DETAIL SYLLABI OF THE DIFFERENT COURSES OFFER IN INFORMATION TECHNOLOGY, PART –II, SECOND SEMESTER

PROPOSED CURRICULAR STRUCTURE FOR PART – 2 (2ND YEAR) OF THE FULL- TIME DIPLOMA COURSE IN INFORMATION TECHNOLOGY											
WEST BENGAL STATE COUNCIL OF ECHNICAL EDUCATION											
TEACHING AND EXAMINATION SCHEME FOR DIPLOMA IN ENGINEERING COURSES											
SEMESTER:FOURTH										BRANCH:IT	
SL.No.	SUBJECT	CREDITS	PERIODS			Evaluation Scheme					
			L	TU	PR	INTERNAL SCHEME			ESE	PR	TOTAL MARKS
						TA	CT	Total			
1	Microprocessor & It's Programming	3+1	3		2	10	20	30	70	50	150
2	Computer Network	3+1	3		2	10	20	30	70	50	150
3	Relational Data Base Management System	3+2	3		3	10	20	30	70	100	200
4	*Object Oriented Programming using C++	3+3	3		4	10	20	30	70	100	200
5	Management Information System	3	3			10	20	30	70		100
6	Development of Life Skills-II	1+1	1		2					50	50
7	Professional Practice-II (Web Technology)	1			2					50	50
Total		25	16		15	50	100	150	350	400	900
STUDENT CONTACT HOURS PER WEEK: 31 HRS.											
Theory and Practical Periods of 60 minutes each.											
L-Lecture, TU-Tutorials, PR-Practical, TA-Teachers Assessment, CT-Class Test, ESE-End Semester Examination.											
* Visual Basic will be included within the Practical Class of Object Oriented Programming along with C++											

Name of the Course: Microprocessor and It's Programming	
Course Code: MP	**Semester: Fourth**
Duration: Six Months	**Maximum Marks: 150**
Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 02 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3+1	**Practical / Sessional : 25 (Internal) +25 (External)**

Aim:

Sl. No.	
1.	To study architecture and memory management of 8 bit and 16 bit microprocessor. (8085 & 8086).
2.	To study assembly language programming.
3.	To implement different system interfacing.

Objective:

Sl. No.	
1.	The working of microprocessor.
2.	Write assembly language programming.
3.	How microcontrollers work in embedded system.
4.	Interfacing of processor and peripherals.

Pre-Requisite:

Sl. No.	
1.	Digital electronics and memory structure.

Unit No.	Contents (Theory)	Hrs./Unit	Marks
Unit: 1	Introduction : 1.1 Evolution and definition of Microprocessor. 1.2 Types of Microprocessor. 1.3 Application and specific feature of Microprocessor.	02	
Unit: 2	8- BIT Microprocessor- 8085 : 2.1 Block diagram of 8085 Microprocessor and explanation of each functional block. 2.2 Registers, ALU, CU, and Bus structure of 8085 Microprocessor. 2.3 Pin configuration of 8085 Microprocessor and the function of each pins. 2.4 Multiplexing and Demultiplexing of address/data bus. 2.5 Addressing modes of 8085 Microprocessor. 2.6 Machine cycles – Instruction cycle, Fetch cycle, I/O or Memory read/write cycle. 2.7 Timing diagram of different instructions. 2.8 Memory and I/O interfacing and mapping.	12	
Unit: 3	Instructions and programming of 8085 Microprocessor : 3.1 Instruction set of 8085 Microprocessor. 3.2 Data transfer Instruction, Arithmetic, Logical, Jumping and machine control/stack instructions.	10	

