

CHOICE BASED CREDIT SYSTEM

Syllabus for B.Sc. Computer Science

Pass Course (General)

&

Generic Electives Courses

Under

Nagaland University

2022

COMPREHENSIVE CBCS FOR B. Sc. General (Computer Science)

SEMS	DISCIPLINE CORE COURSE (12 papers)	Ability Enhancement Compulsory Course (AECC) (2 papers)	Skill Enhancement Course (SEC) (2 papers)	Discipline Specific Elective DSE (6 papers)
I	Discipline-1 Computer Science Paper I: Computer Fundamentals	(English/MIL)		
	DSC- 2 Paper I			
	DSC- 3 Paper 1			
II	Discipline-1 Computer Science Paper II: Database Management Systems	Environmental Science		
	DSC- 2 Paper II			
	DSC- 3 Paper II			
III	Discipline-1 Computer Science Paper III: Web Design using HTML		SEC-1	
	DSC- 2 Paper III			
	DSC- 3 Paper III			
IV	Discipline-1 Computer Science Paper IV: PHP Programming		SEC -2	
	DSC-2 Paper IV			
	DSC-3 Paper IV			
V			SEC -3	DSE-Computer Science Paper I Programming Fundamentals using C
				DSE- 2 Paper I
				DSE- 3 Paper I
VI			SEC -4	DSE-Computer Science Paper II Project Work / Dissertation
				DSE- 2 Paper II
				DSE-3 Paper II

COMPUTER SCIENCE SPECIFIC COURSE DETAILS FOR CBCS

SEMESTER	COURSE	COURSE NAME	CODE	CREDIT S
I	Core course 1	Computer Fundamentals (Theory)	DSC(CSC)-1A	4
		Computer Fundamentals (Practical)		2
II	Core course 2	Database Management Systems (Theory)	DSC(CSC)-1B	4
		Database Management Systems (Practical)		2
III	Core course 3	Web Design using HTML(Theory)	DSC(CSC)-1C	4
		Web Design using HTML (Practical)		2
	SEC-1	Android Programming	SEC-1	2
IV	Core course 4	PHP Programming (Theory)	DSC(CSC)-1D	4
		PHP Programming (Practical)		2
	SEC -2	Oracle (PL/SQL)	SEC-2	2
V	SEC -3	Any paper from Common Pool	SEC-3	2
	DSE-1	Programming Fundamentals using C(Theory)	DSE(CSC)-1A	4
		Programming Fundamentals using C (Practical)		2
VI	SEC -4	Any paper from Common Pool	SEC-4	2
	DSE-2	Project Work / Dissertation	DSE(CSC)-1B	6
Total Credits				44

SKILL ENHANCEMENT COURSES (2 Credit Each)

Semester	SI No.	Title of the paper (Computer Science)	Total Credit 2
III	1	Android Programming	2
IV	2	Oracle (PL/SQL)	2

Generic Elective Courses

Semester	COURSE		Course Code	Credit
I	Generic 1	Computer Fundamentals(Theory)	G(CSC)-1	4
		Computer Fundamentals(Practical)		2
II	Generic 2	Database Management Systems(Theory)	G(CSC)-2	4
		Database Management Systems(Practical)		2
III	Generic 3	Web Design using HTML (Theory)	G(CSC)-3	4
		Web Design using HTML (Practical)		2
IV	Generic 4	PHP Programming (Theory)	G(CSC)-4	4
		PHP Programming(Practical)		2

Core course for Computer Science Pass Course (General)

Semester-I

DSC(CSC)-1A: Computer Fundamentals

(Credits 4)

Unit-I: Introduction to computer:

Introduction to Computer: Definition, Characteristics, Capabilities and Limitations. Introduction to Operating System. Components of a Computer System- Control Unit, ALU, input/output functions and characteristics. : I/O Devices, Memory Introduction, Classifications- Volatile Memory and Non- Volatile , Flash Memory, ROM, RAM, EPROM, PROM, EEPROM other types of memory.

