VINAYAKA MISSION'S RESEARCH FOUNDATION

(DEEMED TO BE UNIVERSITY UNDER SECTION 3 OF THE UGC ACT 1956)

FACULTY OF ARTS & SCIENCE
BOS- 2019 SCIENCE BOARD
BCA: BACHELOR OF COMPUTER APPLICATIONS

B.C.A - BACHELOR OF COMPUTER APPLICATIONS

BOS-2019

SCIENCE BOARD - 2019

REGULATIONS 2019

For the Academic Year starting from 2019-2020 onwards

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BCA PROGRAMME OUTCOMES

BCA programme has been designed to prepare graduates for attaining the following outcomes:

1. Working towards the application of technological and administrative knowledge in technological and administrative fields in line with the requirements of the labor market.
2. Meeting the students' needs through the provision of chances for individual, social, academic, technological and vocational development.
3. Building up a generation of highly competent technicians through the provision of recognized, high quality technological programs.
4. Providing the economic sector and other sectors with technically and administratively qualified personnel.
5. Providing technological and parallel education and training services.
6. Conducting scientific and applied researches and studies and publishing them for the benefit of the School of Arts and Science and the society.

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BOS- 2019 SCIENCE BOARD
BCA: BACHELOR OF COMPUTER APPLICATIONS
REGULATION – 2019
Bachelor of Computer Applications (BCA)- Regular
CURRICULUM (CBCS – Choice Based Credit System)
OVERALL CREDITS

S. No.	Nature of Course	No. of Courses	Credit / Each course	Total No. of Credits
I	**CORE COURSES**			
	DSC – 1 : Discipline Specific Core Courses – 1	4	6	24
	DSC – 2 : Discipline Specific Core Courses – 2	4	6	24
	DSC – 3 : Discipline Specific Core Courses – 3 (Foundation Courses)	8	3	24
II	**ELECTIVE COURSES**			
	DSE -1: Discipline Specific Elective-I	2	6	12
	DSE-2: Discipline Specific Elective-II:	2	6	12
	DSE-3: Discipline Specific Elective-III (including Project Work/Dissertation)	2	6	12
III	**ABILITY ENHANCEMENT COURSES**			
1	AECC-1:Ability Enhancement Compulsory courses-1 (Environmental Science)	1	4	4
	AECC-2:Ability Enhancement Compulsory courses-2(English Communication Lab)	1	4	4
2	**SKILL ENHANCEMENT COURSES**			
IV	SEC : Skill Enhancement courses	4	4	16
	VALUE ADDED COURSES			
	VAC : Value Added Courses	1	2	2
	Swayam *	1	2	-
	NSS/RRC/Sports Activity *	1	2	-
	Total Credits			**134**

***Non – CGPA Courses**
*Swayam /NSS/RRC/Sports Activity Based on performance and attendance, which will not be calculated for CGPA

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I - CORE COURSE

DSC – 1: Discipline Specific Core Courses – 1

S.NO	COMPONENT CODE	SUBJECT TITLE	CREDIT	TOTAL CREDITS
1.	DSC – 1A	Fundamentals of Computer Applications	4	24
		Practical - Computer Fundamentals Lab	2	
2.	DSC – 1B	Programming in C	4	
		Programming in C Lab	2	
3.	DSC – 1C	Object Oriented Programming using C++	4	
		Object Oriented Programming using C++ Lab	2	
4.	DSC – 1D	Data Structures	4	
		Data Structures lab	2	

DSC – 2: Discipline Specific Core Courses – 2

S.NO	COMPONENT CODE	SUBJECT TITLE	CREDIT	TOTAL CREDITS
1.	DSC – 2A	Database Management System and its Applications	4	24
		RDBMS Lab	2	
2.	DSC – 2B	Programming in Java	4	
		Practical-Programming in Java Lab	2	
3.	DSC – 2C	Scripting Languages	4	
		Scripting Languages lab	2	
4.	DSC – 2D	Computer Networks	6	

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DSC – 3: Discipline Specific Core Courses – 3

(Foundation Courses)

S.NO	COMPONENT CODE	SUBJECT TITLE	CREDIT	TOTAL CREDIT
5.	DSC – 3A1	**Tamil - I / Hindi – I / French - I**	3	24
6.	DSC –3A2	**Tamil - II / Hindi – II / French - II**	3	
7.	DSC – 3A3	**Tamil - III / Hindi – III / French - III**	3	
8.	DSC – 3A4	**Tamil - IV/ Hindi – IV / French - IV**	3	
9.	DSC – 3B1	**English I**	3	
10.	DSC – 3B2	**English II**	3	
11.	DSC – 3B3	**English III**	3	
12.	DSC – 3B4	**English IV**	3	

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II - ELECTIVE COURSE

DSE – 1 DISCIPLINE SPECIFIC ELECTIVE COURSE (Any Two)

S.NO	COMPONENT CODE	SUBJECT TITLE	CREDIT	TOTAL CREDIT
1	DSE – 1A	Numerical and Statistical Methods	6	12
2	DSE – 1A	Mathematical Foundation	6	
3	DSE – 1B	Operations Research	6	
4	DSE – 1B	Discrete Mathematics	6	
DSE – 2 DISCIPLINE SPECIFIC ELECTIVE COURSE (Any Two)				
S.NO	**COMPONENT CODE**	**SUBJECT TITLE**	**CREDIT**	**TOTAL CREDIT**
1	DSE – 2A	E-commerce	6	12
2	DSE – 2A	Financial Accounting	6	
3	DSE – 2B	Entrepreneurship	6	
4	DSE – 2B	Contemporary Advertising	6	
DSE – 3 DISCIPLINE SPECIFIC ELECTIVE (Any Two) – INTERDISCIPLINARY - 6 Credits (Any One Inter- Disciplinary with Compulsory Project)				
S.NO	**COMPONENT CODE**	**SUBJECT TITLE**	**CREDIT**	**12**
1	DSE – 3A	Data Warehousing and Data Mining	4+2	
2	DSE – 3A	.Net Programming	4+2	
3	DSE – 3A	Building Internet of Things	4+2	
4	DSE – 3A	Object Oriented Analysis and Design	4+2	
5	DSE – 3B	Project Work - Dissertation – **Compulsory**	6	

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III - ABILITY ENHANCEMENT COURSE

S No	COMPONENT CODE	1. Ability Enhancement Compulsory Course	Credits	Total
1	AECC -1	Environmental Science	4	**4 x 2= 8**
2	AECC-2	English Communication – Lab / Basic Tamil	4	
S No	**COMPONENT CODE**	**2. Skill Enhancement Course (Any Four)**	**Credits**	**Total**
1	SEC - 1	Yoga and Meditation – Lab	4	**4 x 4 = 16**
2	SEC – 2	Soft Skills – I	4	
3	SEC- 3	Soft Skills – II	4	
4	SEC – 4	PHP Programming	4	
5		Python Programming	4	
6		R Programming	4	

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IV - VALUE ADDED COURSE (ANY ONE)

No	COMPONENT CODE	IV - Value Added Course (Any One)	Credits	Total
1	VAC	Women Studies	2	**1 x 2 = 2**
2		Indian Constitution – Configurable Structure	2	
3		Basic Life Support and First Aid (Demonstration)	2	
4		Fire Safety (Demonstration)	2	
5		Industrial Safety	2	

NOTE:

*** If the candidate from other states they can learn the basic Tamil subject instead of English Communication.**

** **If the candidate select the Basic Life Support and First Aid (Demonstration) & Fire Safety (Demonstration) as their value added programme, the certificate obtained by candidate should be submitted to the COE to provide required 2 credits**.

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CURRICULUM - 2019

S.No	Component Code	Paper Title	Theory / Practical	Credit	Semester Credits
FIRST SEMESTER					
1	DSC – 3A1	Tamil – I / Hindi – I / French – I	Theory	3	22
2	DSC – 3B1	English – I	Theory	3	
3	DSC - 1A	Fundamentals of Computer Applications	Theory	4	
4	DSC - 1A	Practical - Computer Fundamentals Lab	Practical	2	
5	DSE - 1A	Discipline Specific Elective Course -I	Theory/Practical/Both	6	
6	AEC - 1	Environmental Science	Theory	4	
SECOND SEMESTER					
1	DSC – 3A2	Tamil – II / Hindi – II / French – II	Theory	3	22
2	DSC – 3B2	English – II	Theory	3	
3	DSC- 1B	Programming in C	Theory	4	
4	DSC – 1B	Programming in C Lab	Practical	2	
5	DSE – 2A	Discipline Specific Elective Course -II	Theory/Practical/Both	6	
6	SEC – 1	Yoga & Meditation Practical	Practical	4	

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S.No	Component Code	Paper Title	Theory / Practical	Credit	Semester Credits
THIRD SEMESTER					
1	DSC – 3A3	Tamil – III / Hindi – III / French – III	Theory	3	22
2	DSC – 3B3	English – III	Theory	3	
3	DSC- 1C	Object Oriented Programming using C++	Theory	4	
4	DSC – 1C	Object Oriented Programming using C++ Lab	Practical	2	
5	DSC – 1D	Data Structures	Theory	4	
6	DSC – 1D	Data Structures lab	Practical	2	
7	AEC - 2	English Communication / Basic Tamil	Practical	4	
FOURTH SEMESTER					
1	DSC – 3A4	Tamil – IV / Hindi – IV / French – IV	Theory	3	24
2	DSC – 3B4	English – IV	Theory	3	
3	DSC- 2A	Database Management System and its Applications	Theory	4	
4	DSC – 2A	RDBMS Lab	Practical	2	
5	DSE- 2B	Discipline Specific Elective Course -III	Theory/Practical/Both	6	
6	SEC – 2	Soft Skill – I	Practical	4	

7.	VAC	Value Added Courses	Theory/Practical	2	

S.No	Component Code	Paper Title	Theory / Practical	Credit	Semester Credits
FIFTH SEMESTER					
1	DSC- 2B	Programming in Java	Theory	4	22
2	DSC–2B	Practical-Programming in Java Lab	Practical	2	
3	DSC- 2C	Scripting Languages	Theory	4	
4	DSC–2C	Practical- Scripting Languages Lab	Practical	2	
5	DSE- IB	Discipline Specific Elective Course -IV	Theory/Practical/Both	6	
6	SEC – 3	Soft Skill – II	Practical	4	
SIXTH SEMESTER					
1	DSC- 2D	Computer Networks	Theory	6	22
2	SEC – 4	Skill Enhancement Course - IV	Theory / Practical	4	
3	DSE - 3A	Discipline Specific Elective Course - V	Theory/Practical/Both	6	
4	DSE – 3B	Project Work / Dissertation	Project	6	

Total Credits: 134

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Subject : DSC-1A	**Subject Code :** U19CAC1FC
Subject Title : FUNDAMENTALS OF COMPUTER APPLICATIONS	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	To enable the students to have the basic knowledge of computers.

Outcome	**:**	Upon successful completion of this course, student will be able to : • Bridge the fundamental concepts of computers with the present level of knowledge of the students. • Familiarise operating systems, programming languages, peripheral devices, networking, multimedia and internet • Understand binary, hexadecimal and octal number systems and their arithmetic.

L T P C
4 0 0 4

UNIT I **12 Hours**

Introduction To Computers, Characteristics of computers, Evolution of computers, Generation of Computers, Classification of Computers, Number Systems-Conversion between Number Bases, Arithmetic System, Signed and Unsigned Numbers, Binary Coding, Logic Gates, Boolean Algebra, Combination of Logic Gates.

UNIT II **12 Hours**

Central Processing Unit (CPU) Memory, Communication between Various Units of a Computer System, Primary Memory-Memory Hierarchy, Random Access Memory (RAM), Types of RAM, Read Only Memory (ROM), Types of ROM, Secondary Storage-Classification of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Optical Disk,

Magneto Optical disk.

UNIT III **12 Hours**

Input Devices-Keyboard, Pointing Devices, Speech Recognition, Digital Camera, Scanners, Optical Scanners, Output Devices - Classification of Output, Hard Copy Output Devices, Printers, Plotters, Computer Output Microfilm (COM), Soft Copy Output Devices, Monitors, Audio Output, Projectors, Terminals.

UNIT IV **12 Hours**

Developing a Program, Algorithm, Flowchart, Pseudo code (P-Code), Computer Languages-Evolution of Programming Languages, Classification of Programming Languages, Computer Software -Definition, Software Categories- System Software, Application Software, Software Terminology,Operating System - Evolution of Operating System, Types of Operating System, Functions of an Operating System, Modern Operating Systems.

UNIT V **12 Hours**

Computer Network, Network Topologies, Communication Protocols, Network devices, Internet - Introduction, Evolution of Internet, Basic Internet Terms, Getting Connected to Internet, Internet Applications, Electronic Mail : An Introduction How E-Mail Works, Searching the Web (Search Engines), Languages of Internet, Internet and Viruses.

Text Book:

1. Introduction to computer Science, ITL Education solution Limited, R&D Wing, PEARSON Education, Edition 2004

Reference Book:

1.Rajaraman V. – Fundamental of Computers, Prentice Hall of India Pvt. Ltd., New Delhi – 2nd edition, 1996.

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Subject : DSC-1A	**Subject Code :** U19CAC1FL
Subject Title : COMPUTER FUNDAMENTALS LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 30**

L	**T**	**P**	**C**
0	**0**	**4**	**2**

MSWORD

1. Text Manipulations- Formatting & Alignment
2. Usage of Numbering, Bullets, Footer and Headers.
3. Usage of Spell check, and Find & Replace.
4. Creation and usage of Templates
5. Mail Merge Concepts.
6. Copying Text & Pictures from Excel.

MS - EXCEL

7. Cell Editing.
8. Usage of Formulae and Built-in Functions.
9. Data Sorting (both number and alphabets).
10. Drawing Graphs and charts
11. Usage of Auto Formatting.

POWER POINT

12. Inserting Clip arts and Pictures.
13. Frame movements of the above.
14. Creating master Slides
15. Preparation of Organizational Charts.
16. Presentation using Wizards.
17. Usage of design templates.

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ACCESS

18. Create a new database and name it "School Database"
19. Create a Table named "Student's Table" in the *School Database* with the following and Make the "ID Number" Field as the Primary Key.

Field Name	Data Type	Field Size or Format
ID Number	Text	10
Name	Text	15
Surname	Text	15
Telephone Number	Number	Long Integer
Date of Birth	Date/Time	Medium Date
Stipend	Currency	Currency
Foreigner	Yes/No	Yes/No

20. Open the "Students Table" and enter 5 complete records.
21. Sort the table in ascending order by surname
22. Delete the last Record you have entered
23. Create a Form with all fields on the Student's Table and name the form as"Students Entries"
24. Create a report based on the Student's Table showing the Fields *Name*, *Surname,* and *Telephone Number* and name the report as "Telephone List"
25. Create another query showing all fields of those students born after 1987
26. Create a query showing only the Student's Name, Student's Surname and Student's Date of birth.

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Subject : DSC-1B	**Subject Code :** U19CAC2PC
Subject Title : PROGRAMMING IN C	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	At the end of this course the learner is expected: 1. To acquire basic knowledge about Programming in C 2. To gather extensive knowledge in C programming and developing programming skills 3. To strengthen the knowledge on structures, arrays etc., of C programming

Outcome	**:**	Upon successful completion of this course, student will be able to : 1. Learning the basic programming constructs and switch over to any other language in future. 2. Create programs and applications.

L T P C
4 0 0 4

UNIT I - OVERVIEW OF C **(12 Hours)**

Introduction- Importance of C- Basic Structure of C program- Tokens-Variables- Data types- Operators and Expression- Managing Input and Output Operators.