	3.3 Programming using instructions. **3.4 Delay subroutine programs.**		
Unit: 4	**Interrupts of 8085 Microprocessor :** **4.1 S/W and H/W interrupts of 8085 Microprocessor.** **4.2 Multiple interrupts.** **4.3 Masking and non-masking of interrupts and pending interrupts.**	**03**	
Unit: 5	**16 bit 8086 Microprocessor – 8086 :** **5.1 Block diagram of 8086 Microprocessor and explanation of each functional block.** **5.2 Registers, ALU, CU, and Bus structure of 8086 Microprocessor.** **5.3 Pipelining structure of 8086 Microprocessor.** **5.4 Address translation and memory segmentation and banking of 8086 Microprocessor.** **5.5 pin diagram- Min and Max mode, addressing modes 8086 Microprocessor.** **5.6 Interrupts 8086 Microprocessor.** **5.7 Bus architecture and interfacing with 8288 bus controller.** **5.8 Instructions and overview of programming 8086 Microprocessor.**	**10**	
Unit:6	**Interfacing of Microprocessor with peripherals :** **6.1 Block diagram, pin configuration and function of PPI-8255.** **6.2 Block diagram, pin configuration and function of the DMA Controller -8257.** **6.3 Block diagram, pin configuration and function of the USART – 8251.** **6.4 Block diagram, pin configuration and function of the Interrupt controller – 8259.** **6.5 introduction, basic features of 8051 Microcontrollers.**	**08**	**12**
Total		**45**	**70**

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**

List of Practical:

1) Basics of Assembler, linker, debugger, editor

2) Write an Assembly Language Program to

- **Add / Sub two 8 & 16 bit numbers.**
- **Find sum of series of numbers.**
- **Multiply two 16 bit unsigned/ signed numbers.**

- **2's complement of 8 & 16 bit data.**
- **Find the no. of 0's and 1's in an 8 bit no.**
- **Find smallest/ largest number from array of n numbers.**
- **Arrange numbers in array in ascending/ descending order.**
- **Perform block transfer data.**
- **Sorting operation.**
- **Display string in reverse order, string length, Concatenation of two strings.**
- **Convert Hex to Decimal, Decimal to Hex.**
- **Stack operation.**

Practical can also be done by using DEBUG command. Any program other than those given in the list will be appreciated.

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Krishna Kant	Microprocessors and Microcontrollers		PHI
Ray &Bhurchandi	Advance Microprocessor and Peripherals		TMH
Chhabra	The Intel 8086/8088 microprocessor Architecture, Programming Design & Interfacing		DhanpatRai
Gaonkar			
B ram			

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Chhabra	The Intel 8086/8088 microprocessor Architecture, Programming Design & Interfacing		Dhanpat Rai

Suggested list of Assignments / Tutorial:

Sl. No.	
1.	As per Lab experiment.
2.	

Note:

Sl No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Name of the Course: Computer Networks	
Course Code: CN	Semester: Fourth
Duration: Six Months	Maximum Marks: 150

Teaching Scheme:	**Examination Scheme:**
Theory: 03 hrs./week	**Class Test : 20 Marks**
Tutorial: 00 hrs./week	**Teachers Assessment: 10 Marks**
Practical: 02 hrs./week	**End Semester Exam. : 70 Marks**
Credit : 3+1	**Practical / Sessional : 25 (Internal) +25 (External)**

Aim:	
Sl. No.	
1.	**To identify network components.**
2.	**To design and maintain network.**

Objective:	
Sl. No.	
1.	**Know about network models.**
2.	**Know about standards and protocols.**
3.	**Know about different transmission media characteristics.**
4.	**Know about how to setup and administrate a network.**

Pre-Requisite:	
Sl. No.	
1.	**Knowledge of C, data structure.**

Unit No.	**Contents (Theory)**	**Hrs./Unit**	**Marks**
Unit: 1	**Introduction :** **1.1 Definition – Network, internetwork, host, client, client-server and peer to peer network, distributed system** **1.2 Classification- LAN, MAN, WAN, PAN. Network topology- bus, ring, star, mesh, tree, and hybrid.** **1.3 Network components and devices-hub, switch, router, bridge, repeater, gateway.**	**05**	
Unit: 2	**TRANSMISSION MEDIA :** **2.1 guided media- twisted pair- UTP & STP, co-axial cable,opticalfiber-structure,working principle,propagation mode** **Comparison between different media.** **2.2 unguided media-wireless communication-radio wave, microwave, satellite communication-communication bands.**	**06**	
Unit: 3	**Network models and protocols :** **3.1 layered network architecture, OSI model-function of the layers, TCP/IP – function of the layers, comparison of OSI and TCP/IP.** **3.2 multiplexing- TDM,FDM,WDM** **3.3 Switching methods-circuit switch, packet switch, virtual circuit switch, message switch, comparative study.** **3.4 Flow control protocols-noisy and noiseless channels-stop and wait, sliding window-go-back N, selective repeat.** **3.5 Error control- idea of error detection and correction-parity, block codes, hamming codes, cyclic codes.**	**14**	

