Semester **I**

Name of the Course : Programming Concepts in C

Course Code **: SC2011**

No. of Hours / Week	Credit	Total Hours	Marks
4	**4**	**60**	**100**

Objectives:

1. To familiarize the students with basic concepts of computer programming and developer tools.
2. To develop the skill of programming by learning the basic structure and methods.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO-1	recall the basic structure and key elements.	PSO-1	R
CO-2	understand the fundamentals of c programming	PSO-2	U
CO-3	analyze the various programming constructs and implement it to perform specific task.	PSO-3	AN,AP
CO-4	design and develop modular programming skills	PSO-3	C

Modules

Total contact hours: 60 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Introduction to C programming**					
	1.	History of C & Importance of C	1	To understand how C language comes into	Lecture with PPT	Evaluation through: short test

				existence and the reasons for learning C		Multiple choice questions Formative Assessment
	2.	Basic Structure of C Programs	1	To understand an overview of a C program	Lecture with PPT Illustration	
	3.	Character Set, Tokens, Keywords, Identifiers and Constants	3	To understand the basic program elements of C	Lecture	
	4.	Data Types andVariables, Declaration of variables & Assigning values to variables	3	To understand the various data types in C To be able to declare and assign values to variables in program	Lecture with PPT Illustration	
	5.	Operators	2	To identify the various built-in operators	Lecture with PPT	
	6.	Expressions	2	To be able to evaluate the expressions	Lecture with PPT Illustration	
II	**Decision Making, Branching and Loop Statements**					
	1.	Formatted Input,	5	To understand	Lecture with PPT	Short test

		Formatted Output		the format for giving input in the program To understand the format for displaying the output	Illustration	Quiz Formative Assessment
	2.	Decision Making Using ‘if’ Statement	2	To develop programs using decision making statements	Lecture, Illustration	
	3.	Switch statement, goto Statement	2	To analyze the various programming constructs and implement it to perform specific task	Lecture, Illustration	
	4.	while, do statement, for statement	3	To develop programs using loop structures	Lecture, Illustration	
	5.	Jumps in loops	2	To distinguish the difference between break, continue, exit instructions	Lecture with PPT Illustration	

III	**User-Defined Functions**					
	1.	Definition, Need and Function Calls, Function Declaration	2	To be able to differentiate calling function and called function . To understand the reasons for using functions in a program	Lecture	Short test Assignment on category of functions
	2.	No Arguments and No Return Values Arguments But No Return Values	2	To acquire the skills to identify whether a function has arguments or not, whether it return values or not	Lecture with PPT Illustration Discussion	Formative Assessment
	3.	Arguments with Return Values No Argument But Returns a Value	2	To acquire the skills to identify whether a function has arguments or not, whether it return values or not	Lecture with PPT Illustration Discussion	
	4.	Recursion	1	To develop programs using recursion concept	Lecture with PPT Illustration	

	5.	Passing Arrays to Functions	1	To create programs by passing array values inside a function	Lecture	
IV	**Arrays, structure and Union**					
	1.	One-Dimensional array	2	To declare array variables and able to write programs using array concept	Lecture, Illustration	Short test Formative Assessment
	2.	Two-Dimensional arrays	1	To declare array variables and able to write programs using array concept	Lecture, Illustration	
	3.	Bit-wise Operations	1	To be able to know the bit-wise operations	Lecture	
	4.	Structure	1	To be able to understand structure	Lecture	
	5.	Union	2	To understand the Union that are supported by C library	Lecture with PPT Illustration	

V	**Pointers and Files**					
	1.	Pointer declaration Passing array to functions	2	To be able to define pointer and how to pass the arguments from array to functions	Lecture, Illustration, Discussion	Short test
	2.	Operation in pointers	1	To be able to use the pointers by using its operations	Lecture with PPT Illustration	Formative Assessment
	3.	Array of pointers	1	To analyze how arrays are passed to the pointer	Lecture, Discussion	
	4.	File concept	2	To be able to define, declare, the file concept with its process of creation and closing a file	Lecture, Discussion	

Course Instructor: Sr.Jothi Antony **HOD:** Sr.Jothi Antony

Semester I

Name of the Course : Digital Principles and Applications

Course Code : SA2011

No. of Hours / Week	Credit	Total Hours	Marks
4	3	60	100

Objectives:

1. It aims to train the student to the basic concepts of Digital Computer Fundamentals
2. To impart the in-depth knowledge of logic gates, Boolean algebra, combinational circuits and sequential circuits

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO - 1	recall and understand the basic architecture of a computer system	PSO – 1	R, U
CO - 2	understand the concepts of memory and storage systems.	PSO – 1	U
CO - 3	classify the various input and output devices.	PSO – 1	AN
CO -4	analyze the basic logic gates and interpret Boolean algebra and simplify simple Boolean functions by using basic Boolean properties	PSO – 2	AN, AP
CO - 5	perform conversion among different number systems and find complements of various numbers.	PSO – 4	AP
CO - 6	design various sequential and combinational circuits	PSO – 4	C

Modules

Total contact hours: 60 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	Number Systems and Codes					
	1.	Number System	2	To know about Number System	Lecture	Evaluation through: short test Multiple choice questions Formative Assessment
	2.	Base Conversion	2	To understand about Base Conversion	Lecture	
	3.	Binary Codes	2	To explain Binary Codes	Lecture, PPT	
	4.	Code Conversion	1	To understand Code Conversion	Lecture	
	5.	Logic Gates, Truth Tables	2	To know about Logic Gates	Lecture,PPT	
	6.	Universal Gates	1	To explore Universal Gates	Lecture	
II	Boolean Algebra					
	1.	Laws and Theorems	3	To recall Laws and Theorems	Lecture, PPT	Short test Quiz Formative Assessment
	2.	SOP, POS Methods	1	To understand SOP, POS Methods	Lecture	
	3.	Simplification of Boolean Functions	2	To be able to do Boolean Functions	Lecture, Discussion	
	4.	Using Theorems, K-Map,	1	To be able to use K-Map	Lecture,Discussion	

	5.	Prime, Implicant Method	3	To understand Prime, Implicant Method	Lecture,PPT	Multiple Choice Questions
	6.	Binary Addition, Subtraction,Various Representations of Binary Numbers	3	To understand Various Representations of Binary Numbers	Lecture	
III	Combinational Logic					
	1.	Multiplexers,Demultiplexers	2	To understand Multiplexers,Demultiplexers	Lecture, PPT	Short test
	2.	Decoders, Encoders	3	To know about Decoders, Encoders	Lecture, PPT	Formative Assessment
	3.	Code Converters	2	To be able to know Code Converters	Lecture	Multiple Choice Questions
	4.	Parity Generators and Checkers.	2	To be able to understand Parity Generators and Checkers.	Lecture, PPT	Assignment on various layouts
IV	Sequential Logic					
	1.	RS, JK, Flip-Flops	3	To be able to know RS, JK, Flip-Flops	Lecture, PPT	Short test
	2.	D and T Flip Flop	2	To know about D and T Flip Flop	Lecture with PPT Discussion	

	3.	Master-Slave Flip-Flops	1	To discuss about Master-Slave Flip-Flops	Lecture	Formative Assessment
	4.	Registers, Shift Registers	2	To introduce Shift Registers	Lecture	
	5.	Types of Shift Registers.	2	To understand Types of Shift Registers.	Lecture	Quiz
V	Counters					
	1.	Asynchronous and Synchronous Counters	1	To understand Asynchronous and Synchronous Counters	Lecture, Discussion	Short test
	2.	Ripple, Mod, Up-Down Counters,Ring Counters	2	To know about Counters	Lecture	
	3.	Memory, Basic Terms and Ideas,Types of ROMs	1	To be able to understand Memory	Lecture, Discussion	Formative Assessment
	4.	Types of RAMs .	1	To recall RAM	Lecture,Discussion	Multiple Choice Questions

Course Instructor: M.Nithila **HOD:** Sr. Jothi Antony

Semester I

Name of the Course : Internet and Web Designing with HTML

Course Code : SNM201

No. of Hours / Week	Credit	Total Hours	Marks
2	2	30	100

Objectives:

1. To enable the students to specify design rules in constructing web pages and sites.
2. To enable the students to learn the basic working scheme of the Internet and World Wide Web.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO - 1	analyze a web page and identify its elements and attributes.	PSO-1	AN
CO - 2	design web pages using DHTML and Cascading Style Sheets.	PSO-2	C
CO - 3	design and construct web sites.	PSO-4	C
CO - 4	create e-mail ID and browse in internet.	PSO-4	AP, C

