Core Course
CC-108 Advanced C Programming

Course Introduction:

Students will be provided with advanced knowledge of C programming language. Features like functions, structures, files , pointers, dynamic memory allocation & preprocessors would be covered.

Objectives:

The students would be able

1) To obtain in depth knowledge of C language.
2) To understand advanced features of C Programming Language .

No. of Credits: 3
Theory Sessions per week: 4
Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	**Functions**	**10 hours**

	• **User Defined Functions**
	    o Introduction
	    o Elements of UDF
		3hrs

	• **Categories of UDF**
	    o No argument no return value
	    o Arguments but no return value
	    o No argument but returns a value
	    o Arguments with return value
		4 hrs

	o Recursion
	    o Nesting Function
	    o Variable Scope
	    o Visibility and lifetime in function
	    o Storage Classes
		3 hrs

2	**Structures, Unions & Pointers**	**10 hours**

	• **Structures**
	    o Defining a structure
	    o Accessing a structure variable
	    o Operations on structure members
	    o Copying and comparing variables
	    o Arrays of structure
	    o Arrays within Structures
	    o Unions
		5 hrs

	• **Pointer** o Definition and Concept	5 hrs

		o Advantage of using pointer	
		o Pointer arithmetic	
3	**Advance Concept of Pointer & Link List**		**10 hours**
	• **Pointer**		
		o Array of pointers	3 hrs
		o Pointers and Functions	
	• **Dynamic Memory Allocation**		
		o Memory Allocation Function	
		o malloc()	
		o calloc()	2 hrs
		o realloc()	
		o free()	
	• **Link List**		
		o Concepts	
		o Advantages	
		o Overview of types of Link list	
		o Operations on Singly Link List (create, display, insert at first, insert at last, delete at first, delete at last)	5 hrs
		o Application of Link list	
4	**Files and Preprocessors**		**10 hours**
	• **Files**		
		o Concepts of File Management	
		o Files functions – fopen(), fclose(), fprintf(), fscanf(), fseek(), ftell(), rewind(), putc(), getc(), putw(), getw()	8 hrs
		o Error handling functions	
		o Command line argument	
	• **Preprocessors**		
		o Types of Preprocessors	
		o Macro substitution directives	
		o File inclusion directives	2 hrs
		o Compiler control directives	

Textbook:
Programming In C (Second Edition)
Publication : Pearson Education
by Ashok N. Kamthane

Reference Book :
1. Simplifying C (First Edition 2010)
Publication : Dreamtech
by Harshal Arolkar and Sonal Jain

2.   Programming in ANSI C (Fifth Edition 2011)
        Publication : Mc Graw Hill
         by Balagurusamy

3.   Programming in C (First Edition 2011)
        Publication : Oxford Higher Education
        by Reema Thareja

Core Course
CC-109 Dynamic HTML and XML

Course Introduction:
This course is aimed to make students familiar with dynamic web page creation tools like cascading style sheet, JavaScript and XML. The student would be able to develop webpage/website using DHTML & XML.

Objectives:
Students would be able-
1) To understand Dynamic web page designing.
2) To be aware of the real functions of website development.

No. of Credits: 3
Theory Sessions per week: 4
Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	**Cascading Style Sheet**	**10 hours**

	• **CSS**
	     o Introduction
	     o Understanding the concepts of CSS
	     o Advantages and disadvantages
	     o CSS syntax
	        ▪ Grouping selectors and rulers
	        ▪ Using the class selectors
	        ▪ Using the ID selectors
	        ▪ Comparing ID and classes selectors
	        ▪ Using CSS comments
	     o Types of Style sheets
	        ▪ External
	        ▪ Internal
	        ▪ Inline
		3 hrs

	• **CSS properties and text attributes**
	     o Color
	     o Alignment
	     o Decoration
	     o Transformation
	     o Indent
	     o Letter spacing and word spacing
	     o White space
		3 hrs

		o Line-height	
		o Direction	
		o Unicode-bidi	
	• **CSS Padding**		3 hrs
		o Using padding properties	
		o Setting padding for all sides	
		o Setting padding for each side	
		o List properties: list-style-images, list-style-position, list-style-type, list-style	
		o CSS positioning(relative, absolute, fixed and Z-index)	
	• **CSS properties and table attributes**		1 hrs
2	**Introduction to JavaScript**		**10 hours**
	• **JavaScript Introduction**		4 hrs
		o Understanding JavaScript	
		o About Dynamic HTML	
		o Selecting an development environment for JavaScript	
		o HTML and JavaScript	
	• **Advanced JavaScript**		4 hrs
		o Element of JavaScript	
		o Variables	
		o Operators	
		o Flow control statement	
		o Arrays	
		o Functions	
		o Event handling	
		o Browser and JavaScript	
		o Web page and JavaScript	
		o Frames and JavaScript	
		o validating User forms	
	• **Frames and Validation in JavaScript**		2 hrs
		o Frames and JavaScript	
		o Validating User forms	
3	**Introduction to XML**		**10 hours**
	• **XML**		5 hrs
		o Introduction	
		o XML versus HTML	
		o XML terminologies	
		o XML standards(XML,XML namespace, DTD,CSS,XSL,XML schema, Xquery, Xlink, Xpointer, Xpath),	

	o XHTML		
	• **Creating XML Document**		
	o XML syntax checking		
	o The idea of markup		
	o XML structure	5 hrs	
	o Organizing information in XML		
	o Creating well formed XML documents		
	o XML namespaces(overview)		
4	**XML Document Type Definition and XSLT**	**10 hours**	
	• **XML Documentation**		
	o Introduction to DTD		
	o Document type declaration		
	o Element type declaration		
	o Attribute declaration		
	o Conditional sections, limitations of DTD		
	o Introduction to schema	5 hrs	
	o Complex types		
	o Grouping of Data		
	o Simple types		
	o Deriving types		
	o Attributes		
	• **Introduction to XSL**		
	o What is XSL		
	o The need for XSL		
	o XSL Transformation		
	o Overview(Understanding, classification)		
	o Xpath(overview)		
	o XSLT		
	o Templates	5 hrs	
	o Element		
	o Attribute		
	o Sorting		
	o Looping		
	o conditional processing		
	o copy		