UNIT II - CONDITIONAL STATEMENTS **(12 Hours)**

If statement- switch statement- goto statement- while statement- do statement-for statement- continue statement- break statement.

UNIT III - ARRAYS AND FUNCTIONS **(12 Hours)**

One dimensional array- Two dimensional array- Multidimensional array-Built in functions (Library functions): String Handling functions-User defined functions.

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UNIT IV - STRUCTURES, UNIONS AND POINTERS (12 Hours)

Structure definition-Arrays of structures-Structures and functions-Unions-Understanding pointers- Declaring and initializing pointers- Pointers and arrays-Pointers and functions- Pointers and structures.

UNIT V - FILE MANAGEMENT (12 Hours)

Defining and Opening a file- Closing a file- Input output operations on files-Error Handling during I/O operations- Command line arguments

TEXT BOOK

Balagurusamy.E (2008), ”Programming in ANSI C” , Second Edition, Tata McGraw Hill.

REFERENCES

1. Kamthane Ashok.N (2013), ”Programming in C”, 2nd Edition, Pearson Education.
2. Yashvant P. Kanetkar (2008), “Let us C”, 8th Edition, Infinity science press.

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Subject : DSC-1B	**Subject Code :** U19CAC2PL
Subject Title : PROGRAMMING IN C LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 30**

L T P C
0 0 4 2

1. Program to check whether a number is positive or negative or zero using if statement.
2. Program to check vowel or consonant using switch case statement.
3. Program to check whether a number is prime or not using while statement.
4. Program to generate multiplication table using do…while statement.
5. Program to check the given string is palindrome or not using for statement.
6. Program to display Fibonacci series.
7. Program to search an element in an array using linear search method.
8. Program to find the smallest and largest number among ‘n’ numbers.
9. Program to sort elements in an array.
10. Program to add two matrices.
11. Program for manipulating the strings using string handling functions.
12. Program to find the sum of ‘n’ numbers by making function.
13. Program to calculate factorial of a number using recursion.
14. Program to generate the mark sheet of the student using structure.
15. Program to copy the content of one file to other file.

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Subject : DSC-1C	**Subject Code :** U19CAcCOP
Subject Title : OBJECT ORIENTED PROGRAMMING USING C++	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	At the end of this course the learner is expected: 1. To learn the concepts of class & objects. 2. To perform Inheritance, Overloading of operators, functions, constructors, File Handling and exception handling.

Outcome	**:**	Upon successful completion of this course, student will be able to : • Understand the difference between the top-down and bottom up approach • Object oriented programming approach in connection with C++

L T P C
4 0 0 4

UNIT I - PRINCIPLES OF OBJECT ORIENTED PROGRAMMING (12 Hours)

Object Oriented Programming Paradigms- basic concept of OOPS- benefits of OOP-what is C++-simple C++ program-structure of C++ program- creating a source file – compiling and linking.

UNIT II - TOKENS, EXPRESSION AND CONTROL STRUCTURES (12 Hours)

Tokens-keywords-identifiers and constants-basic data types-user defined data types-derived data types-type compatibility-declaration of variables-dynamic initialization of variables-reference variables-operators in C++-manipulators-type cast operator-implicit conversion-operator overloading-control structures.

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UNIT III - CLASS AND OBJECTS (12 Hours)

Functions in C++- function overloading-Specifying a class- defining member function-arrays within a class-arrays of objects- objects as function arguments- friendly functions-constructor and destructor

UNIT IV -INHERITANCE, POINTER, VIRTUAL FUNCTION AND POLYMORPHISM (12 Hours)

Single inheritance-multilevel-multiple inheritance-hierarchical-hybrid-virtual base class-abstract classes-pointers-this pointer-virtual functions-pure virtual functions.-operator over loading- rules for operator overloading

UNIT V - MANAGING CONSOLE I/O OPERATIONS (12 Hours)

C++ streams- streams classes-unformatted I/O operations-formatted console I/O operations-managing output with manipulators- exception handling- basics of exception handling.

TEXT BOOK

1. Balagurusamy.E (2008), "Object Oriented Programming with C++", Tata McGraw-Hill Publication.

REFERENCE

1. Herbert Schildt (2003), "C++: The Complete Reference", Tata McGraw publication.

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Subject : DSC-1C	**Subject Code :** U19CAC3OL
Subject Title : OBJECT ORIENTED PROGRAMMING USING C++ LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 30**

L T P C
0 0 4 2

1. Write a C++ program to find the sum of individual digits of a positive integer.
2. Write a C++program to find the factorial of a given integer
3. Write a C++ program that uses a recursive function for solving Towers of Hanoi problem
4. Write a C++program to implement call by value and call by reference parameters passing
5. **Classes and Objects**

   To create a class 'staff ', to create different objects and to test the functioning of member functions, constructors and Destructors.
6. **Arrays of Objects**

   To create Class 'student', To create an array of students, To find out the student who get the first rank
7. **Static Polymorphism: operator overloading**

   To perform complex number arithmetic or Matrix arithmetic
8. **Inheritance**

   To create a class 'College' To create another class 'department' by using 'college' as a base class To verify the functions in the derived and base classes. Also to verify by keeping the two functions with same name (one in the base class and another in derived class)
9. **Dynamic Polymorphism: virtual function**

   To draw various shapes viz Square, Circle, Triangle and Rectangle.

10. **Templates and Exception Handling**.

Class template by creating a template T for a class named pair having two data members of type T which are inputted by a constructor and a member function get-max() return the greatest of two numbers to main. Note: the value of T depends upon the data type specified during object creation.

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Subject : DSC-1D	**Subject Code :** U19CAC4DS
Subject Title : DATA STRUCTURES	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	To enable the students to know about the techniques for arrangement of data in the computer memory.

Outcome	**:**	Upon successful completion of this course, student will be able to : 1. Implement appropriate sorting/searching techniques for given problem. 2. Determine and analyze the complexity of given Algorithms

L T P C
4 0 0 4

UNIT I **12 Hours**

Definition of a Data structure - primitive and composite Data Types, Asymptotic notations, Arrays, Operations on Arrays, Order lists.

UNIT II **12 Hours**

Stacks - Applications of Stack - Infix to Postfix Conversion, Recursion, Maze Problems - Queues - Operations on Queues, Queue Applications, Circular Queue.

UNIT III **12 Hours**

Singly Linked List - Operations, Application - Representation of a Polynomial, Polynomial Addition; Doubly Linked List - Operations, Applications Ordering of Books in Library (Alphabetical Ordering).

UNIT IV **12 Hours**

Trees and Graphs: Binary Trees - Conversion of Forest to Binary Tree, Operations - Tree Traversals; Graph - Definition, Types of Graphs, Hashing Tables and Hashing Functions, Traversal - Shortest Path; Dijkstra's Algorithm.

UNIT V **12 Hours**

Algorithm - Definition - Examples - Complexity - Divide and Conquer - Binary Search - Maximum and Minimum - Merge Sort.

Text Books:

1. E.Horowitz and S.Shani Fundamentals of Data Structures in C++, Galgotia Pub. 1999.
2. R. Kruse C.L. Tondo and B. Leung, Data Structures and Program design in C, PFU, 1997.

Reference Books:

1. Horowitz, S. Sahni, and S. Rajasekaran, Computer Algorithms, Galgotia Pub. Pvt. Ltd., 1998.
2. C++ plus Data structure by N.Dale, Publishers Narosa publishing, Edition 2000

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Subject : DSC-1D	**Subject Code :** U19CAC4DL
Subject Title : DATA STRUCTURES LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 30**

L T P C
0 0 4 2

1. Implement PUSH, POP operations of stack using Arrays.
2. Implement add, delete operations of a queue using Arrays.
3. Conversion of infix to postfix using stack operations.
4. Evaluation of Arithmetic expression using stack operation.
5. Perform Addition of two polynomials using singly linked list
6. Solve the single source shortest path problem. (Note: Use Dijkstra's algorithm).
7. Traverse a binary tree in:
   a) Pre-order
   b) In-order
   c) Post-order
8. Sorting a given list of elements in ascending order using the following sorting methods:
   a) Quick sort
   b) Merge sort
9. Perform the following operations in a given graph
   a) Depth first search
   b) Breadth first search
10. To search an item in the list using
    a) Linear Search
    b) Binary Search

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Subject : DSC-2A	**Subject Code :** U19CAC5DB
Subject Title : DATABASE MANAGEMENT SYSTEMS	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	Understand basic database concepts, including the structure and operation of the relational data model.

Outcome	**:**	Upon successful completion of this course, students should be able to: • Understand the fundamental elements of relational database management systems and the basic concepts of relational data model, and SQL commands. Getting the knowledge about the indexing and hashing and be familiar with the basic issues of transaction processing and concurrency control

L	**T**	**P**	**C**
4	**0**	**0**	**4**

UNIT I **12 Hrs**

Introduction: Characteristics of Data in a Database –Core concepts of DBMS-Types of DBMS-Hierarchical Model-Network Model-Relational Model-Object Oriented Model-Object Relational Model.

UNIT II **12 Hrs**

Database Architecture and E-R Model: Conceptual Model, Physical Model, Logical Model, Database Design, Design Constraints, Functional Dependencies, Normal forms, E-R Model, Components of E-R Model, E-R Modeling symbols.

UNIT III **12 Hrs**

SQL: SQL Data Types and Literals- Types of SQL Commands-SQL Operators-Queries-SELECT operations-Sub queries-Aggregate Functions- INSERT-UPDATE-DELETE operations-JOINs and UNIONS.

UNIT IV **12 Hrs**

Indexing and Hashing: Ordered Indexes- Primary Index-Secondary Indexes-B^+ Tree Indexes- B-Tree Indexes-Hashing-Internal Hashing-External Hashing-Dynamic Hashing. Data Integrity: Types-Restrictions.

UNIT V **12 Hrs**

Transaction Management and Concurrency Control: Transaction, Properties of Transactions, States of Transaction, Concurrency Control, Concurrency Control Schemes, SQL Commands for Transaction-BEGIN-COMMIT-ROLLBACK-SAVE-IN Commands.

Text Book:

1. Database Management Systems, Fifth edition, Alexis Leon, Mathews Leon, McGraw-Hill-2005.

Reference Books:

1. Database System Concepts, Abraham Silberschatz, Henry F.Korth, S.Sudharshan, McGraw-Hill-2006, 5th Edition.
2. "An introduction to database systems", Bipin C. Desai, Galgotia Publications Pvt. Ltd., 1991.

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Subject : DSC-2A	**Subject Code :** U19CAC5RL
Subject Title : RDBMS LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 30**

L	T	P	C
0	0	4	2

1. Create DDL statements for,
    a. Create,
    b. Drop,
    c. Alter Keywords.

2. Create DML statements for,
    a. Insert,
    b. Update,
    c. Delete,
    d. Commit, Rollback, Savepoints.

3. Develop DML statements for executing,
    a. Sub Queries,
    b. Group By, Group By with Having.

4. Develop an EB bill using SQL statements for retrieving and manipulating data from multiple related tables.

5. Develop a student mark list using SQL statements for retrieving and manipulating data from multiple related tables (Apply Primary key, Foreign key constraints).

6. Implement the Bank Database and execute the given queries/updates,

    a) Bank Database Schema:

    1. account(account_number, branch_name, balance),
    2. branch (branch_name, branch_city, assets),
    3. customer (customer_name customer_street, customer_city),

4. loan (loan_number, branch_name, amount),
5. depositor((customer_name, account_number),
6. borrower(customer_name, loan_number).

b) Retrieving records from a table:

1. List all branch names and their assests,
2. List all accounts of Adayar branch
3. List all loans with amount > 1000.
4. List all accounts of Guindy branch with balance < 1000.
5. List Numbers of accounts with balances between 700 and 900

c) Updating records from a table:

1. Change the assests of Adayar branch to 340000000.
2. Transfer the accounts and loans of Guindy branch to Besant Nagar branch.
3. Transfer Rs. 100 from account A-101 to A-215.

d) Deleting records from a table:

1. Delete the branch Adayar.
2. Waive off all the loans with amount < 1000.
3. Delete the accounts and loans of Besant Nagar branch.

e) Modifying the structure of tables:

1. Add a column, phoneNo to customer table.
2. Increase the field width allocated for customer.

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Subject : DSC-2B	**Subject Code :** U19CAC6JA
Subject Title : PROGRAMMING IN JAVA	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	To improve the programming knowledge in JAVA to create GUI applications and perform event handling functionalities in response to GUI applications.

Outcome	**:**	Upon successful completion of this course, student will be able to : • Understanding of the principles of object oriented analysis in the construction of robust, maintainable programs which satisfy their requirements; • Ability to implement, compile, test and run Java programs. • Demonstrate the principles of object oriented programming;

L	**T**	**P**	**C**
4	**0**	**0**	**4**

UNIT I **12 Hrs**

Java Evolution and Overview of Java Language: How Java differs from C and C++, Java and Internet, Java and World Wide Web, Introduction, Simple Java Program, More of Java, An Application with Two Classes, Java Program Structure, Java Tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command Line Arguments, Programming Style.

UNIT-II **12 Hrs**

Constants, Variables, Data Types , Operators and Expressions , Decision Making and Branching, operator, Decision Making and Looping, Jumps in Loops - Labeled Loops , Classes, Objects and Methods.

UNIT-III **12 Hrs**

Arrays, Strings and Vectors, Interfaces: Multiple Inheritance, Packages: Putting Classes together, Multithreaded Programming.

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UNIT-IV **12 Hrs**

Managing errors and Exceptions, Applet Programming, Graphics Programming.

UNIT-V **12 Hrs**

Basics of event handling, event handlers, adapter classes, actions, mouse event , AWT event hierarchy.

TEXTBOOK:

1. Programming with java , A PRIMER - E. Balagurusamy, 3 rd Edition, TMH.

REFERENCE BOOKS:

1. The complete reference JAVA 2 - Patrick Naughton & Hebert Schildt, 3rd ed,TMH

2. Programming with java , John R. Hubbard, 2nd Edition, TMH.

3. JAVA and Object-Oriented Programming Paradigm , Debasish Jana1. Web Design, A Beginners Guide, Wendy Willard, Tata McGraw Hill

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Subject : DSC-2B	**Subject Code :** U19CAC6JL
Subject Title : PROGRAMMING IN JAVA – LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 30**

L	T	P	C
0	0	4	2

Applications

1. Finding area and Perimeter of a circle. Use Buffered Reader class
2. Substring Removal from a String. Use String Buffer Class.
3. Determining the order of numbers generated randomly using Random class.
4. Usage of Calendar class and Manipulation.
5. String Manipulation using Char Array.
6. Application using file streams(sequential file)
7. Application using file streams(Random file)
8. Usage of Vector Classes.
9. Implementing Thread based applications & Exception Handling.
10. Application using synchronization such as Thread based, Class based and synchronized statements.

Applets

11. Working with Frames and various controls
12. Working with Dialogs and Menus.
13. Working with Panel and Layout.
14. Incorporating Graphics.
15. Working with colors and Fonts.

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Subject : DSC-2C	**Subject Code :** U19CAC7SC
Subject Title : SCRIPTING LANGUAGES	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	• To classify the various Scripting Languages • To understand DOM and XML • To create a webpage

Outcome	**:**	Upon successful completion of this course, students will be able to : • master the theory behind scripting and its relationship to classic programming. • gain some fluency programming in JavaScript, XML and related languages. • design and implement one's own scripting language.