Unit-II: Introduction to Windows OS

What is an operating system and basics of Windows, Using Mouse and Moving Icons on the screen, The My Computer Icon, The Recycle Bin, Status Bar, Start and Menu & Menu-selection, Running an Application, Windows Explorer Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows, Windows Setting, Control Panel, Wall paper and Screen Savers, Setting the date and Sound, Creating Short cuts, Window Accessories

Unit III: Ms-Word and Power Point

Starting word - Parts of word window - formatting features - menus, commands, Toolbars - File menu, Edit, view, insert, Format and tool menus - Working with text, tables - checking spelling and Grammars.

Power Point: Making presentation with MS Power-Point - working with Power Point - organization chart - inserting chart from excel.

Unit IV: MS - Excel:

Creating Work Sheets - Formulas - Functions - Charts - Coping Data, between worksheets - Case studies pay bill, profit and loss accounts etc.

Unit-V- The Internet and WWW:

World Wide Web, Internet, Domain Names and Internet Organization (.edu, .com, .mil, .gov, .net, .in etc.), Types of Network, Internet Service Provider, client-server, search engine, Web Browsing software, Basic of electronic mail, Using Emails, Document handling

Books Recommended:

1. A. Goel, Computer Fundamentals, Pearson Education, 2010.

2. P. Aksoy, L. DeNardis, Introduction to Information Technology, Cengage Learning, 2006
3. P. K.Sinha, P. Sinha, Fundamentals of Computers, BPB Publishers, 2007
4. E-Commerce Concepts, Models, Strategies:-G.S.V.Murthy Himalaya Publishing House
5. E-Commerce :-Kamlesh K Bajaj and Debjani Nag

Computer Fundamentals Practical

(Credits 2)

Semester-II

DSC(CSC)-1B: Database Management Systems (Theory)

(Credits 4)

Unit – I

DBMS Definition, Characteristics of DBMS, Application and advantages of DBMS, Instances, Schemas and Database States, Three Levels of Architecture, Data Independence, DBMS languages, Data Dictionary, Database Users, Data Administrators.

Unit – II

Data Models, types and their comparison, Entity Relationship Model, Entity Types, Entity Sets, Attributes and its types, Keys, E-R Diagram, Data Integrity

Unit – III

RDBMS –Concept, Components and Codd's rules, Relational Algebra (selection, projection, union, intersection, Cartesian product, Different types of Joins like theta join, equi-join, natural join, outer join)

Unit – IV

Functional Dependencies, Good & Bad Decomposition, Anomalies as a database: A consequences of bad design, Normalization: 1NF, 2NF, 3NF, BCNF

Unit – V

Introduction to SQL, DDL, DML, and DCL statements, Creating Tables, Adding Constraints, Altering Tables, Update, Insert, Delete & various Form of SELECT-Simple, Using Special Operators for Data Access. Aggregate functions, forms and reports.

Book Recommended:

1. Elmasri, R., & Navathe, S.B. (2015). *Fundamentals of Database Systems*. 7th edition. Pearson Education.

Additional Resources

1. Date, C. J. (2004). *An Introduction to database systems*. 8th edition. Pearson Education.

2. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2010). *Database System Concepts*. 6th edition. McGrawHill.

Database Management Systems (Practical)

(Credits 2)

Semester-III

DSC(CSC)-1C: Web Design using HTML (Theory)

(Credits 4)

Unit 1: Introduction:

Basic HTML Concepts, HTML tags, Paragraphs, Formatted and Unformatted Text, Hyperlink, Font, Lists and its attributes, Relative Links, Absolute Links, Link Attributes, Using the ID Attribute to Link Within a Document.

Unit 2: Designing Web Pages:

Image attributes, inserting an Image in a Page, Web Graphic Format (GIF, JPEG, and PNG), Inline Images Using Images as Links, inserting an Image in the Background, comments, inserting Audio and Video files in a page, Working with `<div>` tags.