Textbook:

1. A Complete Guide to Internet and Web Programming (Edition-2010)
   Publisher: Dream Tech Press.
   By Deven N. Shah

2. XML & Related Technologies(First Edition-2009)
   Pearson Education.
   By Atul Kahate

Reference Books:

1. Step By Step XML(First Edition-2000)
   Publisher: PHI Practice-Hall India.
   By Michael J. Young

2. Sams Teach Yourself XML in 24 hours (First Edition-2006)
   Publisher: PEARSON Education
   By Michael Morrison

3. Visual Quick Start XML Second Edition (First Edition-2011)
   Publisher: Pearson Education.
   By Kevin Howard Goldberg

4. Java Script Indian Edition(First Edition-2008)
   Publisher: CENGAGE Learning
   By Gosselin

5. DHTML and CSS Advanced(First Edition-2006)
   Publisher: Pearson Education.
   By Jason cranford Teaue

Core Course
CC-110 Database Management System - I

Course Introduction:
This course introduces students to information of data, working of related data to gain knowledge. Students also will design the real life application

Objectives:
Students would be able-
1) To understand the concept, role and importance of Database.
2) To recognize the elements of Database for real applications.
3) To identify the key relationship between the Database components.
4) To comprehend the type of relational model to apply according to the scenery of applications.
5) To be aware of the real functions of Database Management Software.
6) To normalize the Tables to remove the anomaly existing in the Database.
7) To deal with every tiny elements of the Database.

No. of Credits: 3
Theory Sessions per week: 4
Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	**Database System and Data Models**	**10 hours**
	• **Data and Information** o Data Vs. Information	1 hrs

	• **Database**
	     o Introduction of the Database and the DBMS
	     o Role and Advantage of DBMS
	     o Types of Database
		3 hrs

	• **Database Systems**
	     o The Database System Environment
	     o DBMS Functions
		3 hrs

	• **Data Model Basic Building Block**
	     o The Hierarchical Model
	     o The Network Model
	     o The Relational Model
		3 hrs

2	**The Relational Database Model**	**10 hours**
	• **A logical view of Data** o Tables and Their characteristics	1 hrs
	• Keys	1 hrs
	• Integrity Rules	1 hrs

		Concept of Functional Dependency	1 hrs
		• Relational Set Operators	2 hrs
		• The Data Dictionary and The System Catalog	1 hrs

		• **Relationship within the Relational Database**
		   ○ The 1 : M Relationship
		   ○ The 1 : 1 Relationship
		   ○ The M : N Relationship
			3 hrs

3	**Entity Relationship Modeling**		**10 hours**

		• **The Entity Relationship Model**
		   ○ Entities
		   ○ Attributes
		   ○ Relationships
		   ○ Connectivity and Cardinality
		   ○ Existence Dependence
		   ○ Relationship Strength
		   ○ Weak Entities
		   ○ Relationship Participation
		   ○ Relationship Degree
		   ○ Recursive Relationship
		   ○ Composite Entities
			7 hrs

		• Developing an ER diagram	3 hrs
4	**Normalization of Database Tables**		**10 hours**
		• The need of Normalization	2 hrs

		• **The Normalization process**
		   ○ Conversion to First normal form
		   ○ Conversion to Second normal form
		   ○ Conversion to Third normal form
			8 hrs

Textbook:

Database System Concepts (First Edition: 2008)

Publisher: Cengage Learning

By Peter Rob and Carlos Coronel

Chap-1(1.1, 1.2, 1.6), chap-2(2.5(2.5.1, 2.5.2, 2.5.3)),

Chap-3(3.1, 3.2, 3.3, 3.4, 3.5, 3.6), chap-4(4.1, 4.2), chap-5(5.2, 5.3)

Reference Books:

1. Introduction to Database Management Systems (First Edition 2006)
   Publisher: Tata McGraw-Hill
   By ISRD Group

2. An Introduction to Database Systems (Eighth Edition 2006)
   Publisher : Pearson
   By C. J. Date, A. Kannan & S. Swamynathan

3. An Introduction to Database Systems
   Publisher: Pearson
   By : ITL Education Solutions Limited.

Core Course
CC-111 Mathematical Foundation of Computer Science

Course Introduction:
This course introduces students to become reasonably good at problem solving and algorithm development. Students also enhance their ability to think logically and mathematically.

Objectives:
The objective of this course is to present the foundations of many basic computer related concepts and provide a coherent development to the students for the courses like Fundamentals of Computer Organization, RDBMS, Data Structures, Analysis of Algorithms, Artificial Intelligence, Computer Graphics and others.

No. of Credits: 3
Theory Sessions per week: 4
Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	**Group Theory**	**10 hours**
	• Binary Operations • Algebraic Structure • Group • Order of a Group	2 hrs
	• Abelian Group • Cyclic Group • Order of an element • Sub-group	4 hrs
	• Lagrange's Theorem (with out proof) • Permutation group • $\langle Z_n, +_n \rangle$ & $\langle Z_p, *_p \rangle$	4 hrs
2	**Relation and Ordering**	**10 hours**
	• Introduction to relations • Binary relation on a set • Total no. of distinct Relation from a set A to B • Graph of relations and relation matrix	2 hrs
	• Property of relations • Equivalence relations • Equivalence classes (sets) • Partition of a set • Partial ordering and partial ordered set	4 hrs
	• Comparable elements • Chain • Cover of an element • Hasse diagram • Least, Greatest, Maximal, Minimal elements • Upper and lower bounds of Posets	4 hrs