L	**T**	**P**	**C**
4	**0**	**0**	**4**

UNIT I -INTRODUCTION TO HTML (12 Hours)
Introduction to HTML: Internet basics -formatting text in HTML-lists-Adding graphics to HTML-Internal and external linking in HTML-frames and framesets-creating tables.

UNIT II -HTML FORMSAND CSS (12 Hours)
HTML forms -Cascading Style Sheet: HTML CSS-Inline styles-creating style sheets with the style elements-Building a web page

UNIT III -DOM AND INTRODUCTION TO JAVA SCRIPT (12 Hours)
DOM model: Understanding DOM model. Objects in HTML, Browser, object, window, history, location, navigator, document object. Java Script: Introduction to scripting-operators: logical-Increment and decrement operators-control structures.

UNIT IV -FUNCTIONS, ARRAYS AND OBJECTS (12 Hours)
Functions: Definition-scope rules-recursion-Arrays: Declaring arrays-passing array to function-sorting arrays-object: math object-string object-data object-boolean object and number object, Handling event using java script.

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UNIT V -INTRODUCTION TO XML (12 Hours)

XML-XML overview-features-HTML XML-processing instructions-application of XML-COMMENTS-XML names space –schema-Document Type Definition (DTD) –Extensible style language(XSL).

TOTAL HOURS : 60

TEXT BOOKS

1. Ivan Bayross,(2005),"web enables commercial application development using HTML, DHTML java script, peal CGI", BPB Publications, New Delhi. UNIT (I –III).
2.Deitel.H.M, Nieto.T.R,(2012),"Internet and world wide web How to program", Fifth Edition, Prentice Hall of Indian Pvt, Ltd, New Delhi. (UNIT IV-V)

REFERENCE BOOK

1.Williamson, (2001),"Xml: The Complete Reference", Tata McGraw-Hill Education.

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Subject : DSC -2C	**Subject Code :** U19CAC7SL
Subject Title : SCRIPTING LANGUAGES LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 30**

L	**T**	**P**	**C**
0	**0**	**4**	**2**

1. Create Application form using various text formats.
2. Create VINAYAKA MISSIONS RESEARCH FOUNDATION website using HTML tags.
3. Create a table using HTML.
4. Display your information using form controls.
5. Create style sheets with the style elements.
6. Create calculator format using java script.
7. Create an array of 10 numbers and sort them using javascript.
8. String manipulation using string object.
9. Add a simple script using Click event.
10. Create Employee details using schemas.
11. Create our department details using CSS.
12. Create Payroll system using XSL.
13. Changing image using mouseover event.
14. Create a website for a newspaper.
15. Design and apply your application form for course enrolment using javascript.

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Subject : DSC-2D	**Subject Code :** U19CAC8CN
Subject Title : COMPUTER NETWORKS	**Pattern : Theory**
No of Credits : 6	**No of Hours : 90**

Objective	**:**	To understand state-of-the-art in network protocols, architectures, and applications.

Outcome	**:**	Upon successful completion of this course, student will be able to : • Classify the routing protocols and analyze how to assign the IP addresses for the given network. • Will be able to explain the types of transmission media with real time Applications

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UNIT- I **13 Hours**

Introduction to Data Communication – Network Models, Protocols and Architecture, Standards Organizations, Line Configuration, Topology, Transmission Mode, Classification of Networks, OSI Reference Model.

UNIT- II **13 Hours**

Physical layer : Transmission media, Wireless transmission , switching Data link layer :services of DLL ,framing , flow control ,error control ,Error detection codes , Error correction codes , DLL protocol ,stop and Wait protocol ,sliding window protocol , HDLC.

UNIT- III **13 Hours**

Network layer: services of network layer, routing, shortest path routing Algorithm , congestion control ,IP protocol ,IP address ,Subnets – Internet control protocol

UNIT- IV **13 Hours**

Transportation layer: services of transportation layer, Addressing, Establishing and releasing connection, Flow control, Buffering, Multiplexing, Internet transportation protocol TCP and UDP, connection management, TCP congestion control, UDP.

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UNIT- V **13 Hours**

Application layer ,DNS ,namespace, resource ,records, name servers , Email , architecture and services ,user agent ,message Format and transfer , USENET implementation , WWW client and Server sides , locating information on the web.

Lecture Hours : 65

Tutorial Hours : 25

TEXT BOOKS:

1. Behrouz A. Forouzan, "Data Communications and Networking", TATA McGrow-Hill publications, Second Edition, 2003.

REFERENCE BOOKS:

1. Andrew S.Tannenbaum, "Computer Networks", Second Edition, Tata McGrawHill Publishing Company Limited NewDelhi

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,sq;fiy - Kjw; gUtk;

SUB : Foundation Course - i **Credit : 3**

TITLE : (nra;As;> ciueil> ,yf;fpatuyhW **hours : 45**

,yf;fzk;> gad;ghl;Lf;fy;tp)

SUB CODE : U19FC1T1 **SUB PATTERN : (THEORY)**

ghl Nehf;fk; :

jkpo; kuGf;ftpij> GJf;ftpij Kjyhdtw;iw mwpKfg;gLj;Jjy;.

rpWfij> ehty;> fl;Liu Kjyhd ,yf;fpa tbtq;fisf; fw;gpj;jy;.

,f;fhy ,yf;fpaj;jpd; kPjhd <h;g;ig kpFtpj;jy;.

fw;wy; gad; :

jkpo; ,yf;fpaj;jpd; kPjhd Mh;tk; kpFk;.

Gjpa ,yf;fpa tbtq;fis mwpth;

ftpij> rpWfij Mfpatw;iw gilf;f Kay;th;.

myF – 1 kuGf;ftpijfs; (hours : 9)

1.ghujpahu; - GJikg;ngz;

2.ghujpjhrd; - thd; (,aw;if)

3.ehkf;fy; ftpQu; - cyfk; tho;f

4.fz;zjhrd; - fhyf;fzpjk;

5.ftpQu; Rujh - fyg;ig

6.ty;yk; Ntq;flgjp - neUg;gpypL

myF – 2 GJf;ftpijfs; (hours : 9)

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1.rpw;gp – xU tpijapd; fij

2.mwpTkjp – el;Gf;fhyk;

3.jhkiu - xU fjTk; nfhQ;rk; fs;spg;ghYk;

4.<NuhL jkpod;gd; - i`f;$ ftpijfs; (10 ftpijfs;)

5.mg;Jy; uFkhd; - xg;Gjy; thf;F %yk;

6.mgp - khg;gps;isfs;

7.Fl;b Nutjp - FLFLg;igr; rpWtd;

8.khyjp ikj;up - mfjp

myF - 3 ciueil (hours : 9)

1.ftpg;NguuR ituKj;J - rpw;gpNa cd;id nrJf;FfpNwd;

myF – 4 ,yf;fpa tuyhW - ,yf;fzk; (hours : 9)

1.GJf;ftpij> i`f;$ ftpij Njhw;wKk; tsu;r;rpAk;

2.gbkk;> FwpaPL gw;wpa tpsf;fq;fs;

3.rpWfijapd; Njhw;wKk; tsu;r;rpAk;

4.ciueilapd; Njhw;wKk; tsu;r;rpAk;

5.,yf;fzf; Fwpg;ngOjp tpsf;fk; mwpjy;

6.fiyr;nrhy;yhf;fk;> vOj;Jg;gpio ePf;fk;

7.jkpo; vz;fs;

myF - 5 gad;ghl;Lf;fy;tp - nkhopngau;g;G (hours : 9)

1.ftpij gilj;jy;

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2.tpdh tpil mikj;jy;

3.fw;gid re;jpg;gpw;F ciuahly; vOJjy;

4.rpWfijfs; Fwpj;j tpku;rdk;

5.nghJg;gFjp mYtyfg;gFjp Mq;fpyj;jpypUe;J jkpopy;

nkhopngau;j;jy;

6.jd;Kidg;G gbg;G - rpWfij

1.xU fhl;by; xU khd; - mk;ig

2.Re;jutdk; - NjtNjtd;

3.ktuhru;fs; - tpe;jd;

4.xU rpW ,ir - tz;zjhrd;

5.khj;jpiu - ePygj;kehgd;

ghh;it Ehy;fs;

1.,yf;fpa tuyhW - Kidtu; ghf;aNkup

2.,yf;fzKk; nkhopg;gapw;rpAk; - f.Nfh.Ntq;fl;uhkd;

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,uz;lhk; gUtk;

SUB : Foundation Course - ii Credit : 3

TITLE : nra;As;> ciueil> ,yf;fpatuyhW> hours : 45

,yf;fzk;> gad;ghl;Lf;fy;tp

SUB CODE : U19FC1T2

SUB PATTERN : (THEORY)

ghl Nehf;fk; :

jkpo; kuGf;ftpij> GJf;ftpij Kjyhdtw;iw mwpKfg;gLj;Jjy;.

rpWfij> ehty;> fl;Liu Kjyhd ,yf;fpa tbtq;fisf; fw;gpj;jy;.

,f;fhy ,yf;fpaj;jpd; kPjhd <h;g;ig kpFtpj;jy;.

fw;wy; gad; :

jkpo; ,yf;fpaj;jpd; kPjhd Mh;tk; kpFk;.

Gjpa ,yf;fpa tbtq;fis mwpth;

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ftpij> rpWfij Mfpatw;iw gilf;f Kay;th;.

myF – 1 – rq;f ,yf;fpak; (hours : 9)

1.FWe;njhif

1.FwpQ;rp - nfhq;FNju; tho;f;if (2)

2.Ky;iy - fhu; Gwe;je;j (162)

3.kUjk; - fodp kh mj;J (8)

4.nea;jy; - es;nsd;ww;Nw (6)

5.ghiy - vWk;gp misapd; (12)

2. Iq;FWEhW - md;dha; thopg;gj;J (21)

3. GwehDhW - ghly; vz; : 91> 142>192>195>312.

myF – 2 ePjp ,yf;fpak; (hours : 9)

1.jpUf;Fws; - el;ghuha;jy;

2.ehybahu; - el;gpw;gpio nghWj;jy;

3.,dpait ehw;gJ – 1>3>5>6>20

4.gonkhop ehDhW – 5>27>46>73>114

5.%Jiu – 1>2>5>10>16>17>18>26>30

myF -3 – ehty; (hours : 9)

1.Ntupy; gOj;j gyh – R.rKj;jpuk;

myF - 4 - ,yf;fpa tuyhW (hours : 9)

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1.gjpndz; Nkw;fzf;F Ehy;fs; mwpKfk;

2.gjpndz; fPo;f;fzf;F Ehy;fs; mwpKfk;

3.ehtypd; Njhw;wKk; tsu;r;rpAk;

myF – 5 - ,yf;fzk; - gilg;ghw;wy; (hours : 9)

1.ty;ypdk; kpFk;> kpfh ,lq;fs;

2.tpdh> tpil tiffs; (mWtif tpdh> vz;tif tpil)

3.njhif epiyj;njhlu;

4.njhfh epiyj;njhlu;

5.kuGf;ftpij GJf;ftpij gilj;jy;

6.jd;Kidg;G gbg;G – Gjpdk; - 1> Gjpdk; - 2

(Gjpdj;Nju;T khztu; tpUg;gj;jpw;FupaJ)

ghu;it Ehy;fs;

1.,yf;fpa tuyhW – Kidtu; ghf;aNkup

2.rq;f ,yf;fpak; %yKk; ciuAk; - ciuahrpupau; Kidtu;

Kidtu; tp.ehfuhrd;

3.gjpndz; fPo;f;fzf;F Ehy;fs; - ciuahrpupau; m.khzpf;fdhh;.

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%d;whk; gUtk;

SUB : Foundation Course - iii **Credit : 3**

TITLE : (fhg;gpak;> ehlfk;> gf;jp ,yf;fpak;) **hours : 45**

SUB CODE : U19FC1T3

SUB PATTERN : (THEORY)

Nehf;fk;:

jkpo; ,yf;fpa tuyhw;wpy; Ik;ngUk;fhg;gpaq;fs;> ehlfq;fs;> gf;jp ,yf;fpak; ngWk; ,lk; Fwpj;J tpsf;Fjy;.

fhg;gpar; RitAk; ehlf ,d;gj;ijAk; gf;jp ngUf;ifAk; khzth;fs; mwpar; nra;jy;.

fw;wy; gad;fs; :

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khzth;fs; jkpo; ,yf;fpa tuyhw;wpd; fhg;gpak;> ehlfk;> gf;jp ,yf;fpak; gf;jp ,yf;fpak; gw;wp mwpjy;.

tho;tpd; topghl;bd; Kf;fpaj;Jtk; czh;e;J filg;gpbg;gh;.

myF – 1 (hours : 9)

rpyg;gjpfhuk; - (fl;Liu fhij)

kzpNkfiy - (rpiw tpL fhij)

myF – 2 (hours : 9)

m. Njthuk; - jpUehTf;furh;

M. jpUthrfk; - khzpf;fthrfh; (jpUntk;ghit Kjy; 10 nra;Al;fs;)

,. ehyhapuj; jpt;a gpuge;jk; - ehr;rahh; jpUnkhop 10 nra;Al;fs;

myF -3 (hours : 9)

m. fk;g ,uhkhazk; - thyp tijg;glyk; (70 ghly;fs;)

M. nghpaGuhzk; - (fhiuf;fhy; mk;ikahh; Guhzk;)

myF -4 (hours : 9)

cly;nkhop : (MSik tsh;r;rp)

m.mbg;gilfisg; Ghpe;J nfhs;tJ

M.jpdKk; ghh;f;Fk; gpugykhd iriffs;

ehlfk; :

ePjp Njtd; kaf;fk; - mwpQh; mz;zh

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myF -5 (hours : 9)

1.mzpfs;

m. ctikazp

M. vLj;Jf;fhl;L ctikazp

,. ,ul;Lw nkhopjy; mzp

<. tQ;rg; Gfo;r;rp mzp

2.nghJf;fl;Liu

m. Rw;Wg;Gwr;Roy;

M. ngz;zpak;

,. Ntshz;ik

<. r%fj; jiyth;fs; Fwpj;j jiyg;Gfspy; vOjr; nra;jy;

3.ehlfj;jpd; Njhw;wKk; tsh;r;rpAk;

4. gf;jp ,yf;fpaq;fs;

5.,ul;ilf;fhg;gpaq;fs;

ghh;it Ehy;fs;

1.cly;nkhop - Myd; & ghh;guhgP];

2.ePjp Njtd; kaf;fk; - mwpQh; mz;zh

3.jkpo; ,yf;fpa tuyhW - Kidth; f.ghf;a Nkhp

ehd;fhk; gUtk;

SUB : Foundation Course - ii **Credit : 3**

TITLE : (gz;ila ,yf;fpak;) **hours : 45**

SUB CODE : U19FC1T4

SUB PATTERN : (THEORY)

Nehf;fk;:

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gz;ila ,yf;fpaj;jpd; Kf;fpaj;Jtk; czur; nra;jy;.

ehl;lhh; tho;tpay; $Wfis mwpar; nra;jy;.

fw;wy; gad; :

gz;ila ,yf;fpaj;jpid czh;e;J mjd; newpapy; tho Kw;gLjy;.

goe;jkpohpd; kugpid gpd;gw;wp mjd; tpOkpaq;fis eilKiwg;gLj;Jjy;.

myF - 1 (hours : 9)

nka;apay;

1. (,uhkypq;f ts;syhu; ghly;fs;)

m. nghd;dhfp kzpahfp …….

M. nghq;F gy rkak; ……..

,. nka;Q; Qhd ……

<. Nguha mk; ……

2.jhAkhdth; ghly;fs;

m. fhahj kukPJ fy;NyW …..