	3.6 MAC sublayer protocols- ALOHA-pure and slotted, CSMA, CSMA/CD, collision free-token bus, token ring, FDDI. **3.7 Standard Ethernet, wireless LAN.**		
Unit: 4	**Network layer and addressing :** **4.1 routing-static and dynamic, inter domain and intra domain, path vector, link state, BGP, OSPF.** **4.2 IP addressing scheme, class less and classful addressing, subnetting, supernetting, masking, IP protocol and packet format(V-4)** **4.3 Concept logical and physical addressing-ARP, RARP.** **4.4 Other network layer protocols –ICMP, IGMP, congestion control.**	**12**	
Unit: 5	**Upper layer protocols and security :** **5.1 Transport layer function-SAP or port addressing, connection oriented and connection less protocols-TCP, UDP, SCTP.** **5.2 Network security – encryption, decryption, digital signature, and authentication.** **5.3 Application layer protocols- HTTP, URL, TELNET, DNS, DHCP, FTP, SMTP.**	**08**	
Total		**45**	

List of Practical:

<u>LIST OF SAMPLE PROBLEMS FOR Computer Networks Lab(for example)</u>

1 Creating Windows 2003 Server Boot Disk.

2 Installing Windows 2003 Server &UNIX / Linux

3 Installing Active Directory

4 Creating AD Objects

5 Setting up Local Print Device & Installing and Configuring a Network – Capable Print Device

6. Create new Users & give the Permission

7 Use step by step procedure for i.e. File sharing & Printer sharing.

8 Compare different Network Topologies.

9 Compare Network directing devices, i.e. Hub, Switch, Router.

10 To study crimping: RJ-45, RJ-11, Cross-over Cable and Create a Network cable using RJ45 connectors.

11. To study the different expansion slots of a motherboard set the NIC to expansion slot and to install the driver.

12 To locate MAC address of computer.

13. To make a peer-to-peer Network System.

14. Implementing a TCP/IP Network configuring

15. To run the following application in a network system and get knowledge:

(i) FTP, (ii) Telnet, (iii) Mail, and, (iv) Talk.

16. To use the ping utility in order to understand its use in a troubleshooting environment.

17. To be familiar with loop back testing.

18. To be familiar with the idea of socket and to write a socket program.

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher

Prakash C. Gupta	**Data Communications and computer Networks**	**2nd**	**PHI**
DR. Sanjay Sharma	**A Course in Computer network**		**KATARIA**
N. Olifer, V. Olifer	**Computer Networks Principles, Technologies and protocols for network Design**		**WILEY**
Uyless Black	**Computer Networks Protocols, Standards, and interface**		**PHI**

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
A.S.Tanenbaum	**Computer networks**		**PHI**
B.A.Farouzan	**Data communication and networking**		**TATA McGraw hill**

Suggested list of Assignments / Tutorial:

Sl. No.	
1.	**Basic TCP/IP utilities and commands. (eg: ping, ifconfig, tracert, arp, tcpdump, whois, host, netsat, nslookup, ftp, telnet etc...)**
2.	**Configure a router (Ethernet & Serial Interface) using router commands including access lists on any network simulator (eg. packet Tracer)**
3.	**Network design and implementation for small network using actual physical components with IP address scheme**

Note:	
Sl No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Name of the Course: Relational Database Management System	
Course Code: RDBMS	**Semester: Fourth**
Duration: Six Months	**Maximum Marks: 200**

Teaching Scheme:	Examination Scheme:
Theory: 03 hrs./week	Class Test : 20 Marks
Tutorial: 00 hrs./week	Teachers Assessment: 10 Marks
Practical: 03 hrs./week	End Semester Exam. : 70 Marks
Credit : 3+2	Practical / Sessional : 50 (Internal) +50 (External)

Aim:	
Sl. No.	
1.	To study and understand the basic concepts of RDBMS.
2.	To learn SQL and PLSQL in detail.
3.	To learn how to work with any database.

Objective: Student will be able to	
Sl. No.	
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.

Pre-Requisite:
Basic knowledge of computer is helpful.