3	**Lattice and Boolean algebra**	**10 hours**
	• Introduction to lattice • Definition of lattice as a Posets • Properties of lattice • Sub-lattice	2 hrs
	• Complete lattice • Bounded lattice • Distributive lattice • Complemented lattice	2 hrs
	• Definition and important properties of a Boolean algebra • Sub-Boolean algebra	2 hrs
	• Isomorphic Boolean algebras (graphically) • Atoms and anti-atoms • Boolean expressions and their equivalence • Min terms and max terms • Canonical forms	4 hrs
4	**Graph theory**	**10 hours**
	• Introduction • Abstract definition of Graph and Basic Terminology	1 hrs
	• Simple Graph, Multi Graph • Degree of a Vertex • Types of Graphs • Sub-graph and Isomorphic Graphs	2 hrs
	• Path and Reachability	2 hrs
	• Node Base • Matrix Representation of Graphs	2 hrs
	• Tree and Basic Terminology • Binary and Complete Binary Tree • m-ary Tree, Different representations of Tree	3 hrs

Textbook:
1) Discrete Mathematics
   Publisher: Oxford University Press
   By Swapankumar Chakaborty, Bikas Kanti Sarkar

Reference Books:
1) Discrete Mathematics
   Publisher: Cengage Learning
   By D.S. Malik, M.K.Sen
2) Discrete Mathematics & its Application
   Publisher: Tata McGraw Hill

By Kenneth H. Rosen,

3) Discrete Mathematics
   Publisher: Tata McGraw Hill
   By J.P. Trembaly, R. Manohar

4) A Text book of the Discrete Mathematics
   Publisher: S. Chand Publication
   By Swapan Kumar, Sarkar
5) Discrete Mathematical Structure (Latest Edition)
   Publisher: Prentice Hall of India Pvt. Ltd.
   By Bernard Kolman, Robert C Busby, Sharon Roass

Core Course
CC-112 *CC-108 Practical

Course Introduction :

Students will be provided with practical knowledge of advanced C programming language which includes functions, structures, files, pointers, dynamic memory allocation & preprocessors.

Objectives:
1. The objective of this subject is to get in-depth practical knowledge of C language.
2. To know the advanced concepts of C Programming Language.

No. of Credits: 3
Practical Sessions per week: 3
Teaching Hours: 40 hours

The students are expected to write program in 'C' language unit wise as given below. The list in each unit is **indicative only and may or may not be asked in the examination.**

UNIT		TOPICS / SUBTOPICS	TEACHING HOURS
1		**Using Functions**	**10 hrs**
	1	Write a program to calculate average temperature of five days. Create temp() function.	
	2	Write a program that uses recursive function fibo() that generates a Fibonacci series containing N elements.	
	3	Write a program that uses a recursive function fact() that finds the factorial of a given number N.	
	4	Program to find if the given no. is prime or not. The function should accept the number as argument and return if the no. is prime or not.	
	5	Write a function which accepts a character array as argument from the user. The function should print the ASCII equivalent of all the characters in the string.	
	6	Write a function which accepts a character array as argument from the user. The function should convert all the lowercase characters into uppercase case	
	7	Write a function that accepts an array of integer values. The function should find the number which divides all the other numbers.	
	8	Write a program that uses function digit(N,k) that return the value of the kth digit from the right of the number N. For eg. The function call digit (254693,2) should return 9.	
	9	Write a user-defined function to perform a) Square of a number b) Area of a square c) Reverse the number	

	10	Write a program that uses a function to check whether an entered three digit number is palindrome or not.	
2		**Using Structures**	**10 hrs**
	1	Write a program to define structure with tag state with fields state name, number of districts and total population. Read and display the data.	
	2	Write a program to create a list of books details. The details of a book include title, author, publisher, publishing year, number of pages, and price.	
	3	Define a structure called Item with members : Item_code, Item_name, Price. Create an array of five Items. Create a function which accepts the Item array and modifies each element with an increase of 10% in the price.	
	4	Define a structure to represent a date. Use your structures that accept two different dates in the format mm dd of the same year. Write a C program to display the month names of both dates.	
	5	Define a structure that can describe a Hotel. It should have members that include name, address, grade, room charges, grade and no of rooms. Write a function to print out all hotel details with room charges less than a given value.	
	6	Write a program to accept records of different states using array of structures. The structure should contain char state and number of int engineering colleges, int medical colleges, int management colleges and int universities. Calculate total colleges and display the state, which is having highest number of colleges.	
	7	Define a structure by name time with members seconds, minutes and hours of int type. A variable of the structure would thus represent time. If time1 and time2 are two variables of the structure type, write a program to find the difference of two times using a function.	
	8	Write a program to accept records of different states using array of structures. The structure should contain char state, int population, int literacy rate and int per capita income. Assume suitable data. Display the state whose literacy rate is highest and whose per capita income is highest.	
	9	Define a structure employee with members employee name, basic pay, dearness allowance, house rent, net salary. Declare an array of 5 employees. Write a function which calculates the net salary of employees and prints all employee details in descending order of their net salary.	
	10	Define a structure with tag population with fields Men and Women. Create structure with in structure using state and population structure. Read and display the data.	
3		**Pointers,Implementation of singly link list using pointers (create, display, insert at first, insert at last, delete at first, delete at last)**	**10 hrs**
	1	Write a program to create and display singly link list using pointers.	