Unit 3: Tables and Forms:

Creating a Table, Table Headers, Captions, Spanning Multiple Rows/Columns, Styling Table

How HTML Forms work, inserting a form, Using Text fields, Providing Checkboxes and Radio Buttons, creating form lists and Menus, activating forms with buttons, Using Hidden fields and File fields.

Unit 4: Introduction to CSS

Concept of CSS, creating style sheet, CSS properties, CSS styling (background, text format, controlling fonts), working with block elements and objects, working with lists and tables, CSS id and class, box model (introduction, border properties, padding properties, margin properties).

Unit-5: JavaScript Fundamentals:

Data types and variables, functions, events, controlling program flow, JavaScript object model, built-in objects and operators.

Book Recommended:

1. Boehm, A., & Ruvalcaba, Z. (2018). *Munarch's HTML5 and CCS*(4th Edition). Mike Murach & Associates.

1. Introduction to HTML and CSS- -- O'Reilly , 2010
2. Jon Duckett, HTML and CSS John Wiely, 2012

Web Design using HTML (Practical)

(Credits 2)

Semester-IV

DSC(CSC)-1D: PHP Programming (Theory)

(Credits 4)

Unit 1: Introduction to PHP: PHP introduction, inventions and versions, important tools and software requirements (like Web Server, Database, Editors etc.). PHP with other technologies, scope of PHP. Basic Syntax, PHP variables and constants Types of data in PHP, Expressions, scopes of a variable (local, global), PHP Operators: Arithmetic, Assignment, Relational, Logical operators, Bitwise, ternary and MOD operator. PHP operator Precedence and associativity

Unit 2: Handling HTML form with PHP: Capturing Form Data, GET and POST form methods, Dealing with multi value fields, Redirecting a form after submission, Validating data: Using Filters and common ctype() functions

Unit 3: PHP conditional events and Loops: PHP IF Else conditional statements (Nested IF and Else), Switch case, while, For and Do While Loop, Goto, Break, Continue and exit.

Unit 4: PHP Functions: Function, Need of Function, declaration and calling of a function, PHP Function with arguments, Default Arguments in Function, Function argument with call by value, call by reference, Scope of Function Global and Local

Unit 5: String Manipulation and Exception handling: Creating and accessing String, Searching & Replacing String Formatting, joining and splitting String, String Related Library functions, introduction to exceptions handling, needs of exception handling, advantages of exception handling over error handling, error handling methods using try, throw, catch and finally block.

Reference Books:

1. Steven Holzner, "PHP: The Complete Reference Paperback", McGraw Hill Education (India), 2007.
2. Timothy Boronczyk, Martin E. Psinas, "PHP and MYSQL (Create-Modify-Reuse)", Wiley India Private Limited, 2008.
3. Robin Nixon, "Learning PHP, MySQL, JavaScript, CSS & HTML5", 3rd Edition Paperback, O'reilly, 2014.

PHP Programming (Practical)

(Credits 2)

Software Lab Based on PHP:

1. Create a PHP page using functions for comparing three integers and print the largest number.
2. Write a function to calculate the factorial of a number (non-negative integer). The function accepts the number as an argument.
3. WAP to check whether the given number is prime or not.

4. Create a PHP page which accepts string from user. After submission that page displays the reverse of provided string.
5. Write a PHP function that checks if a string is all lower case.
6. Write a PHP script that checks whether a passed string is palindrome or not? (A palindrome is word, phrase, or sequence that reads the same backward as forward, e.g., madam or nurses run)
7. WAP to sort an array.
8. Write a PHP script that removes the whitespaces from a string.

Sample string : 'The quick " " brown fox' Expected Output : Thequick""brownfox

Skill Enhancement Course

Semester-III

SEC 1. Android Programming

Unit 1: Introduction: History of Android, Introduction to Android Operating Systems, Android Development Tools, Android Architecture.

Unit 2: Overview of object-oriented programming using Java: OOPs Concepts: Inheritance, Polymorphism, Interfaces, Abstract class, Threads, Overloading and Overriding, Java Virtual Machine.