M. vy;yhk; mwpe;jtUk; …..

,. GfOk; fy;tpAk; ……

<. Ith; vd;w gy Ntlh;

3.jpUke;jpu ghly;fs;

m. ehYk; ,U %d;Wk; …..

M. ,ypq;fKJ …….

,. jd;idawpjy;

<. ,lndhW %q;fpy; ….

myF – 2 (hours : 9)

jdpg;ghly; jpul;L

m. fhsNkfk; - ePhpYs;s…..

M. xsitahh; - jhNahlW Rit …

,. ,ul;ilg;Gyth; - khjh gpjh…

<. Xg;gpyhkzpg;Gyth; - MW ngUf;fhw;….

c. xl;lf;$j;jh; - fiythzp …

myF -3 ehl;lhh; tho;tpay; (hours : 9)

m. tha;nkhop ,yf;fpaKk;> ehl;lhpyf;fpaKk;

M. iftpidf; fiyfs;

,. kz;ghz;lf; fiyfs;

<. gj;j kilg;gha;

c. ehl;lhh; czT

C. ehl;lhh; tpisahl;L

v. njUf;$j;J

V. ghitf;$j;J

I. tpLfijfs;

x. kuGj; njhlh;fs;

myF -4 fl;Liufs; (hours : 9)

m. R[hjh - %isapd; rhg;ghL

M. mfpyd; - vOj;jhsh; fhh;f;fp (fijfs;)

,. R.eNue;jpud; - jkpo;ehl;L mwptpay; mwpQh;fs;

<. ,sk;gpiw kzpkhwd; - md;gpd; tz;zk; fk;gdpd; vz;zk;

myF -5 gad;ghl;Lf; fy;tp / ,yf;fzk; (hours : 9)

m. ,jo; cUthf;fk; (ehl;Lg;Gwtpay;)

M. kuGj; njhlh; top – fij cUthf;fk;

,. tl;lhu tof;Fr; nrhw;fs; (cjhuzk; : crph; - caph; >

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rpyT – nryT

<. mUQ;nrhw; nghUs; mwpf

,. ciu eil Njhw;wKk; tsh;r;rpAk;

ghh;it Ehy;fs; :

1.,uhkypq;f ts;syhhpd; kfh Njtkhiy - ,uhk. ,URg;gps;is

2.jhAkhd Rthkpfs; ghly;fs; - tP. rptQhdk;

3.jdpg;ghly; jpul;L - fh.R.gps;is

4.jpUke;jpuk; - mbad; kzpthrfk;

5.ehl;lhh; tof;fhw;wpay; - Nj.Yhh;J

6.jkpo; ,yf;fpa tuyhW - kJ.r.tpkyhde;jk;

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Common to all Branches

Subject: Foundation II **Subject code: U19FC2E1**

Subject title: ENGLISH I **Pattern: Theory**

No. of Credits: 3 **No. of hours: 45**

Syllabus

Objective:

1. To understand the various literary writers and their portrayal of life and society.
2. To understand the use of language in expression.

Course Outcome:

After completion of the curse students will be able to:

1. Comprehend the various literary writers' style, and their depiction of various things in their writing.
2. Understand the use of English language in expression.

UNIT I **Hours-9**

1. Poetry :Harmony, ED. K.TRIPATHY – PUB. OUP, CHENNAI.

1. Wordsworth: Solitary Reaper

2. Robert Frost :Stopping by Woods On a Snowy Evening

3. Masefield :Sea Fever

4. Shakespeare :All the World is a Stage

5. Hugh Clough :Say Not the Struggle Naught Availeth

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UNIT II **Hours-9**

Short Stories: Popular Short Stories ED. Board OF EDITORS – PUB. OUP, CHENNAI.

Katherine Mansfield :A cup of tea
V.M.Basheer :The World Renowned Nose
R.K.Narayan :The Gateman's Gift
Leo Tolstoy :How Much Land Does a Man Need?

UNIT III **Hours-9**

Plays: Tales From Shakespeare, Published ByMadhuban Educational Books, UBS Publishers & Distributors, New Delhi.

1. The Merchant of Venice
2. Macbeth
3. Twelfth Night
4. King Lear

UNIT IV **Hours-9**

Grammar: Form And Function, By V.Sasikumar& V.Syamala, Emerald Publishers, Chennai-8.

1. Statements and Questions
2. Determiners including Articles
3. Conjunctions and other Devices

Composition: Communication Skills For Undergraduates, Dr. T.M.Farhathulah, RBA Publications, Chennai

UNIT V **Hours-9**

1. Letter Writing
2. Telegrams
3. Advertisements

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Reference:

1. Advani, Shalini (2009). Schooling the National Imagination: Education, English and the Indian Modern. Delhi: Oxford University press.

2. chatterjee, Kalyan K.(1976). English Education in India: Issues and opinions.

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Common to All Branches

Subject: Foundation II **Subject code: U19FC2E2**

Subject title: ENGLISH II **Pattern: Theory**

No. of Credits: 3 **No. of hours: 45**

Syllabus

Objective:

1. To understand the nuances of Poetry.

2. To learn the grammar, which in turn enhances reading of literature.

Course Outcome:

After completion of the course students will be able to:

1. Comprehend the poetry and its various types

2. Understand the grammar literary devices by reading poetry and enhance reading of literature.

Unit-I.Poetry : HarmonyEd. K.Tripathy– pub. OUP, Chennai. **Hours- 9**

Milton	:	On His Blindness
G.M.Hopkins	:	Thou Art Indeed Just, Lord
Shelley	:	Ozymandias
W.owen	:	Anthem for Doomed Youth
Keats	:	La Belle Dame Sans Merci

Unit-II. Short Stories: Popular Short Storiesed. Board of editors – pub. OUP, Chennai.

Hours- 9

1.	Sir Arthur Conan Doyle	:	The Dying Detective
2.	Manohar Malgonkar	:	Monal Hunt
3.	Ernest Hemingway	:	Old Man at the Bridge
4.	Guy de Maupassant	:	The Necklace

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Unit–III Plays: Tales from Shakespeare, published by Madhuban educational books, UBS Publishers & Distributors, New Delhi

Hours- 9

1. A Midsummer Night's Dream
2. Much Ado About Nothing
3. Julius Caesar

Unit-IV. Grammar: Form and Function, **By V. Sasikumar & V. Syamala, Emerald Publishers, chennai.** **Hours- 9**

1. The Active and Passive Voice
2. Reported Speech
3. Conditional Clauses

Unit-V. Composition: Communication Skills for Undergraduates, **Dr.T.M.Farhathulah, RBA Publications, Chennai.** **Hours- 9**

1. Notices
2. Designing a Resume
3. Writing a Report

Reference:

1. Gardner, R.C. (1985). Social Psychology and Second Language Learning: The role of Attitudes and Motivation. London: Edward Arnold Ltd.
2. Hutchison, T., & Waters, A. (1987). English for Specific Purpose: A learner – centered approach. U.K: Cambridge University press, 1986.

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Common to all Branches

Subject: Foundation-II **Subject Code: U19FC2E3**

Subject title: English- III **Pattern: Theory**

No: Credits: 03 **No. of hours: 45**

Syllabus

OBJECTIVE:

1. To enable the students to develop their communication skills in English

2. To empower the students with fluency and accuracy in the use of English language.

3. To transform into globally employable persons with placement skills

Course Outcomes:

After completion of the course students will be able to:

1. Learn or equipped with the practical, emotional, intellectual

and creative aspects of language by integrating knowledge and skills.

2. Enhance language through a task-based & learner – centric syllabus

3. Develop their critical thinking capabilities focused through the course

as an important need.

UNIT-I **Hours: 9 hours**

Prose: Education

Poem: Sarojini Naidu- "Harvest Hymn"

Letter writing: Formal and Information

Short story: O Henry-Robe of Peace (Extensive Reading)

Essential English Grammar: 1 - 6 units

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UNIT- II **Hours: 9hours**

Prose: Application,

Poem: Ben Johnson – "On Shakespeare" (Reading Comprehension)

Short Story: Rudyard Kipling – The Miracle of Puran Bhagat (Extensive Reading)

Essential English Grammar: 7 - 12 units

UNIT- III **Hours: 9 hours**

Prose: Interview

Poem: Robert Herrick –'Gather Ye Rosebuds' (Note Making)

Short Story: H. G. Wells – The Truth About Pyecraft(Extensive Reading)

Essential English Grammar: 13 - 18 units

UNIT- IV **Hours: 9 hours**

Prose: Review (Super Toys)

Poem: Oliver Gold Smith- 'The Village School Master'(Developing story from hints)

Short Story: John Galsworthy – 'Quality' (Extensive Reading)

Essential Grammar Reading 19- 24 units

UNIT –V **Hours: 9 hours**

Prose: Killers

Poem: William Blake – From Auguries of Innocence (Precise Writing)

Short Story: William Somerset Maugham-Mabel (Extensive Reading)

Essential Grammar Reading 25- 50 units

TEXT BOOKS:

1.Krishnaswamy.N.T.Current English for colleges. Hyderabad: MacMillan india Ltd,2006.

2.Dahiya SPS Ed.Vision in Verse,An Anthology of Poems. New Delhi: Oxford University Press, 2002.

3.Murphy, Raymond. Essential English Grammar. New Delhi:Cambridge University Press,2009.

4.Seshadri K G Ed. Stories for Colleges. Chennai:Macmillan India Ltd,2003.

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Common to all Branches

Subject: Foundation II **Subject code: U19FC2E4**

Subject title: ENGLISH IV **Pattern: Theory**

No. of Credits: 3 **No. of hours:45**

Syllabus

Objective:

1. To make the students introduce themselves to others
2. To help the students describe accurately what he/she observes and experiences
3. To make the students narrate their experiences in a coherent manner.

Course Outcome

After completion of this course students will be able to:

1. Introduce themselves to others
2. Narrate their experiences in a coherent manner
3. Describe accurately what he/ she observes and experiences.

UNIT- I **Hours- 9**

1. Personal Details
2. Positive Qualities
3. Listening to Positive Qualities
4. Relating and Grading Qualities
5. My ambition
6. Abilities and Skills
7. Self-Improvement Word Grid
8. What am I doing?
9. What was I doing?
10. Unscramble the Past Actions
11. What did I do yesterday?

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Unit –II **Hours- 9**

1. Value of Life
2. Describing Self
3. Home Word Grid
4. Unscramble Building Types
5. Plural Form of Naming Words
6. Irregular Plural Forms
7. Plural Naming Words Practice
8. Whose Words?

Unit-III **Hours- 9**

1. Plural Forms of Action Words
2. Occasions for Message
3. Words denoting place
4. Words denoting movement
5. Phrases for giving directions
6. Find the destination

Unit-IV **Hours- 9**

1. Giving directions practice
2. SMS Language
3. Converting SMS
4. Writing Short Messages
5. Sending SMS
6. The family debate
7. family Today

Unit-V Non- Detailed **Hours- 9**

"The Tempest" from "Six Tales From Shakespeare"

Reference:

1. Joy, J.L. & Peter, F.M. Let's Communicate 1, New Delhi, Trinity Press, 2014. Print.
2. Dodd, E F. Tale From Shakespeare. London: Macmillian, 1987.Print. (First three tales)

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TITLE OF PAPER Numerical and Statistical Methods Discipline Specific Elective (DSE-1A)	Subject Code	L	T	P	C
Common to B.Sc(Computer Science) and BCA	UGCA19D1E1NS	5	1	0	6

Objectives:

- To have a good foundation in all the concepts of Numerical Methods.
- To understand the basic concepts of Statistics, Central Tendency.

UNIT – I

Algebric equations – solving by Newton –Raphson Method – Gauss elimination method for solving system of equations – Gauss Seidal method of Iteration – Numerical integration by Trapezoidal and Simpson's Rule.

UNIT – II

Euler's Method of solving an ordinary Differential Equation Numerically; Runge-Kutta;s second order method of solving ordinary differential equations.

UNIT III

Statistics - Definition - Scope and Limitation - Presentation of Data - Diagrammatic and Graphical Representation of Data.

UNIT IV

Measures of Central Tendency - Mean - Median and Mode - GM and HM - their Limitations.

UNIT V

Measures of Dispersion - Range - Mean Deviation - Quartile Deviation - Standard Deviation - Coefficient Variation - Lorenz Curve - Measures of Skewness - Karl Pearson and Bowley's methods.

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Text Book :-

1. "Numerical methods in Science and Engineering", by Dr.M.K.Venketaraman M.A., M.Tech., Ph.D., National Publishing company, Madras – 1997.
2. "Mathematical Statistics" by P.R.Vittal, Margham Publications-2001

Reference Book:-

1. P.R.Vital –" Business Statistics and Mathematics"-Margam Publications
2. A.Singaravelu " Numerical Methods"Meenakshi Agency,Chennai

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Subject Code	TITLE OF PAPER MATHEMATICAL FOUNDATION Discipline Specific Elective (DSE-1A)	L	T	P	C
U19CAE2MF	BCA	5	1	0	6

Objectives

1. .Understand the concept of set theory
2. Understand the types of relations and functions.
3. Student will be able to apply and calculate permutations and combinations.
4. To use mathematically correct language and notation for Linear Algebra.
5. How circle, ellipse, parabola and hyperbola form the section of a cone.

Outcome:

1. Identify sets as well defined collections.
2. To apply the symbols and understand the difference between the two.
3. Apply principle of matrix Algebra to linear transformation.

Unit - I

Sets, Relations and functions: Sets - set operations - Cartesian products - -Relation - equivalence relation - partition - partial order relation - Functions Inverse functions - Composition of functions - Properties of functions - Binary operation.

Unit - II

Counting principles- The Pigeonhole principle -. counting - permutations and combinations - combinatorial arguments - countable and uncountable sets - lattices. Boolean Algebra: Boo lean functions - Normal forms.

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Unit : III

Binary operations - Semigroups - product and quotients of semigroups - Gropus - product and quotient groups.

Unit - IV

Linear Algebra: Types of matrices - Matrix operations - canonical forms - Inverse of a matrix - Geometric properties of plane linear transformaticm - Rotation - Reflection - Expansion and compressions - Shears - translation - successive transformation - Inverse transformation - Rank and nullity - Linear systems and matrices - Methods of solution to Linear systems (Cramer's Rule).

Unit - V

Two dimensional Analytical Geometry: pairs of straight lines - circle - system of circles - parabola- ellipse - hyperbola- polar equations - (standard equations and simple properties)Three dimensional

Books for Study and REFERENCE:

1. Bernard Kolman and Robert C. Busby: Discrete mathematical structures for Computer science . ed., Printice Hall, N.J. (1987)
2. Olympia Nicodemi: Discrete Mathematics, CBS Pub. & Distributors, New Delhi, 1989.
3. Vatssa B. S. : Discrete Mathematics, 3 ed. WishwaPrakasban, New Delhi, 1986.
4. Venkataraman, M. K.: Engineering Mathematics - Vol-I & 2, The National Pub. Co., Madras (1993 and 1992)
5. Alan Doerr and Kenneth Levasseur: Applied Discrete Structures for computer science, Galgotia publications pvt. Ltd., New Delhi, 1988.
6. P.Duaripandian, S. Udayabaskaran and S. Rajalakshrni, Allied Matheniatics, Muhil Publishers, 2002.
7. M.K. Venkataraman, Advanced Mathematics for Engineers and Scientists, The National Pub. Co.