	2	Write a program to insert new record at last position in the singly link list.	
	3	Write a program to insert new record at the beginning in the singly link list.	
	4	Write a program to delete a record from last position in the singly link list.	
	5	Write a program to delete a record from the beginning in the singly link list.	
	6	Write a program to find the largest element within an integer array using pointers.	
	7	Write a program to accept string using character pointer and display it.	
	8	Write a program to calculate the length of the string using pointers.	
	9	Write a program to calculate the square and cube of an entered number using pointer of a variable containing the entered number.	
	10	Write functions to add, multiply, subtract two numbers and call the functions from the main program using a function pointer.	
4		**Using Files**	**10 hrs**
	1	Write a program to display contents of file on the screen. The program should ask for file name. Display the contents in capital case.	
	2	Write a program to find size of the file.	
	3	Write a program to combine contents of two files in a third file. Add line number at the beginning of each line.	
	4	Write a program to display number 1 to 100. Redirect the output of the program to text file.	
	5	Write a program to write contents of one file in reverse into another file.	
	6	Write a program to count number of lines, words and characters in a file.	
	7	Write a program to create a file called dictionary.dat that contains the information such as Name, Surname, City and Phone number. Write a program to accept a City from user and list details of persons having the given city.	
	8	Write a program to copy one file to another. While doing so, all extra spaces in a file should be squeezed to one. For eg. If a file contains line "I am learning C", it should be converted to "I am learning C".	
	9	Write a program that counts the frequency of a word from a text file. The program should accept file name as command-line argument. Program should continue to ask word and display its frequency in a file till the Enter key is pressed without entering any word.	

	10	Write a Program to insert the following contents in a file named "File1".	

Customer No.	Account Type	Balance
101	Savings	2000
102	Current	5000
103	Savings	3000
104	Current	10000

Append the contents of "File1" in another file "File2". Also display the contents of File2 on screen.

Note : The students should maintain the record of typical (not simple ones) programs in their file which duly certified, should be presented at the time of final examination.

Textbook:
   Programming In C (Second Edition)
   Publication : Pearson Education
   by Ashok N. Kamthane

Reference Book :
1.   Simplifying C (First Edition 2010)
   Publication : Dreamtech
   by Harshal Arolkar and Sonal Jain

2.   Programming in ANSI C (Fifth Edition 2011)
   Publication : Mc Graw Hill
    by Balagurusamy

3.   Programming in C (First Edition 2011)
   Publication : Oxford Higher Education
   by Reema Thareja

Core Course
CC-113 *CC-109 Practical

Course Introduction:

The course is aimed to make students acquainted with the features dynamic HTML tools. It aims to give emphasis on basic as well as advance features of XML.

Objectives:
   1) To gain the knowledge of various advanced web development tools like CSS & JavaScript.
   2) To develop skills for effective use of the XML in web site development.

No. of Credits: 3
Practical Sessions per week: 3
Teaching Hours: 40 hours

The students are expected to write program in 'Dynamic HTML and XML' language unit wise as given below. The list in each unit is **indicative only and may or may not be asked in the examination.** The programs given below are only sample example for practice in lab.

UNIT		TOPICS / SUBTOPICS	TEACHING HOURS
1		**Practicals related to Cascading Style Sheet.**	**10 hrs**
	1	Write HTML program which contains cascaded style sheet for p, h2, h3, body and font attribute.	
	2	Write HTML program which contains Inline Style sheet. For <p>, <h1> and <body> tags.	
	3	Write HTML program which contains external style sheet with user defined Classes.	
	4	Write HTML program which contains external style sheet with background attributes of style sheet.	
	5	Write HTML program which contains external style sheet with text attributes of style sheet.	
	6	Write HTML program which contains cascaded style sheet with border attributes of style sheet.	
	7	Write HTML program which contains cascaded style sheet with margin attributes of style sheet.	
	8	Write HTML program to create three different tables with different style. Styles for each table are different. **For Example:** ○ Table 1: Fonts with white color, 25 size Tahoma font family. Background with brown color ,repeated in x axis, Border with pink color, double style and 12 width ○ Table 2: Fonts with black color, 32 size Times New Roman font family. Background with gray color, repeated in y axis. Border with yellow color, groove style and 20 widths. ○ Table 1: Fonts with blue color, 50 size Tahoma font family. Background with light blue color, not repeated in any axis .Border with black color, double style and 12 widths.	

2	**Practicals related to JavaScript.**		**10 hrs**
	1	Write a JavaScript to display hello world.	
	2	Write a JavaScript program that display the use of multiline Comment.	
	3	Write JavaScript to demonstrate the use of different dialogue boxes. For example: write massages good morning, good bye etc, take value from alert, confirmation for any operation.	
	4	Write a JavaScript program to calculate area of circle.(3.14*r*r)	
	5	Write a JavaScript program to convert Celsius to Fahrenheit. ((x*1.8)+32)	
	6	Write a JavaScript program to find factorial of a number.	
	7	Write a JavaScript program to find square and cube of number using function.	
	8	Write a JavaScript program to calculate multiplication table.	
	9	Write a JavaScript program to calculate simple Interest (p*r*n/100).	
	10	Write a JavaScript program to find prime number.	
	11	Write a JavaScript program to validate a form which consist of name, Age, address, email id, hobby(checkbox), gender(radio button), country (dropdown)	
	12	Create one form in which username must be 10 characters long, last name must be 5 characters long, validate email address and also validate for nonempty (fields must not be blank) fields.	
	13	Create JavaScript program which have list of color in dropdown menu, if user can select any color from dropdown menu this color will set to the background of document.	
	14	Create JavaScript program to create mathematical calculator.(functionality-+,*,-,/)	
	15	Write a JavaScript program which displays an alert message on MouseOver Event of an Image.	
	16	Write a JavaScript program to change text from Uppercase to Lowercase.	

	17	Write JavaScript program for following.
		
		  o Display a clock using Date object.
		  o Sort N integer using Array object.
		  o Convert Celsius to Fahrenheit using math object.
		  o Display no of form of an image using document object.
		  o Display Key name on a key pressed using Event object.	

	18	Write a JavaScript code which return today's date including date and Time.	
	19	Write JavaScript code to display happy new year in status bar.	
3.	**Practicals related to XML Basics.**		**10 hrs**
	1	Create simple XML document template to describe a Books with book title, author name & publication.	
	2	Create an XML document template to describe the result of student in an examination. The description should include the student's roll number, name, three subject names and marks, total marks, percentage, and result.	
	3	Suppose we want to store information regarding in Prescribed format in XML. For example.	

		Title Description.	