Unit No.	Contents (Theory)	Hrs./ Unit	Marks
Unit:1	Database System Concept & Data Modeling 1.1 Basic concepts, Advantages of a DBMS over file processing system, Data Abstraction, Database Languages, Data Independence. 1.2 Components of a DBMS and overall structure of a DBMS. 1.3 Data Models: • Network Model • Hierarchical Model • E-R Model 1.4 Client Server Architecture:	10	
Unit: 2	Relational Data Model and Security and Integrity Specification 2.1 Relational Model: Basic concepts, attributes and domains, Keys concept : Candidate and primary key, Integrity constraints: Domain, Entity Integrity constraints and On delete cascade. 2.2 Security and Authorization. 2.3 Query Languages: • Relational Algebra , Relational Calculus • Views.	8	
Unit: 3	SQL and PL-SQL 3.1 Introduction to SQL queries, Creating ,Inserting ,Updating and deleting tables and using constraints, Set operations & operators, Aggregate functions, string functions and date, time	14	

	functions, Null values, Nested sub queries, Complex queries, Join concepts. **3.2 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**		
Unit: 4	**Relational Database Design, Storage and File systems.** **4.1 Purpose of Normalization, Data redundancy and updating anomalies, Functional Dependencies and Decomposition,** **4.2 Process of Normalization using 1NF, 2NF, 3NF, multivalued dependencies and BCNF.** **4.3 E-R Model details.** **4.4 File Organization, Organization of records in files, Storage of Object Oriented databases,** **Basic concept of Indexing and Hashing.**	**8**	
Unit: 5	**Query Processing and Transaction Processing** **5.1 General strategies for query processing, Equivalence expressions, Selection & join operation.** **5.2 Concept of transaction, States of transactions, Concurrent Executions, Serializability Recoverability, Transaction Definition in SQL.**	**5**	
Total		**45**	

Contents (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.**			
Text Books:			
Name of Authors	**Title of the Book**	**Edition**	**Name of the Publisher**
Korth	**Database Sytem Concept**		**TMH**
C J Date	**An Introduction to Database System**		**Pearson**
Navathe	**Fundamentals of Database System**		**Pearson**
2006 ISRD Group	**Introduction to Database Management System**		**TMH**
Desai	**An Introduction to Database System**		**West publishing Company**
Allen	**Introduction to Relational Databases and SQL programming.**		**Wiley**
Raghu Ramakrishnan, Joh annes Gehrke	**Database Management Systems**		**TMH**
Reference Books:			
Name of Authors	**Title of the Book**	**Edition**	**Name of the Publisher**
Deshpande	**SQL and PL/SQL for Oracle 11g**		**Dreamtech**

Note:	
Sl No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus.** **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Name of the Courses :Object Oriented Programming and Methodology			
Course Code: OOPM		**Semester: Fourth**	
Duration: Six Months		**Maximum Marks: 200**	
Teaching Scheme:		**Examination Scheme:**	
Theory: 03 hrs./week		**Class Test : 20 Marks**	
Tutorial: 00 hrs./week		**Teachers Assessment: 10 Marks**	
Practical: 03 hrs./week		**End Semester Exam. : 70 Marks**	
Credit : 3+3		**Practical / Sessional : 50 (Internal) +50 (External)**	
Aim of the Course:			
S. No	**Aims about**		
1.	**The aim of this course is to teach the principles underlying Object Oriented Programming through C++**		
2.	**To increase reusability in programming.**		
3.	**To reduce the costs of developing and adapting software to meet new requirement.**		
Objective of the course:			
S. No	**The students will be able to -**		
1.	**Write programs using objects & classes.**		
2.	**Develop programs to create and destroy the objects using constructors and Destructors.**		
3.	**Use existing operators for different meanings in Operator Overloading concept.**		
4.	**Using reusability concept through Inheritance 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 & perform file related activities using C++ streams.**		
Pre-Requisites -			
S. No			
1.	**Interaction with DOS / Windows Operating System.**		
2.	**Ability to develop logic / flow of simple problem.**		
3.	**Basic Concepts of 'C'.**		

Unit No.	Contents	Hrs/Unit	Marks
1	**Concept of Object Oriented Programming.** 1.1 **History & features: its need & requirement, procedure oriented programming versus object oriented programming, basic concepts object oriented programming, object oriented languages, object based languages.** 1.2 **Beginning with C++: Concepts & structure of C++ programming, insertion and extraction operators, objects of input and output stream class. Uses of iostream.h header file.**	**4**	
2	**Objects & Classes:** 2.1 **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.** 2.2 **Class specifiers and their uses, distinction between structure**	**5**	