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TITLE OF PAPER Discipline Specific Elective (DSE-1B)OPERATIONS RESEARCH	Sub code	L	T	P	C
Common to B.Sc(Computer Science) and BCA	U19CAE3OR	5	1	0	6

Objectives:

- Linear Programming is useful in finding either maximum or minimum of an expression subject to given constraints
- To minimize the cost of transporting items from various sources to different destinations
- When number of activities are to be carried out most economical way with less time consumptions can be found
- Inventory is essential to provide flexibility in operating a system or organization.
- Decision making is an integral part of any business organization. It uses to select the best among several decisions through a proper evaluation of the parameters of each decision environment.

UNIT- I:

LINEAR PROGRAMMING

Linear programming problem – Graphical method - Simplex method – Big M method – Duality principle.

UNIT- II.

TRANSPORTATION MODEL

Transportations problem – Assignment problem – Under Assignment -Traveling salesman problem

UNIT -III

NETWORK MODEL

Project Network – CPM and PERT Networks – Critical path scheduling – Sequencing Models.

UNIT- IV

INVENTORY MODELS

Inventory Model – Economic Order Quantity Model – Purchasing Model (with and without shortages) – Manufacturing Model (with and without shortages) - Stochastic Inventory Model (Stock in discrete and continuous units).

UNIT- V

DECISION MODEL

Decision Model – Game theory – Two Person Zero sum game – Algebraic solutions Graphical solutions – Replacement model – Model based on Service life – Economic life single / multivariable search technique.

TEXT BOOK

1. Sundarasen.V, Ganapathysubramaniyam . K.S. Ganesan.K. "Operations Research" ,A.R. Publications.

2. KantiSwarup,P.K.Gupta,Man Mohan, SultanChand& Sons, New Delhi(2010)

RFERENCES:

1. Premkumar Gupta, Hira, "Operations Research" Chand & company New Delhi.

2. H.A.Taha, "Operations Research", Prentice Hall of India, 1999, Six Editions.

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Subject Code	TITLE OF PAPER DISCRETE MATHEMATICS Discipline Specific Elective (DSE-1B)	L	T	P	C
U19CAE4DM	Common to B.Sc(Computer Science) and BCA	5	1	0	6

Objectives

1. Express a logic sentence in terms of predicates, quantifiers, and logical connectives
2. Simplify and evaluate basic logic statements including compound statements, implications, inverses, converses, and contrapositives using truth tables and the properties of logic.
3. Represent a graph using an adjacency list and an adjacency matrix and apply graph theory to application problems such as computer networks.

Outcome:

1. Write an argument using logical notation and determine if the argument is or is not valid.
2. Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.
3. Understand the basic principles of sets and operations in sets.
4. Demonstrate different traversal methods for graphs.
5. Model problems in Computer Science using graphs

UNIT I

Propositional logic – Propositional equivalences – Predicates and quantifiers – Nested quantifiers – Rules of inference – Introduction to proofs – Proof methods and strategy.

UNIT II

Mathematical induction – Strong induction and well ordering – The basics of counting – The pigeonhole principle – Permutations and combinations – Recurrence relations – Solving linear recurrence relations – Generating functions – Inclusion and exclusion principle and its applications

UNIT III

Graphs and graph models – Graph terminology and special types of graphs – Matrix representation of graphs and graph isomorphism – Connectivity – Euler and Hamilton paths.

UNIT IV

Algebraic systems – Semi groups and monoids – Groups – Subgroups – Homomorphism's – Normal subgroup and cosets – Lagrange's theorem – Definitions and examples of Rings and Fields.

UNIT V

Partial ordering – Posets – Lattices as posets – Properties of lattices – Lattices as algebraic systems – Sub lattices – Direct product and homomorphism – Some special lattices – Boolean algebra.

Books for Study and REFERENCE:

1.Rosen, K.H., "Discrete Mathematics and its Applications", 7th Edition, Tata McGraw Hill Pub. Co. Ltd., New Delhi, Special Indian Edition, 2011.

2. Tremblay, J.P. and Manohar.R, " Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw Hill Pub. Co. Ltd, New Delhi, 30th Reprint, 2011.

3..Grimaldi, R.P. "Discrete and Combinatorial Mathematics: An Applied Introduction", 4th Edition, Pearson Education Asia, Delhi, 2007.

4.. Lipschutz, S. and Mark Lipson., "Discrete Mathematics", Schaum's Outlines, Tata McGraw Hill Pub. Co. Ltd., New Delhi, 3rd Edition, 2010.

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Subject : Discipline Specific Elective (DSE-2A)	**Subject Code : U19CAE5EC**
Subject Title : E-COMMERCE	**Pattern : Theory**
No of Credits : 6	**No of Hours : 90**

Objective	**:**	• To provide the student with an in-depth understanding of the still emerging field of E-Commerce. • To understand the various elements that are fundamental for a successful E-Commerce enterprise and develop a business plan for developing one such E-Commerce site.

Outcome	**:**	**At the end of the course, the students should be able to**
		• Demonstrate an understanding of the foundations and importance of E-commerce
		• Demonstrate an understanding of retailing in E-commerce by:
		  ○ analyzing branding and pricing strategies,
		  ○ using and determining the effectiveness of market research
		• Analyze the impact of E-commerce on business models and strategy
		• Describe Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational.

L T P C

5 1 0 6

UNIT I **15**

An introduction to Electronic commerce: What is E-Commerce (Introduction And Definition), Main activities E-Commerce, Goals of E-Commerce, Technical Components of E-Commerce, Functions of E-Commerce, Advantages and disadvantages of E-Commerce, Scope of E-Commerce, Electronic Commerce Applications, 9 Electronic Commerce and ElectronicBusiness(C2C)(C2G,G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C)

UNIT II **15**

The Internet and WWW: Evolution of Internet, Domain Names and Internet Organization (.edu, .com, .mil, .gov, .net etc.) , Types of Network, Internet Service Provider, World Wide Web, Internet & Extranet, Role of Internet in B2B Application, building own website, Cost, Time, Reach, Registering a Domain Name, Web promotion, Target email, Baner, Exchange, Shopping Bots

UNIT III **15**

Internet Security: Secure Transaction, Computer Monitoring, Privacy on Internet, Corporate Email privacy, Computer Crime(Laws , Types of Crimes), Threats, Attack on Computer System, Software Packages for privacy, Hacking, Computer Virus(How it spreads, Virus problem, virus protection, Encryption and Decryption, Secret key Cryptography, DES, Public Key Encryption, RSA, Authorisation and Authentication, Firewall, Digital Signature(How it Works)

UNIT I V
15

Electronic Data Exchange: Introduction, Concepts of EDI and Limitation, Applications of EDI, Disadvantages of EDI, EDI model,Electronic Payment System: Introduction, Types of Electronic Payment System, Payment Types, Value Exchange System, Credit Card System, Electronic Fund Transfer, Paperless bill, Modern Payment Cash, Electronic Cash

UNIT V **15**

Planning for Electronic Commerce: Planning Electronic Commerce initiates, Linking objectives to business strategies, Measuring cost objectives, Comparing benefits to Costs, Strategies for developing electronic commerce web sites

Text Books

1. G.S.V.Murthy, E-Commerce Concepts, Models, Strategies- :- Himalaya Publishing House, 2011.
2. Kamlesh K Bajaj and Debjani Nag , E- Commerce , 2005.

Reference Books

1. Gray P. Schneider , Electronic commerce, International Student Edition, 2011,

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Component : Discipline Specific Elective (DSE-2B)	**Subject Code :**U19CAE7EP
Subject Title : Entrepreneurship	**Pattern : Theory**
No of Credits : 6	**No of Hours : 90**

Objective	**:**	To develop innovate ideas and create a practical entrepreneurial exposure.

Outcome	**:**	On successful completion of this course ,the student should be wellversed in concept relating to entrepreneur, knowledge in the finance institution, project report incentives and subsidies.

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UNIT – I **18 Hours**

Entrepreneur – Meaning – Characteristics of entrepreneur – classification of entrepreneur – factors influencing entrepreneurship.

UNIT – II **18 Hours**

Problems of Entrepreneurs – Women entrepreneurs – Rural entrepreneurship – Entrepreneurial Development Programmes (EDP).

UNIT – III **18 Hours**

Business idea generation – identification of business opportunities.

UNIT – IV **18 Hours**

Feasibility – Marketing – Financial – Economic – Technical – Managerial – Project appraisal – Project report.

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UNIT – V **12 Hours**

Financial assistance; DIC – SIPCOT – SIDBI – TIIC – NSIC.

Lecture Hours	**:**	**90**
Tutorial Hours	**:**	**00**
Total Hours	**:**	**90**

TEXT BOOKS:

1. Entrepreneurial Development – Jayshree Suresh, Margam Publication.
2. Entrepreneurial Development - C.B.Gupta and Dr. N.P. Srinivasan – Sulthanchand& Sons.

REFERENCE BOOKS:

1. Entrepreneurial Development – S.S.KankaS.Chand& Co.
2. Fundamentals of entrepreneurship - Renu Arora, S.K.Sooj, Kalyani and small business Publishers.
3. K. Ramachandran – Entrepreneurship - Tata McGraw Hill. Entrepreneurial Development- E. Gordon and K. Natarajan- Himalaya Publishing.

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Component : Discipline Specific Elective (DSE-2B)	**Subject Code :**U19CAE8CA
Subject Title : Contemporary Advertising	**Pattern : Theory**
No of Credits : 6	**No of Hours : 90**

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6	**0**	**0**	**6**

Objective	**:**	To enable students to meet the growing demand and challenges of the promotional advertising

Outcomes: Instructors provide students with scenarios where they must integrate a full advertising platform for a potential client

UNIT - I **18 Hours**

Advertising in Economy: Advertising the key ingredient in National Economic Growth -Stimulating better products -Healthy Competition -Competition and monopoly -Rising GNP -Optimizing the utility of purchase. Advertising and Media Vehicles: Newspaper, Radio, Television, Outdoor Ads, Exhibitions, Boarding's, Hand Bills

UNIT 2 **18 Hours**

Advertising and Marketing: Marketing Mix -Brand Management and Market Segmentation -Brand Positioning: Strategies for competitive advantages -components of positioning -product class –consumer segmentation -perceptual Mapping -Brand benefits and attributes, positioning with Non-Functional values -Self Concept and Preferred Brand –Brand Personality -Image Versus Personality -Positioning Successes-Case studies.

UNIT 3 **18 Hours**

The Advertising Business :Advertisers and Advertising Agencies -Agency Structure -Departments of Ad Agencies -Research -Creative -Media Account Service –Integrated Agency Service -Account Planning and Account Management.

UNIT 4 **18 Hours**

Advertising Theories: Hierarchical Effects Theory –Brand Theories Colour Theories -Audience Resistance, Resilince and Selectivity -Audience use Theories-Media Dependency Theories -Cognitive processes in Media Effects -Cultural and Critical studies.

UNIT 5 **18 Hours**

Social, Ethical and Legal aspects of Advertising: A) Social Aspects -Consumerism and Consumer Awareness -Cultural Impact of Advertising - -Standards of taste. B) Ethics in Advertising: Code of Ethics in Advertising -Unfair and Restrictive Trade Practices -Monopolies and Restrictive Trade Practices Act 1969. MRTP Commission -Advertising Standards Council of India -Standards of Practice for Advertising Agencies C)Legal Issues of Adverting. Commercial freedom of Speech.

Lecture Hours : 90
Tutorial Hours : 0
Total Hours : 90

TEXT BOOK RECOMMENDED

1. Contemporary Advertising- William FArens, Irwin (Publishers -MC Graw Hill, Boston)
2. Essentials of Advertising- J.S. Chandan, Jaggit Singh, P.N. Malhan, Essentials of Advertising –(Publishers -Oxford & IBH Publishing Co. Pvt. Ltd, Calcutta Year – 1990).

3. Advertising Management- Rajeev Batra, John G. Myers, David A. Aaker(Publishers - Prentice Hall of India Pvt. Ltd., New Delhi Year 1997V Edition)

4. Advertising Management– D.B. Taraporevala., Selected Readings –(Publishers -D.B. Taraporevala& Sons Co. Private Ltd., Bombay –Year –1965)

5. How to Produce successful Advertising- A.D. Farbey Publishers -Kogan Page India Pvt. Ltd., New Delhi –year –2000 7thEdition)

BOOKS FOR REFERENCE:

1. Advertising Management– D.B. Taraporevala., Selected Readings –(Publishers -D.B. Taraporevala& Sons Co. Private Ltd., Bombay –Year –1965).

2. N.T.C's Dictionary of Advertising,– Jack G. Wiechmann, ublishers -NTC Publishing Group Lincolnwood, Illinois, U.S.A. Year -1998, 2ndEdition).

3. Dictionary of Advertising and Sales Managements– Suman Chopra, (Publishers - Sarup& Sons, New Delhi, Year –1997).

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Subject Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE9DW**
Subject Title : DATA WAREHOUSING and DATA MINING	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	• Understand information security's importance in our increasingly computer-driven world. • Master the key concepts of information security and how they "work."

Outcome	**:**	**At the end of the course, the students should be able to** • Understand the basic terminology and concepts related to network and system level security • Basics of computers and networking including Internet Protocol, routing, Domain Name Service, and network devices. • Expose basic cryptography, security management, and network security techniques. T • Look at policies as a tool to effectively change an organization's culture towards a better secure environment.

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OBJECTIVE:

To develop an understanding of the strengths and limitations of popular data mining techniques and to be able to identify promising business applications of data mining.

Outcome : At the end of the course, the students should be able to

- Data preprocessing and data quality.
- Modeling and design of data warehouses.
- Algorithms for data mining.

UNIT I **(12 hours)**

Data Warehousing: Introduction- Definition and description, need for data ware housing, need for strategic information, failures of past decision support systems, OLTP vs DWH-DWH requirements-trends in DWH-Application of DWH.

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UNIT II **(12 hours)**

Data Warehousing Architecture: Reference architecture- Components of reference architecture - Data warehouse building blocks, implementation, physical design process and DWH deployment process. A Multidimensional Data, Model Data Warehouse Architecture.

UNIT III **(14 hours)**

Data Mining: Data mining tasks-Data mining vs KDD- Issues in data mining, Data Mining metrics, Data mining architecture - Data cleaning- Data transformation- Data reduction - Data mining primitives.

Association Rule Mining: Introduction - Mining single dimensional Boolean association rules from transactional databases - Mining multi-dimensional association rules.

UNIT IV **(12 hours)**

Classification and Prediction: Classification Techniques - Issues regarding classification and prediction - decision tree - Bayesian classification –Classifier accuracy – Clustering – Clustering Methods - Outlier analysis.

UNIT V **(10 hours)**

Applications and Other Data Mining Methods: Distributed and parallel Data Mining Algorithms, Text mining- Web mining.

TOTAL HOURS : 60

TEXT BOOK:

1. Jiawei Han and Micheline Kamber, ” Data Mining Concepts and Techniques”, Morgan Kaufmann Publishers, USA, 2006.
2. Berson,”DataWarehousing, Data Mining and OLAP”, Tata McGraw Hill Ltd, New Delhi, 2004.

REFERENCE BOOKS

1. Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Introduction to Data Mining, ,Pearson Education.
2. Arun K Pujari,”Data mining techniques”, Oxford University Press, London, 2003.
3. Dunham M H,”Data mining: Introductory and Advanced Topics”. Pearson Education, New Delhi, 2003.
4. Mehmed Kantardzic,” Data Mining Concepts, Methods and Algorithms”, John Wiley and Sons, USA, 2003.

5. Soman K. P., DiwakarShyam, Ajay V., Insight into Data mining: Theory and Practice, PHI 2006

Subject : Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE9DW**
Subject Title : DATA WAREHOUSING and DATA MINING	**Pattern : Practical**
No of Credits : 2	**No of Hours : 60**

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Practical List: Practical are to be done using Weka, and a report prepared as per the format*. The operations are to be performed on built-in dummy data sets of weka and/or the downloadable datasets mentioned in references below. Also wherever applicable, the parameter values are to be varied (upto 3 distinct values). The 'Visualize' tab is to be explored with each operation.