		Employee id X3434
		 Employee name XYZ
		 Employee Department Account
		 Role Manager
		
		 Same for following examples:
		     o TV schedule (channel, banner, day, holyday, date, programmable [time, title, description],Time)
		     o News paper Article (Headline, byLine, Lead, Body, Notes, Publisher, news Paper)
		     o Product catalog (Product id, product name, price, category)	

	4	Write a program to demonstrate comment of XML.	
	5	Write program to demonstrate how to add attribute and Entity in XML document .	
	6	Create External DTD declaration for BOOKs XML document.(Element type declaration)	
	7	Create an internal DTD for Employee XML document.	

	8	Write a program to demonstrate following concepts.
		
		     o Well-formed, but not valid document.
		     o Well-formed and Valid Document.
		     o Not well-formed, but valid document.
		     o Not Well-formed and not valid document.	

4	**Practicals related to Advanced XML.**		**10 hrs**
	1	Write a program to implement the concept of Sequence, occurrences and choices in DTD.	
	2	Write a program to describe Empty, Any and Mixed content in DTD.	
	3	Write a program to describe Attribute declaration in DTD. (Default, String, Tokenized, Enumerated)	
	4	Write a program to demonstrate conditional sections in DTD.	
	5	Write a program which describe XML document and corresponding Schema.(for simple types)	
	6	Write a program which describes XML document and corresponding Schema (for Complex type).	
	7	Write a program which describes XML document and corresponding Schema (use of minoccurs, maxoccurs attribute).	
	8	Write an XML schema and show the corresponding XML document for credit card.	
	9	Write a program to show the corresponding XSLT document which convert XML document into HTML format.	

Note : The students should maintain the record of typical (not simple ones) programs in their file, which should be duly certified. It should also be presented at the time of final examination.

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2. XML & Related Technologies(First Edition-2009)
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4. Java Script Indian Edition(First Edition-2008)
   Publisher: CENGAGE Learning
   By Gosselin

5. DHTML and CSS Advanced(First Edition-2006)
   Publisher: Pearson Education.
   By Jason cranford Teaue

Core Course
CC-114 Database Systems (Practicals)

Course Introduction:
The course is aimed to make students acquainted with the features of database tools. It aims to give emphasis on basic as well as advance features of MS Access by illustrating the features of various tools using sample problems.

Objectives:
1) To gain the knowledge of various tools of MS Access.
2) To develop skills for effective use of the MS Access tools
3) To make students familiar with basic as well as advance features of MS Access
4) To understand how to use the database in day to day life.

No. of Credits: 3
Practical Sessions per week: 3
Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	**Introduction to MS Access**	**10 hours**
	• Introduction to DBMS & Access o Creating a new Database in Access	1 hrs
	• **Tables** o Introduction to table structure o Creating tables in Access (Through Wizard, Entering data and Design View)	1 hrs
	• **Data types of MS Access**	3 hrs
	• **Fields** o Concept of Primary key o Field Properties	5 hrs
2	**Tables, Relationships and Queries**	**10 hours**
	• **Working with Datasheet view of table** o Sorting and Searching o Filters – Filter by Selection, Advanced Filters	1 hrs
	• **Relationships in MS Access** o Concept o Types of Relationship (one-to-one, one-to-many and many-to-many) o Necessary condition to create relationships in access o Concept of Foreign Key(Parent Table, Child Table) o Referential Integrity, Cascade Update, Cascade Delete	4 hrs

	• **Queries(Design View)**	
	◦ Simple queries on single table	
	◦ Adding calculated/derived fields using expression builder	5 hrs
	◦ Parameter Queries	
	◦ Action Queries(Make Table, Append, Update and Delete)	
	◦ Simple Queries on Multiple table(Joins: Inner,Left Outer, Right Outer)	
3	**Advanced Queries and Forms**	**10 hours**
	• **Queries(Design View)**	
	◦ Summary Queries(Queries using group function: SUM, MAX, MIN, COUNT, AVG)	3 hrs
	◦ Crosstab Queries	
	◦ Find Duplicates Query Wizard and Find Unmatched Query Wizard	
	• **Forms(Design View)**	
	◦ Sections on a form	
	◦ Controls on a form (Label, Textbox, Combo box, List box, Command Button, Option Group, Tab Control, Option Button, Check box, Toggle Button)	7 hrs
	◦ Designing forms for multiple tables using Subform control	
4	**Reports, Macros and Switchboard**	**10 hours**
	• **Reports(Design View)**	
	◦ Simple Reports, Adding Calculated / Derived Controls	
	◦ Simple Parameter Report	
	◦ Label Report (Wizard)	5 hrs
	◦ Simple Group Reports	
	◦ Advanced Group Reports on Fields with Text, Number, Date / Time datatypes.	
	◦ Form based parameter report	
	• **Macros**	
	◦ Simple Macro, Macro Groups, Autokeys Macro and Autoexec Macro	5 hrs
	• **Switchboard Manager**	1 hrs
	• **Sample Project (Any one)** 1. Payroll - Department (Deptno, Dept_Name, Location) - Employee_Master (Empno, Empname, Designation, DOB, DOJ, Gender, Salary and Deptno) - Employee_Detail (Empno, Salary_Date, Basic, DA, HRA, TA, PF, TAX)	3 hrs

	2. Inventory - Customer (Cust_no, Cust_name, City) - Item (Item_no, Name, Price, Stock, Mfg_date) - Order_Master (Order_no, Cust_no, Order_Date, Vendor_Name) - Order_Details (Order_no, Item_no, Quantity)	

Note: Practicals and examination can be conducted using MS Access 2003 / MS Access 2007 interchangeably.

Following type of sample application can be asked in the final examination:

1. Create the following tables and create appropriate relationship among these tables.
   - Customer (cid, name, address, city)
   - Product (pid, name, desc, rate)
   - Order(cid, pid, oid, odate, qty, amt)

   Create a form for data entry of all the tables
   Create a macro from which it should open the customer table, a beep sound, and msgbox Saying "BYE!!!!"