	(struct) of C and Class.		
3	**Constructors and Destructors.** 3.1. **Concept of Constructor (Default, Parameterized, Copy), Zero argument and explicit Overloaded Constructors, Destructors and properties, uses of destructors.**	**4**	
4	**Function and Operator Overloading** **4.1 Function overloading, Inline member functions, constant member functions.** **4.2 Operator overloading (overloading unary & binary operators), rules for overloading operators. Type Conversion: Conversions from basic to class type, class to basic type, class to class type. Operators that can not be overloaded.**	**5**	
5	**Inheritance** 5.1. **Concepts of inheritance, Derived classes, Member declaration (Protected), Types of inheritance (Single, multilevel, multiple, hierarchical, Hybrid inheritance), Ambiguity in multiple inheritance.** **5.2 Virtual base classes, Abstract classes, Constructors in derived classes.** **5.3 Class within class, containership, IS A and HAS A relationship and their differences, Namespaces.** **5.4 Friend function, Friend Class, advantages and disadvantages of friends.**	**5**	
6	**Pointers in C++** **6.1 Concepts of pointer (Pointer declaration, pointer operator, address operator, pointer expressions, and pointer arithmetic), Pointers & functions (Call by value, call by reference.** **6.2 Pointers & objects (Pointers to objects, this pointer, and pointer to derived classes).** **6.3Memory management through pointer: new, delete, operators and free (), malloc (), calloc () functions, Member dereferencing Operators.**	**6**	
7	**Polymorphism:-** **7.1. Concepts of polymorphism, types of polymorphism, Overloading & overriding, Overloading Virtual function, Static & dynamic binding.** **7.2 Pure Virtual functions, Virtual Constructors and Destructors.**	**5**	
8	**Exception Handling:-** **Concepts and uses of exception handler, the try /throw/ catch construct, uses and implementation of multiple exceptions, limitation of exception handling.**	**4**	
9	**Templates:-** **Concepts of Templates, Function and Class Templates, Advantages of templates.**	**2**	

10	**Basic function of I/O system basics & File Processing 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, get line, write), Command line arguments.**	**5**	
Total		**45**	

Practical/Sessional Works:-

Skills to be developed:

Intellectual skills:

- **Use of programming language constructs in program implementation.**
- **Apply different logics to solve given problem.**
- **Write program using different implementations for the same problem.**
- **Identify different types of errors as syntax, semantic, fatal, linker & logical.**
- **Debugging of programs.**
- **Understanding different steps and stages to develop complex program.**

Motor Skills:

- **Proper handling of Computer System.**

Content (Practical)

List of Practical using C++

Unit No.	
01	i) **Programs to input & output data (Simple programs).** ii) **Write a program which read a value and print to decimal, octal and hexadecimal.** iii) **Displaying entered number with different manipulators like setbase, setw, setprecision etc.** iv) **To create a simple class with three different member data (int, float and char). Write member function to insert data into those members and display them accordingly.** v) **To find greatest / smallest of three numbers using OOP in C++.** vi) **Create a student class with data members as roll, name and marks with respective data types as int, chars and float. Now create n objects of student type and insert data into those objects. Display the student information who got the highest mark.** vii) **Write an OOP in C++ to add, subtract and multiplication of two matrices of size 3X3.** viii) **Create a class complex with real and imaginary part (integer). Implement default, parameterized and copy constructor to initialize the objects of complex class and display them.** ix) **Implement Destructors.** x) **Create a class complex as above. Now add, subtract and multiply on two objects of complex type i) using objects as function argument, ii) returning object from function.** xi) **Create a class distance with foot and inch. Now add and subtract between two objects of distance type i) using objects as function argument, ii) returning object from function.** xii) **Implement a counter class with a static member count. Create different objects of counter class to show the behaviour of count.** xiii) **Write a program which reads a complex number. Now increment only the real part and display the same.** xiv) **Write down a program which reads a complex number. Now decrement the real and imaginary part and display.** xv) **Implement both prefix and postfix operation on a complex number.**