Unit 3: Development Tools: Installing and using Eclipse with ADT plug-in, Installing Virtual machine for Android sandwich/Jelly bean (Emulator), configuring the installed tools, creating a android project

Hello Word, run on emulator, Deploy it on USB-connected Android device.

Unit 4: User Interface Architecture: Application context, intents, Activity life cycle, multiple screen sizes.

User Interface Design: Form widgets, Text Fields, Layouts, Button control, toggle buttons, Spinners(Combo boxes), Images, Menu, Dialog.

Unit 5: Database: Understanding of SQLite database, connecting with the database.

Book Recommended:

1. Android application development for java programmers. By James C. Sheusi. Publisher: Cengage Learning, 2013.

ONLINE READING / SUPPORTING MATERIAL:

1. <http://www.developer.android.com>
2. <http://developer.android.com/about/versions/index.html>
3. <http://developer.android.com/training/basics/firstapp/index.html>
4. <http://docs.oracle.com/javase/tutorial/index.htm> (Available in the form of free downloadable ebooks also).
5. <http://developer.android.com/guide/components/activities.html>
6. <http://developer.android.com/guide/components/fundamentals.html>
7. <http://developer.android.com/guide/components/intents-filters.html>
8. <http://developer.android.com/training/multiscreen/screensizes.html>
9. <http://developer.android.com/guide/topics/ui/controls.html>
10. <http://developer.android.com/guide/topics/ui/declaring-layout.html>
11. <http://developer.android.com/training/basics/data-storage/databases.html>

Software Lab Based on Android Programming:

1. Create —Hello World!! application. That will display —Hello World!! in the middle of the screen in the emulator. Also display —Hello World!! in the middle of the screen in the Android Phone.
2. Create an application with login module. (Check username and password).
3. Create spinner with strings taken from resource folder (res >> value folder) and on changing the spinner value, Image will change.
4. Create a menu with 5 options and selected option should appear in text box.
5. Create a list of all courses in your college and on selecting a particular course teacher- in-charge of that course should appear at the bottom of the screen.
6. Create an application with three option buttons, on selecting a button colour of the screen will change.
7. Create and Login application as above. On successful login, pop up the message.
8. Create an application to Create, Insert, update, Delete and retrieve operation on the database.

Skill Enhancement Course

Semester-IV

SEC 2: Oracle (PL/SQL)

Unit 1: Introduction to PL/SQL

Introduction to PL/SQL, Architecture, Benefits of PL/SQL, Creating PL/SQL Blocks, Variables and Data types, Operators and Expressions.

Unit 2: Using SQL in PL/SQL

Creating and Altering Tables (Including constraints) Data Manipulation Command like Insert, update, delete. SELECT statement with WHERE, GROUP BY and HAVING, ORDER BY, DISTINCT, Special operator like IN, ANY, ALL BETWEEN, EXISTS, LIKE. Join, Built in functions

Unit 3: Control Structures and Exception Handling

Conditional Control: IF Statements, Conditional Control: CASE Statements, Iterative Control: Basic Loops, Iterative Control: WHILE and FOR Loops, Iterative Control: Nested Loops

Exceptions and its types, Handling system defined and user defined exceptions.

Unit 4: Procedures and Functions

Creating Procedures Using Parameters in Procedures, Passing Parameters. Creating Functions, Using Functions in SQL Statements, Difference between procedures and functions

Transaction Control Statements: Commit, Rollback, Savepoint

Unit 5: Cursors and Triggers

Introduction to Implicit and Explicit Cursors, Using Explicit Cursor Attributes, Cursor FOR Loops, Cursors with Parameters, Using Cursors for UPDATE

Introduction To Triggers, Creating DML Triggers, Creating DDL and Database Event Triggers, Managing Triggers

Books Recommended:

1. Baron Schwartz , High Performance MySQL, O'Reilly, 2012.
2. Vikram Vaswani , The Complete Reference MySQL , McGraw Hill Education, 2004.

Oracle (PL/SQL) (Practical)

Software Lab Based on (PL/SQL):

[SQL COMMANDS]

- 1) SQL* formatting commands
- 2) To create a table, alter and drop table.