1.Preprocessing : Apply the following filters –

a. weka>filter>supervised>attributed>
AddClassification ,AttributeSelection, Discretize , NominalToBinary

b. weka>filter>supervised>instance:
StratifiedRemoveFolds, Resample

c. weka>filter>unsupervised>attribute>
Add, AddExpression, AddNoise , Center , Discretize , MathExpression ,

MergeTwoValues ,NominalToBinary , NominalToString, Normalize

NumericToBinary ,NumericToNominal , NumericTransform , PrincipalComponent , RandomSubset , Remove , RemoveType , ReplaceMissingValues , Standardize

d. weka>filter>unsupervised>instance>
Normalize , Randomize , Standardize, RemoveFrequentValues, RemoveWithValues , Resample , SubsetByExpression

2. **Explore the 'select attribute' as follows**

   weka>attributeSelection> , FilteredSubsetEval ,

   WrapperSubsetEval

3. **Association mining** weka>associations> , Apriori,

   FPGrowth

4. **Classification****

   weka>classifiers>bayes> , NaïveBayes , weka>classifiers>lazy> : IB1 ,

   IBkweka>classifiers>trees , SimpleCart , RandomTree , ID3

5. **Clustering****

weka>clusters> , SimpleKMeans , FarthestFirst algorithm, DBSCAN, hierarchicalClusterer

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Subject : Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE10NP**
Subject Title : .NET PROGRAMMING	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	The learner is expected: • To gain in-depth knowledge on .NET frame work • To develop business applications using VB .net • To understand ADO .Net for database programming

Outcome	**:**	At the end of the course students able to Understand • .NET Framework and the basic structure of a Visual Basic. • NET project and use main features of the integrated development environment (IDE). Create applications that use ADO. NET

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UNIT - I **(12 Hours)**

.NET FRAMEWORK AND VB.NET: Evolution of the .NET Framework – Overview of the .Net Framework – VB.NET – Simple VB.Net Program. VARIABLES, CONSTANTS AND EXPRESSIONS: Value Types and Reference Types – Variable Declarations and Initializations – Value Data Types – Reference Data Types – Boxing and Unboxing – Arithmetic Operators – Textbox Control – Label Control – Button Control.

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UNIT – II **(12 Hours)**

CONTROL STATEMENTS: If Statements – Radio Button Control – Check Box Control – Group Box Control – Listbox Control – Checked List Box Control – Combo box Control – Select Case Statement – While Statement – Do Statement – For Statement. METHODS AND ARRAYS: Types of Methods – One Dimensional Array – Multi Dimensional Arrays – Jagged Arrays. CLASSES: Definition And Usage of a Class – Constructor Overloading – Copy Constructor – Instance and Shared Class Members – Shared Constructors.

UNIT – III **(12 Hours)**

INHERITANCE AND POLYMORPHISM: Virtual Methods – Abstract Class and Abstract Methods – Sealed Classes. INTERFACES, NAMESPACES AND COMPONENTS: Definition of Interfaces – Multiple Implementations of Interfaces – Interface Inheritance – Namespaces – Components – Access Modifiers. DELEGATES, EVENTS AND ATTRIBUTES: Delegates – Events – Attributes – Reflection.

UNIT - IV **(12 Hours)**

EXCEPTION HANDLING: Default Exception Handling Mechanism – User Defined Exception Handling Mechanism – Throw Statement – Custom Exception. MULTITHREADING: Usage Of Threads – Thread Class – Start(), Abort(), Join(), and Sleep() Methods – Suspend() And Resume() Methods – Thread Priority – Synchronization. I/O STREAMS: Binary Data Files – Text Files - Data Files – FileInfo and DirectoryInfo Classes.

UNIT - V **(12 Hours)**

ADDITIONAL CONTROLS: Timer – ProgressBar – LinkLabel – Panel – TreeView – Splitter – Menu – SDI & MDI – Dialog Boxes – Toolbar – StatusBar. DATABASE CONNECTIVITY: Advantages Of ADO.NET – Managed Data Providers – Developing a Simple ADO.NET Based Application – Creation of Data Table – Retrieving Data From Tables – Table Updating – Disconnected Data Access Through Dataset Objects.

TEXT BOOK

1. Muthu C. (2008), ”*Visual Basic.NET*”, 2nd Ed., Vijay Nicole Imprints Pvt.Ltd.,.

REFERRENCES

1. Jeffrey R.Shaprio (2002), “*Visual Basic .NET The Complete Reference*”, Mac Graw Hill
2. Michael Halvorson (2010), “*Visual Basic 2010 Step by Step*”, Microsoft Press.
3. Harold Davis (2002), “*Visual Basic.NET Programming”*, Sybex.

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Subject : Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE10NL**
Subject Title : .NET PROGRAMMING LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 60**

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1. Create and Validate Login Form.
2. Program to design an 'ACCOUNT' Class.
3. Program to demonstrate Inheritance, Polymorphism and Interfaces.
4. Advance Controls.
5. Common Dialog Controls.
6. ADO.NET Code to show records in DataGridView Control.
7. ADO.NET Code to perform Insert, Delete, Update and Select operations.
8. Crystal Reports
9. Web Application using ASP.NET that uses validation controls.
10. Web Application with ADO.NET to perform Insert, Delete, Update and Select Operations.

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Subject : Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE11IO**
Subject Title : BUILDING INTERNET OF THINGS	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	To Identify, classify and describe different kinds of Internet-connected product concepts.

Outcome	**:**	**At the end of the course, the students should be able to** • Understand the application areas of IOT • Realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks • Understand building blocks of Internet of Things and characteristics.

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UNIT I INTRODUCTION TO THE INTERNET OF THINGS 12

Origins – Early Concepts and Products – Current Products and Value Propositions– Architectures and Design Patterns – Analysis of a Full Connected –Object Experience – State of the Art, Challenges and Future Directions.

UNIT II COMPONENTS IN INTERNET OF THINGS 12

Control Units – Sensors – Communication modules – Power Sources – Communication Technologies – RFID – Bluetooth – Zigbee – Wifi – Rflinks – Mobile Internet – Wired Communication

UNIT III PROGRAMMING THE MICROCONTROLLER FOR IOT 12

Basics of Sensors and actuators – Examples and Working principles of Sensors and Actuators – Cloud computing and IOT – Arduino/Equivalent Microcontroller Platform – Setting up the board - Programming for IOT – Reading from Sensors

UNIT IV COMMUNICATION 12

Connecting microcontroller with Mobile Devices – Communication through Bluetooth and USB – Connection with the Internet using Wifi / Ethernet

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UNIT V APPLICATIONS 12

Set up cloud environment – Send data from microcontroller to cloud – Case studies – Open Source e-Health sensor platform – BeClose Elderly monitoring – Other recent projects.

TOTAL HOURS:60

TEXT BOOK:

1. Charalampos Doukas , "Building Internet of Things with the Arduino", Create space, April 2002

REFERENCE BOOK:

1. Vijay Madisetti and Arshdeep Bahga, **"Internet of Things (A Hands-on-Approach)",** 1st Edition, VPT, 2014
2. Francis daCosta, **"Rethinking the Internet of Things: A Scalable Approach to Connecting Everything",** 1st Edition, Apress Publications, 2013
1. Cuno Pfister, Getting Started with the Internet of Things, O"Reilly Media, 2011, ISBN: 978-1-4493-9357-1
2. http://postscapes.com/
3. http://www.theinternetofthings.eu/what-is-the-internet-of-things

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Subject : Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE11IL**
Subject Title : BUILDING INTERNET OF THINGS LAB	**Pattern : PRACTICAL**
No of Credits : 2	**No of Hours : 60**

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1. Creating a Bluemix Application
2. Create and add an Internet of Things Service
3. Wire the connected device's data flow with IBM Node-RED

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Subject : Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE12OO**
Subject Title : OBJECT ORIENTED ANALYSIS AND DESIGN	**Pattern : Theory**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	To develop a working understanding of formal object-oriented analysis and design processes.

Outcome	**:**	**At the end of the course, the students should be able to** • To analyze the problem and apply to real world problems. • To apply knowledge of OOPs concepts in Object Oriented Design. • To analyze the case study and apply the UML notations. • To gather functional requirements and apply the use case diagrams.

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UNIT I **12**

Object system development

Objects, Classes, Object behavior and methods, Objects respond to messages Encapsulation and Information hiding, Class hierarchy, Polymorphism

UNIT II

12

Object relationships

Association, Aggregation, Containment, Structured approach, Object Oriented approach Static and Dynamic Binding, Object Persistence, Meta-classes.

UNIT III

12

Object oriented system development life cycle

Software development process, Use-case Driven approach, Prototyping, Component Based development, Incremental Testing.

UNIT IV **12**

Object oriented methodologies

Rumbaugh Object Modeling, Booch Methodology, Jacobson methodology, Patterns, Frameworks.

UNIT V

12

UML

Introduction, Static and dynamic models, UML diagrams, UML Class diagram, Use case Diagrams, UML Dynamic Modeling

Total Hours: 60

TEXT BOOK:

1. Object Oriented Systems Development Ali Bahrami, Irwin/McGraw-Hill, 1999 - Computers.

REFERENCE BOOKS:

1. Object Oriented Analysis & Design with Application by Grady Booch

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Subject : Discipline Specific Elective (DSE-3A)	**Subject Code : U19CAE12OL**
Subject Title OBJECT ORIENTED ANALYSIS AND DESIGN LAB	**Pattern : Practical**
No of Credits : 2	**No of Hours : 60**

L	T	P	C
0	0	4	2

DEVELOP A MINI-PROJECT FOLLOWING THE 12 EXERCISES LISTED BELOW.

1. To develop a problem statement.
2. Develop an IEEE standard SRS document. Also develop risk management and project plan (Gantt chart).
3. Identify Use Cases and develop the Use Case model.
4. Identify the business activities and develop an UML Activity diagram.
5. Identity the conceptual classes and develop a domain model with UML Class diagram.
6. Using the identified scenarios find the interaction between objects and represent them using UML Interaction diagrams.
7. Draw the State Chart diagram.
8. Identify the User Interface, Domain objects, and Technical services. Draw the partial layered, logical architecture diagram with UML package diagram notation.
9. Implement the Technical services layer.
10. Implement the Domain objects layer.
11. Implement the User Interface layer.
12. Draw Component and Deployment diagrams.

SUGGESTED DOMAINS FOR MINI-PROJECT.

1. Passport automation system.
2. Book bank
3. Exam Registration
4. Stock maintenance system.
5. Online course reservation system
6. E-ticketing
7. Software personnel management system

8. Credit card processing
9. e-book management system
10. Recruitment system
11. Foreign trading system
12. Conference Management System
13. BPO Management System **Suggested SoftwareTools** ArgoUML, Eclipse IDE, Visual Paradigm, Visual case, and Rational Suite.

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Subject : Discipline Specific Elective (DSE-3B)	**Subject Code : U19CAE13PW**
Subject Title : PROJECT WORK Project Work/Dissertation (Compulsory)	**Pattern : Practical**
No of Credits : 6	**No of Hours : 90**

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- This option is to be offered only in 6th Semester.
- The students will be allowed to work on any project based on the concepts studied in core/elective or skill based elective courses.
- The group size should be maximum of three (03) students.
- Each group will be assigned a teacher as a supervisor who will handle both their theory as well lab classes.
- A maximum of Four (04) projects would be assigned to one teacher.
- Theory classes will cover project management techniques.

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Ability Enhancement Compulsory Courses

Semester	Sub. Code	Title of the Paper	L	T	P	Credits
I	U19AE1ES	**Environmental Science**	4	0	0	4

OBJECTIVES

a) To expand awareness on the significance of natural resources and energy.
b) To comprehend the structure and function of an ecosystem
c) To understand an aesthetic value with respect to biodiversity, aware of the threats and its conservation and realize the concept of interdependence
d) To identify with the source of kind of pollution and disaster management

OUTCOMES

- Understand core concepts and methods from ecological and physical sciences and their application in environmental problem-solving.
- Realize key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
- Understand the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
- Appreciate that one can apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.
- Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

Total: 60 Hours

Unit I **12 Hours**

The multidisciplinary nature of environmental studies. Definition, scope and importance need for public awareness

Unit II Natural resources **12Hours**

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 effect on forests 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 overgrazing, 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 individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles

Unit III: Ecosystems **12 Hours**

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 ecosystem:

a) Forest ecosystem
b) Grassland ecosystem
c) Desert ecosystem
d) Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)

Unit IV: Bio-diversity and its conservation **12Hours**

Introduction – definition: genetic, species and ecosystem biodiversity – biogeographical classification of India – value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and optional values – biodiversity at global, national and local levels.

India as a mega diversity nation – hot-spots of biodiversity – threats to biodiversity: Habitat loss, poaching of wild life, man – wildlife conflicts – endangered and endemic species of India – conservation of biodiversity: in situ and Ex-situ conservation of biodiversity.

Unit V: Environmental pollution **12 Hours**

Definition, causes, 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 – disaster management: floods, earthquake, cyclone and landslides.

Unit VI: Social issues and environment: **12 Hours**

From unsustainable to sustainable development – urban problems related to energy – water conservation, rain water harvesting, watershed management – resettlement and rehabilitation 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 - environmental 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 VII: Human population and environment: **12 Hours**

Population growth, variation among nations – population explosion – family welfare programme – environmental 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 VIII: Field Works: **12Hours**

Visit to local area to document environmental assets – rivers/ forest/ grassland/ hill/ mountain – visit to 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 works)

Reference books

1. Environmental Studies, N. Nandini, N. Sunitha and SucharitaTandon,Sapna Book House, 2007.
2. Text book of Environmental Science, RagavanNambiar, Scitech Publications, 2009.
3. Text book of Environmental Chemistry and Pollution Control, S.S.Dara, S.Chand and Co., 2002.
4. Environmental Chemistry, Colin Baird, W.H.Freeman and company, New York,1999.
5. Environmental Chemistry, Gary W. Van Loon and Stephen J. Duffy, Oxford University Press, 2000.
6. New Trends in Green Chemistry, V.K. Ahluwalia and M. Kidwai, Anamaya Publishers, 2006.
7. Perspectives in Environmental studies – Anubhakaushik and CP kaushik, New age international publishers, 4th edition, 2014.
8. Text Book of Environmental Studies for under gradute courses By ErachBharucha Reprinted in 2006, Orient Longman Private Limited /Universities Press India Pvt. Ltd

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Subject: Ability Enhancement Course **Subject code:U19AE2EL**

Subject Title: English Communication Lab **Pattern: Practical**

No. of Credits: 4 **No. of hours: 60**

Syllabus

Objective:

To make the students comfortable in using English Language.

To help the students gain confidence in English.

To enhance the four skills of Language.