	xvi) **Overload arithmetical binary operators (+, -, *) for complex numbers.** xvii) **Overload comparison operators (<, >, <=, >=, !=, ==) for two objects of same type.** xviii) **Write a program which converts one basic type to class type.** xix) **Write a program which converts one class type to another class type.** xx) **Implement friend function to access the data members from two different classes.** xxi) **Write a program in C++ using pointer which calculate the sum of two complex numbers.** xxii) **Write a program to create a matrix using pointer in dynamic way (pointer to an array and array of pointers).** xxiii) **Uses of this pointer to access the content of an object.** xxiv) **Implement Compile time Polymorphism (early bindings) and run time Polymorphism (late bindings) using virtual function.** xxv) **Implement friend class using forward declaration to access the private data member of the other.** xxvi) **Write a program which generates a template class, by which we can perform integer type data addition and float type data addition also.** xxvii) **Use of function template with multiple parameters.** xxviii) **Use of class template with multiple parameters.** xxix) **Write a program for division operation to handle an exception if the divisor is 0.** xxx) **Write a program in C++ to handle multiple exceptions for different operational output.** xxxi) **Use different modes of opening files to perform various operations on file.** xxxii) **Create a random file to insert, edit and delete operations using file pointers and manipulators.** xxxiii) **Write a program for reading and writing objects into a file.** xxxiv) **Write a program which generates a template class, by which we can perform integer type data addition and float type data addition also.** xxxv) **Use of function template with multiple parameters.** xxxvi) **Use of class template with multiple parameters.** xxxvii) **Write a program for division operation to handle an exception if the divisor is 0.** xxxviii) **Write a program in C++ to handle multiple exceptions for different operational output.**
Note: - Please note that these are the suggested list of program on given contents/topic. These list of programs are the guide lines to the subject teachers. They will select some programs from the above list or take other programs to cover entire syllabus.	
List of practical using visual Basic:	
02	**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.**

Text Books:

Name of the Authors	Titles of the Book	Edition	Name of the Publisher
SouravSahay	Object Oriented Programming with C++	Second Edition	Oxford
Robert Lafore	Object Oriented Programming in C++	Fourth Edition	Pearson
B Stroustrup	C++ programming Language	3rd Edition	Pearson
Bhushan Trivedi	Programming with Ansi C++	Second Edition	Oxford
M.T. Somashekhara, D.S. Guru, H.S. Nagendraswamy, K.S. Manjunatha	Object Oriented Programming with C++		PHI
E. Balgurusamy	Object oriented programming with C++		Tata McGraw Hill
Sunil K Pandey	Thinking in C++	Seventh Edition	S. K. Kataria and Sons
Bradley, Millstaugh	Programming in VB6		Tata McGraw Hill
Nel Jerka	The complete reference – VB6		Tata McGraw Hill
Evangelos Petront Sos	Mastering VB6		BPB

Note:

Sl No.	
1.	Question Paper setting tips:

	End Semester Examination: Question should be made as per class weight and must cover whole syllabus. **Objective Type: 20 marks (answered in one or two sentences.)** **Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Name of the Course: Management Information System			
Course Code: MIS		**Semester: Fourth**	
Duration: Six Months		**Maximum Marks: 100**	
Teaching Scheme:		**Examination Scheme:**	
Theory: 03 hrs./week		**Class Test : 20 Marks**	
Tutorial: 00 hrs./week		**Teachers Assessment: 10 Marks**	
Practical: 00 hrs./week		**End Semester Exam. : 70 Marks**	
Credit : 3		**Practical / Sessional : 00 (Internal) +00 (External)**	
Aim:			
Sl. No.			
1.	**To study Management of Information system.**		
2.	**To study various systems like expert system, Knowledge based system, software system.**		
3.	**To learn how to manage information by using system.**		
Objective:			
Sl. No.	**The students will be able to:**		
01.	**State the important role of Management Information System in modern organization.**		
02.	**Describe the function of Business Process Outsourcing, processes in Customer Relationship Management & types of E-commerce.**		
03.	**State the use of data warehouse, data mining for decision support system.**		
04.	**Describe advance concepts like Artificial Intelligence and Expert systems**		
05.	**State the various tools of Security Management.**		
Pre-Requisite:			
Sl. No.			
1.	**Basic Of Self Analysis methods.**		
2.	**Basic knowledge of stress and time management concepts.**		
3.	**Basic knowledge of presentation skills.**		
Chapter	**Contents (Theory)**	**Hrs./Unit**	**Marks**
Unit: 1	**Foundation of Information System:** **Information Systems (Concept, Resources and Products, Activities)** **Management Information System (Definition, Role, Features)** **Importance of management, Process of Management (Planning, Organizing, Staffing, Coordinating, Directing)** **Organizational Structure – Basic model of organization structure, Organizational Behavior, Management Information System Organization** **Strategic Management of Business – Concept of corporate**	**09**	