- 3) To perform select, update, insert and delete operation in a table.
- 4) To make use of different clauses viz where, group by, having, order by, union and intersection,
- 5) To study different constraints.

[SQL FUNCTION]

- 6) To use oracle function viz aggregate, numeric, conversion, string function.
- 7) To understand use and working with joins.
- 8) To make use of transaction control statement viz rollback, commit and save point.
- 9) To make views of a table.
- 10) To make indexes of a table.

[PL/SQL]

- 11) To understand working with PL/SQL
- 12) To implement Cursor on a table.
- 13) To implement trigger on a table

DSE(CSC)-1A: Programming Fundamentals using C

Theory: 60 Lectures

Unit 1: Overview of Procedure oriented programming, Data types, Defining and Initializing Variables, Scope of Variables, Keywords, Casting of Data Types, Operators (Arithmetic, Relational, and Logical), main() function, Compiling and Executing a program, Using Comments in programs, Character I/O (getc, getchar, putc), printf(), scanf(), Basic Header Files (stdio.h, conio.h, math.h, string.h, etc).

Unit 2: Simple Expressions in C, Understanding precedence of Operators in Expressions, Conditional Statements (IF, IF... ELSE, Nested IF, Switch-Case), Iterative Statements (FOR, WHILE, and DO-WHILE), Use of BREAK and CONTINUE in Loops, Nested loops.

Unit 3: Use of functions, Call by Value, Call by Reference, Functions returning value, Void function, One Dimensional Arrays (Declaring an Array, Initializing an Array, Accessing individual elements in an Array, Manipulating array elements using loops), Use Various types of arrays (integer, float and character arrays / Strings), Two-dimensional Arrays, Working with Rows and Columns of a matrix.

Unit 4: Understanding use of structures, declaring, initializing and using simple structures, Manipulating individual members of structures, Array of Structures

Unit 5: Understanding Pointer Variable, Simple use of Pointers, Pointer arithmetic, Differentiating between static and dynamic memory allocation, use of malloc and calloc functions, Simple file handling operations.

Books:

1. Programming in ANSI C - E. Balguruswamy, TMH
2. Let us C - Yawant Kanitkar, BPB

C Programming Lab

1. Write a program to find the maximum among three numbers.
2. Write a program to find factorial of a number.
3. Write a program to print the Fibonacci series.
4. Write a program to print the prime numbers between 1 to n.
5. Write a program to check if it a Palindrome (e.g., madam).
6. Write a program to check if it is an Armstrong number. (An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself)
7. Write program to reverse the digits of an input number.
8. Write a program to find the sum of digits of a number.
9. Write a program to find the GCD and LCM of two numbers.
10. Write a program to perform different arithmetic operations using switch....case.
11. Write a program to count the number bits “1” in a given binary number.
12. Write a program to find the factorial of a number using function.
13. Write a program to perform the arithmetic operations using function.
14. Write a program to find the largest element in an array.
15. Write a program to add two matrices.
16. Write a program to multiply two matrices.
17. Write a program to find the position of a given character in a string.
18. Write a program to count the number of times a character occurs in a string.
19. Write a program to create records of 10 students using structure.

Discipline Specific Electives

Semester-VI

DSE(CSC)-1B: Software Development Project Work

A student has to undertake a software development project work under the guidance of a teacher during the 6th semester. After completion of the project, the student has to submit a project report which will be evaluated jointly by an External Examiner and Supervisor.

Project Group Organization/Plan

- Students will initially prepare a synopsis (500 words) and submit it to their respective department.
- For a given project, the group size could be a maximum of four (04) students.
- Each group will be assigned a teacher as a supervisor who will be responsible for their lab classes.
- A maximum of four (04) projects would be assigned to one teacher.

