MARKET SURVEY** A group of four students is expected to collect five advertisements from news papers showing job opportunities for C++. Visit any one software industry and find the requirement of C++ skills in industry.	**6**
	TOTAL	**36**

COURSE NAME : ALL BRANCHES OF DIPLOMA IN ENGINEERING

COURSE CODE : ET/ME/CO

SEMESTER : THIRD

SUBJECT TITLE : COMMUNICATION SKILLS

SUBJECT CODE : CO3011

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme					
TH	**TUT**	**PAPER HRS**	**TH**	**INT**	**OR**	**TW**	**TOTAL**
03	02***	03	80	20	--	--	100

Pre- requisites: - The student must know the following concepts:

Orientation of English I and II.

Objectives: - The student will be able to

1. Understand and use the basic concepts of communication and principles of effective communication in an organized setup and social context.
2. Give a positive feedback in various situations, to use appropriate body language to avoid barriers for effective communication.
3. Write a various types of letters, reports and office drafting (formal) with appropriate format.
4. Know the Role of Exercise and Diet.

Subject Title: COMMUNICATION SKILLS **Subject Code: CO3011**

Contents: Theory

Unit	Name of the Topic	Hours	Marks
1	**ASPECTS TO COMMUNICATION** Definition, communication cycle/ process, The elements of communication: sender- message – channel- Receiver – Feedback & Context. Definition of communication process. Stages in the process: defining the context, knowing the audience, designing the message, encoding, selecting proper channels, transmitting, and receiving, decoding and giving feedback.	**04**	**18**
2	**TYPES OF COMMUNICATION** Formal-Informal, Verbal-Nonverbal, Vertical-Horizontal-diagonal	**04**	**10**
3	**COMPONENTS OF EFFECTIVE COMMUNICATION** Definition of effective communication, Communication barriers & how to overcome them. Developing effective messages: Thinking about purpose, knowing the audience, structuring the message, selecting proper channels, minimizing barriers & facilitating feedback.	**04**	**20**
4	**NON VERBAL- GRAPHIC COMMUNICATION** Non- verbal codes: A- Kinesecs , B- Proxemics , C – Haptics D-Vocalics , E- Physical appearance. F -Chronemics , G –Artifacts Aspects of body language Interpreting visuals & illustrating with visuals like tables, charts & graphs. Role of Exercise & Diet: Physical Exercise, Yoga & Mental Exercise, Role of Diet, Balanced Diet, Precautions…	**08**	**16**
5	**FORMAL WRITTEN SKILLS** Office Drafting: Circular, Notice, and Memo. Job Application with resume. Business Etiquettes. Business correspondence: Enquiry, Order letter, Complaint letter, and Adjustment letter. Report writing: Accident report, fall in production, Progress / Investigative. Defining & describing objects & giving Instructions. Forms and important functions of the following: noun,adjective,verb,adverb,article,pronoun,preposition,conjuction and interjection	**12**	**16**
	TOTAL	**32**	**80**

Recommended Books:

Sr. No.	Title	Author	Publisher
01	Developing Communication Skills	Krushna Mohan, Meera Banerji	Macmillan
02	Communication Skills	Joyeeta Bhattacharya	Reliable Series
03	Every ones guide to effective writing	Jayakaran	Apple publishing