2. Create the following tables and create appropriate relationship among these tables
   - Studentmaster(rno, name, age, address, phoneno, city)
   - Studentdetail(rno, exam, m1, m2, total , percentage)

   Create a form for data entry of student detail
   Create a report having group by on rno. Each rno should display its exam details and calculate the sum of all the students in each exam.
   Create a switchboard from which user can run report and form

3. Create the following tables and create appropriate relationship among these tables
   - Invoice(Invoice_no, Invoice_date, Cust_code)
   - Invoice_details(Invoice_no, Product_no, Quantity)

   Create a parameterized report such it displays the records of a specific customer code.
   Create a form for data entry of invoice.
   Create a macro from which it should open the data entry form.

4. Create a database with following tables. Give appropriate data types, create primary key, foreign key and established relationship between the two tables.
   - Employee (emp_code, emp_name, department, designation, salary)
   - Leavetable(emp_code, leave_startdate, leave_type, no_of_leave)

   The employee number should be displayed as EC001 (first character E, followed by C and then a 3 digit code)
   The default value of the department should be sales
   The leave type should be PL, SL or CL
   Create the following queries:
   List the details of employees who have taken PL or SL between 5/7/2010 and 31/12/2010.

List the employees who are in the sales or marketing department and get salary between 20000 to 30000.

Create a parameter query to display the details for a particular leave start date.

Create report which groups the record on the Department and the leave type and finds the total number of leave types for each department.

5. Create the tables for the following data set primary key, foreign key and field properties.
   - Sales (Item_code, Description, Price, quantity)
   - Supplier (Item_code, Supp_code, Supp_name, order_date, status, quantity_ord)
   - Default value of quantity should be 10 and the value entered should not be more than 5000.
   - Status should be P or C for pending and complete.
   - Supplier name should be in capital.

   Create an update query which will update the description of item_code I101.

   Create a report containing the fields and find the total price of item.

   Create a macro which will run the update query automatically.

6. Create table for the following data set primary key, relationship and field properties
   - Product (Product_code, Prod_description, Price, Tot_stock)
   - Supplier (Product_code, Sup_code, Supp_name, order_date, status, quantity_ord)
     - Product code should start with PC followed by three numbers. For eg:- PC005.
     - Description should only be: Ball Pen, cellotape, sharpeners, fountain pen, erasers and these should be entered using a pull down menu in the tables.
     - Supplier name should be in capital.

   Create a form with all the fields. Also add a button to navigate from one record to other.

   Create a report containing the field's product_code, Price, Description, Supp_name, status, order date and quantity grouped on the description field and find the total price of products and the total quantity ordered.

   Create a switch board from which user can run report and form

Textbook:
New Perspectives on Microsoft Office Access 2007, Introductory
Publisher : CENGAGE Publications
By Joseph J. Adamski and Kathleen T. Finnegan

Reference Books:
1. Plain and Simple Access 2007
   Publisher: PHI Publication
   By Curtis Frye

Vision

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forget, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janerio in 1992 and world Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues. Environmental management has captured the attention of health care managers. Managing environmental hazards has become very important.

Human beings have been interested in ecology since the beginning of civilization. Even our ancient scriptures have emphasized about practices and values of environmental conservation. It is now even more critical than ever before for mankind as a whole to have a clear understanding of environmental concerns and to follow sustainable development practices. India is rich in biodiversity, which provides various resources for people. It is also basis for biotechnology. Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situations. Intellectual property rights (IPRs) have become important in a biodiversity-rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over-use of energy resource and environmental pollution have been found to be responsible for the loss of a large number of life-forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

Inspite of the deteriorating status of the environment, study of environment has so far not received adequate attention in our academic programmes. Recognizing this, the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment at every level in college education. Accordingly, the matter was considered by UGC and it was decided that a six months compulsory core module course in environmental studies many be prepared and compulsorily implemented in all the University/Colleges of India. The experts committee appointed by the UGC has looked into all the pertinent questions, issues and other relevant matters. This was followed by framing of the core module syllabus for environmental studies for undergraduate courses of all branches of Higher Education. We are deeply conscious that there are bound to be gaps between the ideal and real. Geniune endeavour is required to minimize the gaps by intellectual and material inputs. The success of this course will depend on the initiative and drive of the teachers and the receptive students.

SYLLABUS

Prof. Erach Bharucha
Director
Bharati Vidyapeeth
Institute of Environment Education &
Research, Pune

Unit 1 : Multidisciplinary nature of environmental studies
Definition, scope and importance, need for public awareness.   (2 lectures)
Unit 2 : Natural Resources :
Renewable and non-renewable resources :
Natural resources and associated problems.
a) Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources : World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
• Role of an individual in conservation of natural resources.
• Equitable use of resources for sustainable lifestyles.   (8 lectures)
Unit 3 : Ecosystems
• Concept of an ecosystem.
• Structure and function of an ecosystem.
• Producers, consumers and decomposers.
• Energy flow in the ecosystem.
• Ecological succession.
• Food chains, food webs and ecological pyramids.
• Introduction, types, characteristic features, structure and function of the following ecosystems :-
a. Forest ecosystem
b. Grassland ecosystem
c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) (6 lectures)
Unit 4 : Biodiversity and its conservation   (8 lectures)
• Introduction – Definition : genetic, species and ecosystem diversity.
• Biogeographical classification of India
• Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option

values
• Biodiversity at global, National and local levels.
• Inida as a mega-diversity nation
• Hot-sports of biodiversity.
• Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
• Endangered and endemic species of India
• Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.

Unit 5 : Environmental Pollution   (8 lectures)

Definition
• Cause, effects and control measures of :-
a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards
• Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
• Role of an individual in prevention of pollution.
• Pollution case studies.
• Diaster management : floods, earthquake, cyclone and landslides.