Generic Elective Courses for Computer Science

Semester-I

G(CSC)-1: Computer Fundamentals

(Credits 4)

Unit-I: Introduction to computer:

Introduction to Computer:-Definition, Characteristics, Capabilities and Limitations. Introduction to Operating System. Components of a Computer System- Control Unit, ALU, input/output functions and characteristics. : I/O Devices, Memory Introduction, Classifications- Volatile Memory and Non- Volatile , Flash Memory, ROM, RAM, EPROM, PROM, EEPROM other types of memory.

Unit-II: Introduction to Windows OS

What is an operating system and basics of Windows, Using Mouse and Moving Icons on the screen, The My Computer Icon, The Recycle Bin, Status Bar, Start and Menu & Menu-selection, Running an Application, Windows Explorer Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows, Windows Setting, Control Panel, Wall paper and Screen Savers, Setting the date and Sound, Creating Short cuts, Window Accessories

Unit III: Ms-Word and Power Point

Starting word - Parts of word window - formatting features - menus, commands, Toolbars - File menu, Edit, view, insert, Format and tool menus - Working with text, tables - checking spelling and Grammars.

Power Point: Making presentation with Ms Power Points - working with Power Point - organization chart - inserting chart from excel.

Unit IV: MS - Excel:

Creating Work Sheets - Formulas - Functions - Charts - Coping Data, between worksheets - Case studies pay bill , profit and loss accounts etc.

Unit-V- The Internet and WWW:

World Wide Web, Internet, Domain Names and Internet Organization (.edu, .com, .mil, .gov, .net ,.in etc.) , Types of Network, Internet Service Provider, client-server, search engine, Web Browsing software, Basic of electronic mail, Using Emails, Document handling

Books Recommended:

1. A. Goel, Computer Fundamentals, Pearson Education, 2010.
2. P. Aksoy, L. DeNardis, Introduction to Information Technology, Cengage Learning, 2006

3. P. K.Sinha, P. Sinha, Fundamentals of Computers, BPB Publishers, 2007
4. E-Commerce Concepts, Models, Strategies:-G.S.V.Murthy Himalaya Publishing House
5. E-Commerce :-Kamlesh K Bajaj and Debjani Nag

Computer Fundamentals Practical

(Credits 2)

Generic Elective for Computer Science

Semester-II

G(CSC)-2 Database Management Systems(Theory)

(Credits 4)

Unit – I

DBMS Definition, Characteristics of DBMS ,Application and advantages of DBMS, Instances , Schemas and Database States, Three Levels of Architecture , Data Independence, DBMS languages, Data Dictionary, Database Users, Data Administrators.

Unit – II

Data Models, types and their comparison, Entity Relationship Model, Entity Types, Entity Sets, Attributes and its types, Keys, E-R Diagram, Data Integrity

Unit – III

RDBMS –Concept, Components and Codd's rules, Relational Algebra (selection, projection, union, intersection, Cartesian product, Different types of join like theta join, equi-join, natural join, outer join)

Unit – IV

Functional Dependencies, Good & Bad Decomposition, Anomalies as a database: A consequences of bad design, Normalization: 1NF, 2NF, 3NF, BCNF

Unit – V

Introduction to SQL, DDL, DML, and DCL statements, Creating Tables, Adding Constraints, Altering Tables, Update, Insert, Delete & various Form of SELECT- Simple, Using Special Operators for Data Access. Aggregate functions, forms and reports.

Book Recommended:

1. Elmasri, R., & Navathe, S.B. (2015). *Fundamentals of Database Systems*. 7th edition. Pearson Education.

Additional Resources

1. Date, C. J. (2004). *An Introduction to database systems*. 8th edition. Pearson Education.
2. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2010). *Database System Concepts*. 6th edition. McGrawHill.

Database Management Systems (Practical)

(Credits 2)

Generic Elective for Computer Science

Semester-III

G(CSC)-3: Web Design using HTML (Theory)

(Credits 4)

Unit 1: Introduction:

Basic HTML Concepts, HTML tags, Paragraphs, Formatted and Unformatted Text, Hyperlink, Font, Lists and its attributes, Relative Links, Absolute Links, Link Attributes, Using the ID Attribute to Link Within a Document.