Course Outcome:

After completion of the course the students will be

1.Able to understand how to use English Language comfortably

2. Able to gain confidene in English

3.Able to learn the four skills of the language

UNIT I- Introduction: **12hours**

Theory of Communication, Types and modes of Communication

UNIT II- Language of Communication: **12 hours**
Verbal and Non-verbal
(Spoken and Written)
Personal, Social and Business
Barriers and Strategies

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UNIT II- Language of Communication: **12hours**
Verbal and Non-verbal
(Spoken and Written)
Personal, Social and Business
Barriers and Strategies
Intra-personal, Inter-personal and Group communication

UNIT III- Speaking Skills: **12hours**
Monologue
Dialogue
Group Discussion
Effective Communication/ Mis- Communication
Interview
Public Speech

UNIT IV- Reading and Understanding **12hours**
Close Reading
Comprehension
Summary Paraphrasing
Analysis and Interpretation
Translation(from Indian language to English and vice-versa) Literary/Knowledge Texts

UNIT V- Writing Skills **12 hours**
Documenting
Report Writing
Making notes
Letter writing

Reference:
1. *Fluency in English* - Part II, Oxford University Press, 2006.
2. *Business English*, Pearson, 2008.
3. Language, Literature and Creativity, Orient Blackswan, 2013.
4. *Language through Literature* (forthcoming) ed. Dr. Gauri Mishra, Dr Ranjana Kaul, Dr Brati Biswas

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mbg;gil jkpo;

SUB :Ability Enhancement Course (Compulsory) **Credit : 4**

TITLE : mbg;gil jkpo; **hours : 60**
SUB CODE : U19AE3BT **SUB PATTERN : (THEORY)**

Nehf;fk;:

khzth;fSf;F mbg;gil jkpiog; gapw;Wtpj;J nkhop mwpit tsh;j;jy;.

gpw nkhop khzth;fs; jkpio gbf;f vOj gapw;Wtpj;jy;.

fw;wy; gad;fs; :

khzth;fs; mbg;gilj;jkpio mwpth;.

nkhop tsk; czh;e;J gpw nkhop khzth;fs; fw;W jkpo; nkhopia mwpth;.

myF 1 hours:12

vOj;Jf;fs;

1.capu; vOj;Jf;fs;

2.nka; vOj;Jf;fs;

3.capu;nka; vOj;Jf;fs;

myF 2 hours:12

nrhw;fis mikj;jy;

myF 3 hours:12

ngau;r;nrhw;fs;

myF 4 hours:12

tpidr;nrhw;fs;

myF 5 hours:12

tha;nkhopg;gapw;rp : ghly;fs;

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ghh;it Ehy;fs; :

1.mbg;gil ,yf;fzk; - Fkud; re;jpah gjpg;gfk; nrd;id.

2.ew;wkpo; ,yf;fzk; - lhf;lh;.nrh.gukrptk;.

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Skill Enhancement Elective Courses (Any Four)

SUB : Skill Enhancement Elective Course **Credit : 4**

TITLE : YOGA AND MEDITATION **hours : 60**

SUB CODE : U19SE1YL

SUB PATTERN : (THEORY)

UNIT – I SURYA NAMASKAR AND ASANAS (hours:12)

Surya namaskar, Padmasana, Vajrasana, Tadasana, Bhujangasana, Konasana, Uttakatasana, Savasana.

UNIT – II PRANAYAMA (hours:12)

Surya pranayama, Chandra Pranayama, Anulom Vilom, Sheetali, Sheetkari.

UNIT – III MUDRA (hours:12)

Chin mudra, Rughi mudra, Yoga mudra, Maha mudra, Shanmukhi mudra.

UNIT – IV KRIYA (hours:12)

Kapalabathi, Bhastrika.

UNIT – V MEDITATION (hours:12)

Simple, Vibrational, Mantra, Yoga Nitra

References:

1. Dr.V.Krishnamoorthy, *Simple Yoga for Health*, Sri Mathi Nilayam, 2012.
2. Dr.Ananda Balayogi Bhavanani, *A Primer of Yoga Theory*, Dhivyananda Creations,2008.
3. Dr.S.Hema, Easy *Yoga for Beginners*, Tara yoga Publications,2008.
4. Dr.Asana Andiappan, *Ashtanga Yoga*, Asana Publications, 2009.
5. Yogacharya Sundaram, *Sundra Yoga Therapy*, Asana Publications, 2009

6. Dr.John B.Nayagam, *Mudumaikku Mutrupulli Vaikkum Muthiraigal*, Saaru Prabha Publications, 2010.

Subject: Skill Enhancement Elective Courses

Subject code: U19SE2S1

Subject title: Soft Skill -I **Pattern: Theory**

No. of Credits: 4 **No. of hours: 60**

Syllabus

Objectives:

1. To enhance presentation and communication skill

2. To develop the cognitive, inter personal and teamwork skills

3. To include potential skills in the learners to prepare them to deal with the external world in a Collaborative manner, communicate effectively, take initiative, and solve problems.

Course Outcome:

After the completion of the course students will be able to:

1. Communicate more effectively

2. Identify and implement solutions in a complicated situation.

3. Meet goals and objectives of an organization by working in a collaborative manner.

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Unit I- [**Team Building, Organizing Meeting]** **Hours: 12hours**

To know the nature of the team, To understand personal as well as professional goals of the members of the group, To work effectively in a team through building relation and interpersonal communication

How to call the meeting, how to organize a meeting in the smooth manner, how to design the agenda and prepare minutes of the meeting.

Unit II – [Dress for Success, Table Manners, Telephone etiquettes] **Hours: 12hours**

To learn selection of proper attire as per the situation, How to carry one's self, How to project one's self in the right frame and spirit.

To learn the manners during professional meetings over lunch/dinner, Basics of the table manner.

Unit III –[Stress Management, Time Management] **Hours: 12hours**

To learn kinds of stress, To identify the right reason/s of stress, How to handle the pressure and perform efficiently in such situations, Techniques to cope with the stressful situation at a workplace.

Goal setting, To make students understand the importance of time, How to prepare the time line and allocate time to complete different tasks, How to

successfully follow the prepared time-schedule.

Unit- IV –[Art **of Negotiation, Multi-tasking]** **Hours: 12hours**

To understand what is negotiation, Ways of negotiating and being successful in it, To understand the power of language and non-verbal communication.

How to prioritize the work, Importance of multi-tasking and concerns related to multi-tasking, To identify whatto multi-task.

Unit V-[Presentation Skills] **Hours: 12 hours**

To learn the skill of presentation, How to prepare it.

Reference:

1. Peggy Klaus, The Hard Truth about Soft Skills.
2. Nitin Bhatnagar. Effective Communication and Soft Skills. Pearson Education India.
3. Eric Garner. Team Building.
4. Wendy Palmer and Janet Crawford. Leadership Embodiment.

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Subject: Skill Enhancement Elective Courses **Subject code: U19SE3S2**

Subject title: Soft Skill II **Pattern: Theory**

No. of Credits: 4 **No. of hours: 60**

Syllabus

Objectives:

1. To enhance the four skills of communication.
2. To develop the verbal and non-verbal communication & skills of interpretation.
3. To increase the skills of Day-to- Day communication.

After completion of the course students will be able to

1. Use the four skills of communication
2. Learn verbal & non-verbal communication more effectively.
3. Improve the skills of day-to-day communication

UNIT I **Hours: 12 hours**

1.1. Skills in Listening and Writing
1.2. Skills in Reading and Understanding

UNIT II **Hours: 12 hours**

2.1. Skills to Read and Respond to Instructions
2.2. Skills of Interpretation and Transcoding Information

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UNIT III **Hours: 12hours**

3.1. Skills in Seeking and Responding to Information
3.2. Skills of Day-to-Day communication

UNIT IV **Hours: 12 hours**

4.1. Grammatical skills and Spelling rules
4.2. Career skills

UNIT V **Hours: 12 hours**

5.1. Skills of formal and in-formal expressions
5.2. Skills of non-verbal communication

Reference:

Whitmore, Paul G.; Fry, John P., "Soft Skills: Definition, Behavioral Model Analysis, Training procedures. Professional paper 3-74.", Research Report ERIC Number: ED158043, 48 pp.

https://www.nbea.org/newsite/curriculum/police/no-67.pdf

Marcel M. Robles, Executive perceptions of the top 10 Soft Skills Needed in Today's Workplace Archived 2016-08-12 at the Way back Machine, Business Communication Quarterly, 75(4) 453-465

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Subject : SKILL ENHANCEMENT COURSES	**Subject Code :** U19SE4PL
Subject Title : PHP Programming	**Pattern : Practical**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	1. Describe and use the features and syntax of programming language PHP 2. Create, translate, and process HTML information using the Common Gateway Information (CGI) protocol. 3. Retrieve, insert, update, and delete data from the relational database MySQL

L T P C
1 0 2 2

Introduction to PHP: (3L)

- 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

Handling HTML form with PHP: (2L)

- Capturing Form Data
- GET and POST form methods
- Dealing with multi value fields
- Redirecting a form after submission

PHP conditional events and Loops: (3L)

- PHP IF Else conditional statements (Nested IF and Else)
- Switch case, while ,For and Do While Loop

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Goto , Break ,Continue and exit

PHP Functions: (3L)

- 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

String Manipulation and Regular Expression: (3L)

- Creating and accessing String , Searching & Replacing String
- Formatting, joining and splitting String , String Related Library functions
- Use and advantage of regular expression over inbuilt function
- Use of preg_match(), preg_replace(), preg_split() functions in regular expression

Array: (3L)

- Anatomy of an Array ,Creating index based and Associative array ,Accessing array
- Looping with Index based array, with associative array using each() and foreach()
- Some useful Library function

Software Lab Based on PHP:

c) Create a PHP page using functions for comparing three integers and print the largest number.
d) Write a function to calculate the factorial of a number (non-negative integer). The function accept the number as an argument.
e) WAP to check whether the given number is prime or not.
f) Create a PHP page which accepts string from user. After submission that page displays the reverse of provided string.
g) Write a PHP function that checks if a string is all lower case.
h) 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)
i) WAP to sort an array.
j) Write a PHP script that removes the whitespaces from a string.
Sample string : 'The quick " " brown fox'

Expected Output :Thequick""brownfox

k) Write a PHP script that finds out the sum of first n odd numbers.
l) Create a login page having user name and password. On clicking submit, a welcome message should be displayed if the user is already registered

(i.e.name is present in the database) otherwise error message should be displayed.

m) Write a PHP script that checks if a string contains another string.

n) Create a simple 'birthday countdown' script, the script will count the number of days between current day and birth day.

o) Create a script to construct the following pattern, using nested for loop. *

p) *

q) * *

r)* * *

s)* * * *

t) Write a simple PHP program to check that emails are valid.

u) WAP to print first n even numbers.

v) $color = array('white', 'green', 'red")

Write a PHP script which will display the colors in the following way :
Output : white, green, red,

- green
- red
- white

w) Using switch case and dropdown list display a “Hello” message depending on the language selected in drop down list.

x) Write a PHP program to print Fibonacci series using recursion.

y) Write a PHP script to replace the first 'the' of the following string with 'That'.

Sample : 'the quick brown fox jumps over the lazy dog.'

Expected Result : That quick brown fox jumps over the lazy dog.

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Subject : SKILL ENHANCEMENT COURSES	**Subject Code :** U19SE5SL
Subject Title : Programming in SCILAB	**Pattern : Practical**
No of Credits : 4	**No of Hours : 60**

Objective	**:**	1. To provide students with sound foundation in applied mathematics to solve real life problems in industry. 2. To provide hands on experience in using Scilab software to handle real life problems.

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1	**0**	**2**	**2**

Unit I- Introduction to Programming: Components of a computer, working with numbers, Machine code, Software hierarchy. (2L)

Unit II- Programming Environment: SCILAB Environment, Workspace, Working Directory, Expressions, Constants, Variables and assignment statement, Arrays.
(3L)

Unit III- Graph Plots: Basic plotting, Built in functions, Generating waveforms, Sound replay,
load and save.
(2L)

Unit IV-Matrices and Some Simple Matrix Operations, Sub- Matrices.
(2L)

Unit IV- Procedures and Functions: Arguments and return value
(2L)

Unit V-Control Statements: Conditional statements: If, Else, Else-if, Repetition statements:While, for loop.
(3L)

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Unit VI- Manipulating Text: Writing to a text file, Reading from a text file, Randomising and sorting a list, searching a list.
(2L)

Recommended Books:

- M.Affouf, SCILAB by Example ,CreateSpace Independent Publishing Platform,2012
- H. Ramchandran, A.S. Nair, SCILAB , S.Chand, 2011

Software Lab Based on SCILAB:

1. Write a program to assign the following expressions to a variable A and then to print out the value of A.
   - (3+4)/(5+6)
   - $2\pi^2$
   - $\sqrt{2}$

   c. d.$(0.0000123 + 5.67\times10^{-3}) \times 0.4567\times10^{-4}$
2. Celsius temperatures can be converted to Fahrenheit by multiplying by 9, dividing by 5, and adding 32. Assign a variable called C the value 37, and implement this formula to assign a variable F the Fahrenheit equivalent of 37 Celsius.
3. Set up a vector called N with five elements having the values: 1, 2, 3, 4, 5. Using N, create assignment statements for a vector X which will result in X having these values: a.2, 4, 6, 8, 10
   b. 1/2, 1, 3/2, 2, 5/2
   c. 1, 1/2, 1/3, 1/4, 1/5
   d. 1, 1/4, 1/9, 1/16, 1/25
4. A supermarket conveyor belt holds an array of groceries. The price of each product (in pounds) is [0.6, 1.2 ,0.5, 1.3] ; while the numbers of each product are [3, 2 ,1 ,5]. Use MATLAB to calculate the total bill.
5. Thesortrows(x) function will sort a vector or matrix X into increasing row order. Use this function to sort a list of names into alphabetical order.
6. The "identity" matrix is a square matrix that has ones on the diagonal and zeros elsewhere. You can generate one with theeye() function in MATLAB. Use MATLAB to find a matrix B, such that when multiplied by matrix A=[1 2; -1 0] the identity matrix I=[1 0; 0 1] is generated. That is A*B=I.
7. Create an array of N numbers. Now find a single MATLAB statement that picks out from that array the 1,4,9,16,…,√Nthentries, i.e. those numbers which have indices that are square numbers.
8. Draw a graph that joins the points (0,1), (4,3), (2,0) and (5,-2).
9. The seeds on a sunflower are distributed according to the formula below. Plot a small circle at each of the first 1000 co-ordinates :

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$$r_n = \sqrt{n}$$

$$\theta_n = \frac{137.51}{180}\pi n$$

10. Calculate 10 approximate points from the function y=2x by using the formulae: i.x_n = n
    ii.y_n = 2n + rand - 0.5

    Fit a line of best fit to these points using the function polyfit() with degree=1, and generate co-ordinates from the line of best fit using polyval(). Use the on-line help to find out how to use these functions. Plot the raw data and the line of best fit.

11. Calculate and replay 1 second of a sinewave at 500Hz with a sampling rate of 11025Hz. Save the sound to a file called "ex35.wav". Plot the first 100 samples.
12. Calculate and replay a 2 second chirp. That is, a sinusoid that steadily increases in frequency with time, from say 250Hz at the start to 1000Hz at the end.
13. Build a square wave by adding together 10 odd harmonics: 1f, 3f, 5f, etc. The amplitude of the nthharmonic should be 1/n. Display a graph of one cycle of the result superimposed on the individual harmonics.
14. Write a function called FtoC (ftoc.m) to convert Fahrenheit temperatures into Celsius. Make sure the program has a title comment and a help page. Test from the command window with: i.FtoC(96)
    ii. lookfor Fahrenheit
    iii. help FtoC
15. Write a program to input 2 strings from the user and to print out (i) the concatenation of the two strings with a space between them, (ii) a line of asterisks the same length as the concatenated strings, and (iii) the reversed concatenation. For example:
    i. Enter string 1: Mark
    ii. Enter string 2: Huckvale
    iii. Mark Huckvaleiv.
    iv. **********
    v. elavkcuHkraM

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Subject: Value Added Course **Subject Code:** U19VA1WS

Subject title: Women Studies **Pattern: Theory**

No: Credits: 2 **No. of hours: 30**

Syllabus

Objectives:

1. This paper aims to familiarize students with key concepts, issues, and debates in Women's Studies

2. To make them aware of the Women's exclusion from knowledge and need for Women's Studies

3. As an academic discipline. It deliberates on the prevailing strategies of the growth of Women's Studies in India and abroad

Course Outcomes:

Upon successful completion of this course, students should be able to:

1. Understand and engage with central debates in the field of Women's and Gender Studies.

2. Define and apply basic terms and concepts central to this field.

3. Apply a variety of methods of analyzing gender in society, drawing upon both primary and secondary sources.

4. Apply concepts and theories of Women's and Gender Studies to life experiences and historical events and processes.

5. Communicate effectively about gender issues in both writing and speech, drawing upon Women's and Gender Studies scholarship and addressing a public audience.