	planning,		
Unit: 2	**Application of MIS:** **Applications in manufacturing sector (Personal Management, Financial Management, Production Management, Materials Management, and Marketing Management)** **Applications in Service sector (Airlines, Hotels, Hospitals, Banking, Insurance, Utilities, and Finance.)**	**06**	
Unit: 3	**Decision Support System:** **Characteristics of decision making process.** **Decision Support System (Concept, Components, Development, Risk) Management Information System and Decision Support System, Concept of Artificial Intelligence & Expert System.** **Data warehouse (Concept, Design, Organization and Management, Architecture, Implementation), Data in data warehouse, Data Mining**	**11**	
Unit: 4	**Integration of Information:** **Enterprise Resource Planning (ERP)-ERP (Basic features, Benefits, selection, implementation) Enterprise Management System (EMS) & Management Information System (MIS).** **Customer Relationship Management (CRM) (Concept, Three Phases of CRM, Benefits, Challenges & Trends).** **Business Process Outsourcing (BPO) -BPO, Voice BPO i.e. Call Center, Non- Voice BPO, Challenges in BPO Management.** **Electronic Commerce Systems (E-Commerce) – Concept, Scope, B2C, B2B, C2C, E-Commerce Applications**	**11**	
Unit: 5	**Security & Ethical challenges:** **Viewing Versus Security.** **Risks, Threats & Vulnerability, Assessing Risks.** **Common Controls (Physical, Electronic, Software, Management Controls).** **Common Threats (Natural Disasters Employee Errors, Computer Crime, Fraud, Abuse, Program Bugs)** **Ethical & Contractual Behaviors, Privacy, Access & Accuracy Issues, Property Issues.**	**08**	
Total		**45**	

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Robert Schulthis & Mary Sumner	**Management Information System**		**Tata Mcgraw Hill**
O'Brien	**Management Information System**		**Tata McGraw Hill**
Jawadekar	**Management Information System**		**Tata Mcgraw Hill**

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
S. Shajahan	Management Information Systems	01-Jan-2007	New Age International
Kenneth C. Laudon, Jane Price Laudon	Management Information Systems	2002	Prentice Hall

Name of the Course: Professional Practice-II(Web Technology)			
Course Code: PC-II		**Semester: Fourth**	
Duration: Six Months		**Maximum Marks: 50**	
Teaching Scheme:		**Examination Scheme:**	
Theory: 00 hrs./week		**Class Test : 00 Marks**	
Tutorial: 00 hrs./week		**Teachers Assessment: 00 Marks**	
Practical: 02 hrs./week		**End Semester Exam. : 00 Marks**	
Credit : 1		**Practical / Sessional : 50 (Internal) +00 (External)**	
Aim:			
Sl. No.			
1.	**To exploring your business worldwide and makes strong impact image using active online presences with web site. And well-designed and aesthetically appealing website can give you a strong advantage over other online competitors.**		
2.	**To make an interesting to see graphic designers on one end, and web programmers on the other, arguing their respective positions active web page designing is today's need.**		
3.	**To get strong instantaneous recognition of relevance which leads to clarity, and understanding at a glance a well-crafted brand strategy which provides context and perspective, and a detailed website plan that spells out specific objectives, target audiences, paths to conversion and other critical elements of your site.**		
Objective:			
Sl. No.	**Students will able to:**		
1.	**Design simple Web pages - using HTML**		
2.	**Organize information using Tables, collect information from users using forms & present information using Frames.**		
3.	**Use style sheets to gain full control of formatting within Web page.**		
4.	**Embed multimedia to Web pages.**		
5.	**Integrate all above to develop a simple Web sites.**		
Pre-Requisite:			
Sl. No.	**The student will be able to:**		
1.	**Interaction with DOS / Windows Operating System.**		
2.	**Ability to develop logic / flow of simple problem.**		
Contents			
Sl. No.	**Skills to be developed**		

1.	**Intellectual skills:** ➢ **Develop web designing skills.** ➢ **Apply different logics to solve given problem.** ➢ **Write program using different interfaces.** ➢ **Understanding different steps and stages to develop simple architecture of the WebPages**
2.	**Motor skills:** ➢ **Proper handling of Computer System.**