Unit 6 : Social Issues and the Environment   (7 lectures)

• From Unsustainable to Sustainable development
• Urban problems related to energy
• Water conservation, rain water harvesting, watershed management
• Resettlement and rahabilitation of people; its problems and concerns. Case Studies
• Environmental ethics : Issues and possible solutions.
• Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies.
• Wasteland reclamation.
• Consumerism and waste products.
• Environment Protection Act.
• Air (Prevention and Control of Pollution) Act.
• Water (Prevention and control of Pollution) Act
• Wildlife Protection Act
• Forest Conservation Act
• Issues involved in enforcement of environmental legislation.
• Public awareness.

Unit 7 : Human Population and the Environment   (6 lectures)

• Population growth, variation among nations.
• Population explosion – Family Welfare Programme.
VII
• Environment and human health.
• Human Rights.
• Value Education.

- HIV/AIDS.
- Women and Child Welfare.
- Role of Information Technology in Environment and human health.
- Case Studies.

Unit 8 : Field work
- Visit to a local area to document environmental assets river/ forest/grassland/hill/mountain
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours)

SIX MONTHS COMPULSORY CORE MODULE COURSE IN ENVIRONMENTAL STUDIES : FOR UNDERGRADUATES

Teaching Methodologies
The core Module Syllabus for Environment Studies includes class room teaching and Field Work. The syllabus is divided into eight units covering 50 lectures. The first seven units will cover 45 lectures which are class room based to enhance knowledge skills and attitude to environment. Unit eight is based on field activities, which will be covered in five lecture hours and would provide student first hand knowledge on various local environmental aspects. Field experience is one of the most effective learning tools for environmental concerns. This moves out of the scope of the text book mode of teaching into the realm of real learning in the field, where the teacher merely acts as a catalyst to interpret what the student observes or discovers in his/her own environment. Field studies are as essential as class work and form an irreplaceable synergistic tool in the entire learning process. Course material provided by UGC for class room teaching and field activities be utilized. The universities/colleges can also draw upon expertise of outside resource persons for teaching purpose. Environmental Core Module shall be integrated into the teaching programmes of all undergraduate courses.

Foundation Course
FC-102 Fundamentals of Accounting

Course Introduction:
This course introduces the terminology employed in accounting circles, the principles used in basic accounting and their maintenance.

Objectives:
1. To impart basic accounting knowledge & to ensure working knowledge amongst students for the subject.
2. To give overview regarding various cost components, and their valuation techniques.
3. To familiarize with the basic computerized accounting.

No. of Credits: 2
Theory Sessions per week: 3
Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	**Introduction to accounting**	**10 hours**
	• **Principle of double entry book keeping** o Meaning, Importance & scope of accounting o Accountancy, accounting and book keeping o Distinction between book keeping and accounting o Branches of accounting o Double entry system of accounting o Accrual basic & cash basis of accounting o Accounting equation	5 hrs
	• **Generally accepted accounting principles:** o Meaning of Generally accepted accounting principles o Basic assumptions and principle of accounting	5 hrs
2	**Journalizing, Posting, Balancing and preparation Subsidiary books**	**10 hours**
	• **Journalizing, Posting, Balancing** o Meaning & classification of account o Rules of debit and credit o Meaning and format of journal o Meaning of journalizing o Ledger and its format o Balancing	4 hrs
	• **Subsidiary books** o Meaning and types of cash book o Trade and cash discount o Three column cash book, petty cash book, purchase book, sales book, purchase return book & sales return book	6 hrs

3	**Preparation of financial statements:**	**10 hours**
	o Meaning and utility of financial statements o Recognition of assets, liabilities, income and expense o Preparation of trading, profit & loss account and final balance sheet of trading company, partnership firm and joint stock companies (both horizontal and vertical form) with simple adjustments	10 hrs
4	**Introduction to cost accounting**	**10 hours**

	• **Cost accounting**
	  o Meaning, objectives
	  o Functions of cost accounting
	  o Brief introduction to elements of cost
	     (including fixed , variable and semi variable cost)
		2 hrs

	• **Material cost control** o Meaning, Objectives, Classification of material cost, Determination of various levels and Problems on LIFO, FIFO & weighted average	3 hrs

	• **Direct labour cost control**
	  o Meaning
	  o Objectives
	  o Classification of the labour cost
	  o Determination of the labour cost by time wage
	  o Piece wage and incentive plans (including Halsey, Rowan plan)
		3 hrs

	• **Computerized accounting** o Overview of Financial accounting software (Tally, Ex. Microsoft Financial)	2hrs

Textbooks:

1. Financial Accounting,
   Publisher: Pearson Education
   By P.C. Tulisan
   (For unit 1 refer chapter 1, 2 & 5,
    Unit 2 refer chapter 6, 7 & 8,
   Unit 3 refer chapter 9)

2. Cost Accounting,

Publisher: Tata Mc. Graw Hill
By M.Y. Khan & P.K.Jain
(For unit 4 refer chapter 1, 2, 3 & 4)

Reference Books :
1   Financial Accounting Theory And Practice,
    Publisher: Tata Mc. Graw Hill
    By Prassna Chandra

2   Financial Managemant,
    Publisher: Vikas Publishing House
    By I M Pandey

3   Cost Accounting,
    Publisher: Tata Mc. Graw Hill
    By Jawaharlal

4   Financial & Cost Accounting,
    Publisher: Sultanchand & Sons.
    By S.N. Maheshwari

5   Cost Accounting,
    Pearson Education
    By Dutta

Foundation Course
FC 102 General English

Course Introduction:

It is impossible for a human being to experience every good or bad thing existing on this earth, but he can definitely learn from the experiences of others. This process of learning can be initiated if he acquaints himself with the literary works of the great masters. Such experiences sensitize the human being on issues pertaining to the struggle for human existence.

Objectives:

1. To familiarize students with the best samples of writings in English so that they can learn the structure of the language as it is used creatively.
2. To orient students to social and cultural issues.
3. To acquaint students with different writing styles of English.