Unit 2: Designing Web Pages:

Image attributes, inserting an Image in a Page, Web Graphic Format (GIF, JPEG, and PNG), Inline Images Using Images as Links, inserting an Image in the Background, comments, inserting Audio and Video files in a page, Working with `<div>` tags.

Unit 3: Tables and Forms:

Creating a Table, Table Headers, Captions, Spanning Multiple Rows/Columns, Styling Table

How HTML Forms work, Inserting a form, Using Text fields, Providing Checkboxes and Radio Buttons, Creating form lists and Menus, Activating forms with buttons, Using Hidden fields and File fields.

Unit 4: Introduction to CSS

Concept of CSS, creating style sheet, CSS properties, CSS styling (background, text format, controlling fonts), working with block elements and objects, working with lists and tables, CSS id and class, box model (introduction, border properties, padding properties, margin properties).

Unit-5: JavaScript Fundamentals:

Data types and variables, functions, events, controlling program flow, JavaScript object model, built-in objects and operators.

Book Recommended:

1. Boehm, A., & Ruvalcaba, Z. (2018). *Munarch's HTML5 and CCS*(4th Edition). Mike Murach & Associates.

1. Introduction to HTML and CSS- -- O'Reilly , 2010

2. Jon Duckett, HTML and CSS John Wiely, 2012

Web Design using HTML (Practical)

(Credits 2)

Generic Elective for Computer Science

Semester-IV

G(CSC)-4: PHP Programming (Theory)

(Credits 4)

Unit 1: Introduction to PHP: PHP introduction, inventions and versions, important tools and software requirements (like Web Server, Database, Editors etc.). PHP with other technologies, scope of PHP. Basic Syntax, PHP variables and constants Types of data in PHP, Expressions, scopes of a variable (local, global), PHP Operators: Arithmetic, Assignment, Relational, Logical operators, Bitwise, ternary and MOD operator. PHP operator Precedence and associativity

Unit 2: Handling HTML form with PHP: Capturing Form Data, GET and POST form methods, Dealing with multi value fields, Redirecting a form after submission, Validating data: Using Filters and common ctype() functions

Unit 3: PHP conditional events and Loops: PHP IF Else conditional statements (Nested IF and Else), Switch case, while ,For and Do While Loop, Goto , Break ,Continue and exit.

Unit 4: PHP Functions: Function, Need of Function, declaration and calling of a function, PHP Function with arguments, Default Arguments in Function, Function argument with call by value, call by reference, Scope of Function Global and Local

Unit 5: String Manipulation and Exception handling: Creating and accessing String, Searching & Replacing String Formatting, joining and splitting String , String Related Library functions , introduction to exceptions handling, needs of exception handling, advantages of exception handling over error handling, error handling methods using try, throw, catch and finally block.

Reference Books:

1. Steven Holzner, "PHP: The Complete Reference Paperback", McGraw Hill Education (India), 2007.
2. Timothy Boronczyk, Martin E. Psinas, "PHP and MYSQL (Create-Modify-Reuse)", Wiley India Private Limited, 2008.
3. Robin Nixon, "Learning PHP, MySQL, JavaScript, CSS & HTML5", 3rd Edition Paperback, O'reilly, 2014.

PHP Programming (Practical)

(Credits 2)

Software Lab Based on PHP:

1. Create a PHP page using functions for comparing three integers and print the largest number.
2. Write a function to calculate the factorial of a number (non-negative integer). The function accept the number as an argument.

3. WAP to check whether the given number is prime or not.
4. Create a PHP page which accepts string from user. After submission that page displays the reverse of provided string.
5. Write a PHP function that checks if a string is all lower case.
6. Write a PHP script that checks whether a passed string is palindrome or not? (A palindrome is word, phrase, or sequence that reads the same backward as forward, e.g., madam or nurses run)
7. WAP to sort an array.
8. Write a PHP script that removes the whitespaces from a string.

Sample string : 'The quick " " brown fox' Expected Output : Thequick""brownfox