Unit I – Introduction to Women's Studies **Hours: 6 hours**

Key concepts in Gender studies.

Need, Scope and challenges of Women's Studies – Women's Studies as an academic discipline. Women's Studies to Gender Studies, Need for Gender Sensitization.

Women's Movements – global and local: Pre-independence, Post-independence and Contemporary Debates.

National Committees and Commissions for Women.

Unit II – Women and Health **Hours: 6 hours**

Life Cycle Approach to Women's Health – Health status of women in India, factors influencing health and Nutritional status.

Maternal and Child Health (MCH) to Reproductive and Child health approaches.

Issues of declining Child Sex Ratio, Widowhood and old age.

Occupational and mental health.

Health, Hygiene and Sanitation.

National Health and Population Policies and Programmes.

Unit III – Women Empowerment and Development **Hours: 6 hours**

Theories of Development, Alternative approaches – Women in Development (WID), Women and Development (WAD) and Gender and Development (GAD).

Empowerment- Concept and indices: Gender Development Index (GDI), Gender Inequality Index (GII), Global Gender Gap Index (GGGI).

Women Development approaches in Indian Five – Year Plans.

Women and leadership– Panchayati Raj and Role of NGOs and Women Development.

Sustainable Development Goals, Policies and Programmes.

Unit IV – Women Law and Governance **Hours: 6 hours**

Rights: Gender Equality, Gender Discrimination, Women's Rights as Human Rights.

Constitutional provisions for Women in India.

Personal laws, Labour Laws, Family Courts, Enforcement machinery – Police and Judiciary.

Crime against Women and Child: Child Abuse, Violence, Human Trafficking, Sexual Harassment at Workplace Act, 2013 – Legal protection

International Conventions and Legislations Related to Women's Rights.

Unit V – Gender and Media **Hours: 6 hours**

Discourse on Women and Media Studies- Mainstream Media, Feminist Media.

Coverage of Women's issues and issues of women in Mass Media and Media Organizations (Audio-Visual and Print media).

Digital Media and legal protection.

Alternative Media – Folk Art, Street Play and Theatre.

Indecent Representation of Women (Prohibition) Act, 1986, Impact of media on women.

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Recommended Reading Text Books / Reference Books

- Khullar, Mala. Writing the Women's Movement: A Reader ed. New Delhi: Zubaan, 2005.
- Jain, Devaki and Pam Rajput. Narratives from the Women's Studies Family: Recreating knowledge. New Delhi: Sage, 1942.
- Programme of Women's Studies. New Delhi: ICSSR, 1977. Desai, Neera and Maithrey Krishnaraj. Women and Society in India. Delhi: Ajantha, 1987.
- Women in Contemporary India. Ed. Alfred De Souza Delhi: Ajanta, 1987.
- Mies, Maria Indian Women and Patriarchy. Delhi: Concept, 1980. Nanda, B.R. Indian Women: From Purdah to Modernity. Delhi: Vikas, 1976.
- Women's Studies in India: A Reader. Ed. Mary John. Penguin: New Delhi, 2008.

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Value Added Course – IV Semester

Subject : Value Added Course - 2	**Subject Code :** U19VA2IC
Subject Title : Indian Constitution – Configurable Structure	**Pattern : Theory**
No of Credits : 2	**No of Hours : 30**

Objective	**:**	To provide the basic knowledge of the development and of principles enshrined in the Constitution of India
Outcome		It frames fundamental political principles, procedures, practices, rights, powers, and duties of the government

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Unit – I **6 hours**

Introduction: Significance of the Constitution; Making of the Constitution- Role of the Constituent Assembly, Salient features, the preamble, Citizenship, procedure for amendment of the Constitution.

Unit – II **6 hours**

Fundamental Rights: Right to Equality, the Right to Freedom, the Right against Exploitation, the Right to Freedom of Religion, Cultural and Educational Rights and Right to Constitutional Remedies.

Unit – III **6 hours**

Nature of the Directive principles of State Policy: Difference between of Fundamental Rights and Directive Principles of State Policy – Implementation of Directive Principles of State Policy, Fundamental Duties.

Unit – IV **6 hours**

Union Government – Powers and Functions of the President, the Prime Minister, Council of Ministers. Composition, Powers and functions of the Parliament, Organisation of Judiciary, The Supreme Court: Powers and Functions. LokSabha and RajyaSabha - Powers and Functions.

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Unit – V **6 hours**

State Government – Powers and Functions of Governor, Chief Minister, Council of Minister. Composition, Powers and functions of state Legislature, Local Government and the Constitution, Relation between the Union and the States. The High Court: Powers and Functions.

Text Books

1. M. V. Pylee – An Introduction to Constitution of India, Vikas Publications, New Delhi-2005.
2. Subhash C. Kashyap – Our Constitution: An Introduction to India's Constitution & Constitutional Law, National Book Trust, New Delhi-2000.
3. Durga Das Basu – Introduction to the Constitution of India, PHI, New Delhi-2001.
4. D. C. Gupta – Indian Government & Politics, Vikas Publications, New Delhi-1994, VIII Edition.
5. J. C. Johari – Indian Government & Politics, Sterling Publishers, Delhi-2004.

Reference Books

1. V. D. Mahajan – Constitutional Development & National Movement in India, S. Chand & Company, New Delhi.
2. Constituent Assembly Debates, Lok-Sabha Secretariat, New Delhi-1989.
3. Granville Austin – Working of a Democratic Constitution: The Indian Experience, Oxford University Press, New Delhi-1999.
4. A. P. Avasthi – Indian Government & Politics, Naveen Agarwal, Agra-2004.
5. S. A. Palekar – Indian Constitution, Serials Publication, New Delhi-2003.

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Semester	Sub. Code	Title of the Paper	L	T	P	Credits
	U19VA3BL	Basic Life Support and First Aid	2	0	0	2

FIRST AID **Total Hours – 20**

Course Description

This course is designed to help students develop and understanding of community emergencies and be able to render first aid services as and when need arises.

General Objectives

Upon completion of this course, the students shall be able to:

1. Describe the rules of first aid.
2. Demonstrate skills in rendering first aid in case of emergencies.

Unit	**Learning Objectives**	**Content**	**Hr.**	**Teaching learning activities**	**Assessment methods**
I	Describe the importance and principle of first aid	**Introduction** a) Definition, Aims and Importance of first aid b) Rules/ General principles of First Aid c) Concept of emergency	2	Lecture cum discussions	Short answer Objective type
II	Demonstrate skill in first aid techniques	**Procedures and Techniques in First Aid** a) Preparation of First Aid kit.	8	Lecture cum discussions Demonstration Videos Simulation	Short answer Objective type Return demonstration

		b) Dressing, bandaging and splinting(spiral, reverse spiral, figure of 8 spica, shoulder, hip, ankle, thumb, finger, stump, single and double eye, single and double ear, breast, jaw, capelin), triangle bandage uses, abdominal binder and bandage, breast binder, T and many tail bandage, knots reef, clove. c) Transportation of the injured d) CPR : Mouth to mouth, Sylvester, Schafer, External cardiac massage		exercises.	
III	Describe first aid in common emergencies	**First Aid in emergencies** a) Asphyxia, drowning, shock b) Wounds and Bleeding c) Injuries to the Bones, Joints and Muscle - fractures, sprains, strains, hanging, falls d) Burns and scalds e) Poisoning – ingestion, inhalation, bites and stings f) Foreign body in eye, ear, nose and throat.	6	Lecture cum discussions. Videos Demonstration	Short answer Objective type Return demonstration
IV	List various	**Community**	4	Lecture cum	Short answer

	community emergencies and community resources.	**Emergencies & Community Resources** a) Fire, explosion, floods, earth-quakes, famines etc b) Role of nurses in disaster management c) Rehabilitation d) Community Resources - Police, Ambulance services - Voluntary agencies-local, state national and international		discussions. Videos Mock drill Simulation exercise Videos Field visit to voluntary agencies.	Objective type Essay type

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Semester	Sub. Code	Title of the Paper	L	T	P	Credits
	U19VA4FS	**Fire safety (Demonstration)**	2	0	0	2

INSTRUCTIONAL OBJECTIVES

e) To expand awareness on the fire accidents.
f) To know the minimum requirement of the industrial establishment
g) To identify the sources of fire accidents in various places

SUBJECT OUTCOMES

- Understand basic fire safety and what to do in the event of an emergency.
- Understand the values of fire risk control.
- Understand the generic necessities of a Fire Marshal
- Have the skills to initiate emergency processes and promote a positive answer from others
- Be able to detect fire safety hazards and risks in the workplace and public sector.
- Be able to ensure the availability and usage of fire safety equipment's.
- Know how to establish alternative evacuations and fire movements in the workplace and report on their effectiveness

UNIT – IINTRODUCTION ABOUT FIRE SOURCES

Fire reasons and sources in institutions, shopping mall, theatres, industries, electrical and forest, types of fuels, fire safety symbols

UNIT – II IMPACT OF FIRE ACCIDENTS

Various impact of fire accidents in industries, petrol bunks and public sector places (Economic loss, resettlement, and reconstruction)

UNIT – III FIRE SAFETY RULES

Fire safety rules for machinery industries, schools, vehicles, commercial places, and petrochemical industries.

UNIT – IV FIRE ACCIDENTS CONTROL METHODS

First aid for Industrial fire accidents, petrol bunk accidents, vehicle fire accidents, school fire accidents, complex fire accidents, and forest fire accidents

UNIT – V FIRE SAFETY LAWS

Various fire safety laws for establishing academic institutions, industries, and public sector places

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Text Book

1. Manual of Fire Safety, Seshaprakash, cbs publishers and distributors pvt ltd.
2. Fire Safety in Buildings 2nd Edition (English, Hardcover, Shri V. K. Jain), Publisher: New Age International, ISBN: 9788122430837, 812243083X, Edition: 2ndEdition, 2010, Pages: 652.
3. Fire Safety Management Handbook, 3rd Edition, Daniel E. Della-Giustina, CRC Press, Published February 7, 2014, Reference - 279 Pages - 40 B/W, llustrations, ISBN 9781482221220.

Reference books

1. Evaluation of Fire Safety, Author(s): D. Rasbash, G. Ramachandran, B. Kandola, J. Watts, M. Law Publisher: Wiley, Year: 2004, ISBN: 9780471493822, 0471493821.
2. Fire Risk: Fire Safety Law and Its Practical Application, Author(s): Allan Grice, Publisher: Thorogood Publishing, Year: 2009, ISBN: 1854186035,9781854186034.
3. Introduction to Fire Safety Management: The handbook for students on NEBOSH and other fire safety courses, Author(s): Andrew Furness, Martin Muckett, Year: 2007, ISBN: 0750680687, 9780750680684, 9780080 551 791.

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Semester	Sub. Code	Title of the Paper	L	T	P	Credits
	U19VA5IS	**Industrial safety**	2	0	0	2

INSTRUCTIONAL OBJECTIVES

a) To enable students to conduct safety audit reports effectively.
b) To have awareness about sources of information for safety promotion and training.
c) To train students with estimation of safety performance.
d) To know about the different kinds of industries and their operations.
e) To know the minimum requirement of the industry establishment
f) To identify the sources of accidents in various places.
g) To achieve and understand the principles of safety management.

SUBJECT OUTCOMES

- Design,Establish,and Implement the industrial systemto improve safety.
- Manner of investigationsonunwantedincidents or accidents using rootcauseanalysis
- Achieve the comfort of industry, worker and machine safety.
- Develop communication system effectivelyonhealthandsafetyamongtheemployeesandwith societyatlarge.
- Demonstratesensitivity ofthesafety,and legalissues regarding accidents.
- Understand theimpact of Firesafety and environment safety while the productivity for societyatlarge.

UNIT – ICONCEPTS AND TECHNIQUES

Types of industries (construction, machinery, chemical, petrochemical, textile, and cracker), Evolution of modern safety concept- Safety policy - Safety Organization - line and staff functionsfor safety- Safety Committee. Incident Recall Technique (IRT), safety survey, safety inspection, safety sampling, evaluation of performance of supervisors on safety.

UNIT – II INDUSTRIAL SAFETY EDUCATION AND TRAINING

Safety training, needs of Training methods – programme, seminars,conferences, competitions – method of promoting safe practice - motivation – communication - role of government agencies and private consulting agencies in safety training – creatingawareness, awards, celebrations, safety posters, safety displays, safety pledge, safety incentive

UNIT – III HAZARDOUS WASTE MANAGEMENT

Hazardous waste management in India-waste identification, characterization and classification- technological options for collection, treatment and disposal of hazardous waste, Health hazards-toxic and radioactive wastes-incineration and verification.

UNIT – IV POLLUTION CONTROL IN PROCESS INDUSTRIES

Pollution control in process industries like cement, paper, petroleum-petroleum products-textile- tanneries-thermal power plants – dying and pigment industries - eco-friendly energy

UNIT – V INDUSTRIAL FIRE PROTECTION SYSTEMS

Sprinkler – hydrants-special fire suppression systems like deluge and emulsifier, selection criteria of the above installations and maintenance– alarm and detection systems. Other suppression systems –CO_2 system, foam system, Dry chemical powder (DCP) system, halon system – need for halon replacement – smoke venting.

Text Book

1. Dan Petersen, "Techniques of Safety Management", McGraw-Hill Company, Tokyo, 1981.
2. Relevant Indian Standards and Specifications, BIS, New Delhi.
3. "Safety and Good House Keeping", N.P.C., New Delhi, 1985.
4. T Miller, Environmental Science: Working with the Earth, 11th Edition, Wadsworth Publishing Co., Belmont, CA, 2006
5. M.J Hammer,., and M.J Hammer,., Jr., Water and Wastewater Technology, Pearson Prentice Hall, 2006
6. Rao, CS, "Environmental pollution engineering" Wiley Eastern Limited, New Delhi, 1992.
7. S. P. Mahajan, "Pollution control in process industries", Tata McGraw Hill Publishing Company, New Delhi, 1993.
8. V., Subramanian. The Factories Act 1948 with Tamilnadu factories rules 1950, Madras, Book Agency, 21st ed., Chennai, 2000.
9. C.RayAsfahl , Industrial Safety and Health management, Pearson Prentice Hall,2003.
10. N.V Krishnan. Safety Management in Industry Jaico Publishing House, Bombay, 1997
11. R.S.Gupta., Hand Book of Fire Technology, Orient Blackswan, 2010

Reference books

1. "Accident Prevention Manual for Industrial Operations", N.S.C.Chicago, 1982.
2. Blake R.B., "Industrial Safety" Prentice Hall, Inc., New Jersey, 1973.
3. Heinrich H.W. "Industrial Accident Prevention" McGraw-Hill Company, New York, 1980
4. John Ridley, "Safety at Work", Butterworth and Co., London, 1983