No. of Credits: 2
Theory Sessions per week: 3
Teaching Hours: 40 hours

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	• Selected Stories from Malagudi Days by R K Narayan Indian thought Publication List of stories o The Doctors word o The Blind dog o Iswaran o Father's help o Forty-five a month o Out of Business o Attila o The Shadow o Leela's friend o Salvi Note: Short question-answers and theme based short notes should be asked.	**10 hours**
2	• Arms and the Man by Bernard Shaw Orient Longman Publication Note: Short question-answers and theme based short notes should be asked.	**10 hours**
3	**Grammar** • Tenses	**10 hours**

	• Subject-verb agreement		
	• Preposition		
	• Articles		
	• Modals		
4	**Speaking Skills**		**10 hours**
	• Pronunciation (identification of sounds, vowels & consonants)		
	• Syllable division (from the list attached)		
	• Rhyming words		
	• Vocabulary from the texts		

Reference Book :

1. Enrich your English

   – by CIEFL (Academic Skills book)

2. Contemporary English Grammar

   – by Raymond Murphy

3. Essential English Grammar

   - by Raymond Murphy

Assessment to be done on the basis of assignments and tests/exam. Tests to be set from the syllabus itself.
Suggested areas/topics for assignment:
   1. Literary background of Malgudy Days
   2. Literary background of Arms and the Man
   3. Paragraph writing using words given in the vocabulary
   4. Identifying grammatical errors
   5. Correcting grammatical errors

Seminar topics
   1. Life and works of R K Narayan
   2. Life and works of Bernard Shaw
   3. Comparison of the stories of Malgudy days with the TV serial Malgudi days.
   4. The picture of India as presented in R K Narayan's short stories(other than the ten stories given in the syllabus)
   5. Importance of reading in Language learning

List of Syllables:

1. Ominous – om|in|ous
2. Doctor - doc|tor
3. Repeat – re|peat
4. Whimper – whim|per
5. Auspicious – aus|pi|cious
6. Opportunity – op|por|tun|ity
7. Extricate – ex|tri|cate
8. Goad – goad (mono syllable word)
9. Examination – exam|in|ation
10. Deliberate – de|lib|er|ate
11. Isolate – iso|late
12. Palpitate – pal|pi|tate
13. Amount – amount (mono syllabic word)
14. Humiliation – Hu|mili|ation
15. Moustache – mous|tache
16. Deliver – de|liver
17. Impatient – im|pa|tient
18. Starvation – star|va|tion
19. Excruciating – ex|cru|ci|at|ing
20. Resignation – res|ig|na|tion
21. Gramophone – gramo|phone
22. Fashionable – fash|ion|able
23. Numerous – nu|mer|ous
24. Disappointment – dis|ap|point|ment
25. Formidableness – for|mid|able|ness

26. Puppy – puppy (monosyllabic word)
27. Misunderstanding – mis|un|der|stand|ing
28. Occasionally – oc|ca|sion|al|ly
29. Consideration – con|sid|er|ation
30. Father – father (monosyllabic word)
31. Minimum – min|imum
32. Ordinary – or|din|ary
33. Catalogue – cata|logue
34. Illustrate – il|lus|trate
35. Magician – ma|gi|cian
36. Jewellery – jew|el|lery
37. Classification – clas|si|fi|ca|tion
38. Demand – de|mand
39. Notwithstanding – not|with|stand|ing
40. Ungrateful – un|grate|ful

Word	Meaning	Noun	Verb	Adjective
admire	to think of with pleasure and respect	admiration	Admire	Admirable
amusement	enjoyment	amusement	amuse	amusing
challenge	to invite to compete against one in fight, match, etc.	challenge	challenge	challenging
cheerful	happy and optimistic	cheerfulness	cheer	cheerful
Civilized	without roughness of manner or style civility	civility	Civilize	Civil,civilized
curable	that can be cured	cure	cure	curable
dear	Much loved	Dear	Endear	Dear
deceit	The act of deceiving	Deceit	Deceive	Deceitful
defy	Openly refuse to obey	Defiance	Defy	Defiant
disgusting	Very unpleasant	Disgust	Disgust	Disgusting
Dishearten	Discourage	Disheartenment	Dishearten	Disheartening
disposition	inclination	Disposition	Dispose	Disposed
dream	A long-held wish	Dream	Dream	Dreamy
eatable	fit to be consumed as food	eatery, eatables	Eat	Eatable
Enchanted	Charmed	Enchantment	Enchant	Enchanted
energetic	full of energy	Energy	Energise	Energetic
Envy	the feeling you have towards someone when you Wish you had their qualities	Envy	Envy	Envious

excitable	easily excited	Excitement	Excite	Excitable
Flash	to appear as a sudden very bright flame or flare	Flash	Flash	Flashy
foolish	without good sense	Foolishness	Befool	Foolish
glorious	bringing glory	Glory	glorify	glorious
Imagination	the ability to imagine	Imagination	Imagine	Imaginative
Inspire	To motivate	Inspiration	Inspire	Inspiring
Insult	to be rude to	Insult	Insult	Insulting
Meanness	Unkindness	Meanness	Mean	Mean
Noble	Decent	Nobility	Ennoble	Noble
Professional	working in one of the professions	profession	professionalize	Professional
Realize	to change into money, to make real	realization	realize	Realizable
Recommendation	the act of recommending	Recommendation	recommend	recommended
reconciliation	bringing back of friendly relations	Reconciliation	reconcile	reconciliable
refined	made pure	refinement	refine	Refined
ridiculous	silly or unreasonable	ridicule	Ridicule	ridiculous
romantic	showing strong feelings of love	romanticism	romanticize	Romantic
safe	protected from danger or risk	Safety	Save	Safe
Scatter	to spread widely in all directions	Scatter	Scatter	scattered
Slash	To reduce	Slasher	Slash	Slashing
Thrilling	To feel a thrill	Thrill	Thrill	Thrilling
wonder	a feeling of surprise and admiration	Wonder	Wonder	wonderful
worship	religious feelings of love, respect and admiration	Worship	Worship	Worshipful