D E T A I L C O U R S E C O N T E N T (Sessional / Practical)

Unit	Contents	Remarks
1	**INTERNET BASICS:** • **Familiarity with internet browser (Internet Explorer, Netscape Navigator etc.)** • **Working with browser window tool bar , menu bar** • **Browsing a given web site address, searching a particular topic through search engines.** • **Familiarity with E-Mail, sending viewing printing e-mail message.** • **Use of mailbox (inbox, outbox) in outlook express. Use of attachment facility available in e-mailing.**	
2	**WEB SERVER:** • **Familiarity with web server – IIS, PWS etc. – Configuring web server – Creating virtual directory.**	
3	**INTERNET SERVICES** • **Concept and familiarity of various internet services (www, http, ftp, chat etc).**	
4	**HTML/XML** • **Creating simple HTML & XML file, place it in web server and access it from client Browser.** • **Creating a HTML form incorporating GUI components (Command button, text box, radio button, check box, combo box etc).**	
5	**Introduction to VB.Net** • **VB.Net overview.** • **Difference between VB and VB.Net**	
6	**Implementation of VB.Net :** • **Features.** • **VB.Net IDE.** • **Data Types, Loops, Control structures, Cases, Operators.** • **Creating forms.** • **Procedures and functions.** • **Form controls.** ➢ **Error Provider** ➢ **ComboBox**	

- **MonthCalendar**
- **RadioButton**
- **TextBox**
- **CheckBox**
- **CheckedListBox**
- **DateTimePicker**

- **Subroutine — Formatting Display, Adding Components to scripts — Handling Event driven programming**

A sample List of Practical / Sessional works to be done

1.1. Create a HTML page using simple related tags like Headings, Paragraphs, Breaks, Divisions, Centered Text, Block Quotes, Preformatted text, Address, HR tag, Block Level tags and Horizontal Rules.

1.2. Create an html page using TEXT LEVEL TAGS AND SPECIAL CHARACTERS like Bold, Italic, Teletype, Underline, Strikethrough, Superscript, Subscript DIV tag.

1.3. Create a HTML page using various type of LIST like Ordered Lists, Unordered Lists, Definition Lists, Nested Lists

1.4. Create a HTML page and show the effect of MARQUEE Tag with all of its attribute.

1.5. Create a HTML page and add an image using IMG tag and show different Image formats, colors and backgrounds.

1.6. Insert Table in a web page showing TABLE tag and attributes like TABLE, TR, TH, TD tags. border, cell spacing, cell padding, width, align, bgcolor etc.

1.7. Create a Web page for the following:
WELCOME TO XYZ COLLEGE OF ENGINEERING (scroll Horizontally)
STUDENT DETAILS **(Blink)**

Sl. No.	Student. Name			Branch	Year/Sem	Address	Ph.No	Marks		
	First Name	*Middle Name*	*Sur Name*							
								M_1	M_2	M_3

1.8. Develop a web page to understand various FRAME tags and attributes.

1.9. Develop a web page to understand various FORM tags and attributes

1.10. Develop a web page to understand various to understand different Style Sheets and its application.

1.11. Create a gif animation using gif animator, Control gif animation through internal setting of gif animator and use it in a web page.

1.12. Design Login form with validation.

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

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

1.15. Apply simple application VBscripts using variables, arrays etc.

1.16. Implement a VBprocedure Sub/ Function to display the area of a circle. Radius of the circle should be passed as a parameter to the procedure.

1.17. Implement Loop(s) and conditional statement (s) to display all prime numbers between n1 to n2 integral values.

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
N.P. Gopalan, J. Akilandeswari	Web Technology, A developer's Perspective		PHI

Koggent Learning Solutions	**Web Technology (including HTML,CSS,XML,ASP,JAVA) Black Book**		**Dreamtech**
Uttam K Roy	**Web Technologies**		**OXFORD**

**** For All Theoretical Subject Marks of End Semester Examination will be distributed as – 20 (Objectives- Answer should be given with explanation and avoid fill in the blank type questions) + 50 (Subjective – covering whole syllabus properly). ****

**** For All theoretical Subject two weeks of 17 weeks are allotted for class test or any surprise test conducted by the class teacher) ****