Modules

Total contact hours: 30 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Introduction to Internet and E-mail**					
	1.	Internet, World Wide Web, Web Browsers	1	To understand about Internet, WWW and Web Browsers	Lecture with PPT	Evaluation through: short test
	2.	E-mail, Creating an	1	To know	Lecture,	

		E-mail id, Sending and Receiving mails		about e-mail To be able to create emails To be able to Send and Receive Mails	Illustration by examples	Multiple choice questions Formative Assessment
	3.	Attaching a File, Functions of e-mail, Advantages and Disadvantages of e-mail.	1	To be able to Attach a File To be able to recall the functions of e-mail, advantages and disadvantages of e-mail.	Lecture, Illustration by examples	
II	**Introduction to HTML, Head and Body Section, Designing the Body Section**					
	1.	Designing a Home Page, Anchor Tag	1	To be able to design a home page. To be able to create hot text using anchor tag in HTML	Lecture with PPT	Short test Quiz Formative Assessment
	2.	Colorful Web Page	1	To be able to create a colorful web page using bgcolor, background and text attributes.	Lecture with PPT Demonstration	

	3.	Aligning the Headings, Horizontal Rule	1	To be able to display information using heading tags. To be able to align headings, draw line and create paragraph	Lecture with PPT Demonstration	
	4.	Image and Pictures	2	To be able to insert image, align and apply border for it in web page.	Lecture with PPT Demonstration	
III	**Ordered and Unordered lists, Table Handling**					
	1.	List, Unordered lists	1	To be able to apply bullets, and headings for a list of items in a web page.	Lecture with PPT Demonstration	Short test Formative Assessment
	2.	Ordered Lists, Nested Lists	1	To be able to apply numbered bullets in a web page. To be able to create nested list	Lecture with PPT Demonstration	
	3.	Tables, Table Creation in HTML	1	To be able to create tables in web page.	Lecture with PPT Demonstration	

	4.	Cells Spanning Multiple Rows/ Columns, Coloring Cells	1	To be able to apply width for a table, span rows and columns. To be able to apply color for an entire table, entire row and individual cell	Lecture with PPT Demonstration	
IV	**DHTML and Style Sheets, Frames**					
	1.	Defining Styles	1	To be able to define styles in CSS.	Lecture with PPT Demonstration	Short test Assignment Quiz Formative Assessment
	2.	Linking a Style Sheet to an HTML Document, Inline Styles	1	To be able to link style sheet to HTML document. To be able to create inline styles in HTML document using CSS.	Lecture with PPT Demonstration	
	3.	Internal Style Sheets, External Style Sheets	2	To be able to create internal and external style sheets in HTML document using CSS	Lecture with PPT Demonstration	

	4.	Frameset Definition, Frame Definition	2	To be able to define frame and frameset so that the webpage can be divided into multiple sections	Lecture with PPT Demonstration	
V	**Forms**					
	1.	Action Attributes, Method Attributes, Enctype Attribute	1	To be able to recall action, method and enctype attributes.	Lecture with PPT Demonstration	Short test Formative Assessment
	2.	Drop Down List	3	To be able to create HTML forms and add controls in it.	Lecture with PPT Demonstration	

Course Instructor: J. Anto Hepzie Bai **HOD:** Sr. Jothi Antony

Semester III

Name of the Course : Programming in Java

Course Code : SC2131

No. of Hours / Week	Credit	Total Hours	Marks
4	**4**	**60**	**100**

Objectives:

1. To understand the basic programming constructs of Java Language.
2. To explore the features of Java by coding.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL

CO – 1	Define the Concept of OOP and Arrays	**PSO – 1**	**U**
CO – 2	Analyze the Structure of the Java programming Language and Classes	**PSO – 2**	**AN**
CO – 3	Implement various Errors handling technique using Exception Handling to solve complicated problem.	**PSO – 3**	**U**
CO -4	Create Java program to understand the Applet program to display window based Activities.	**PSO – 3**	**C**
CO – 5	Design a java program by using AWT Classes	**PSO – 4**	**C**

Modules

Total contact hours: 60 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment / Evaluation
I	Genesis of Java					
	1.	Creation of Java , why java is important to internet , An overview of Java Object Oriented Programming	1	To know about Java and OOPs concept	Lecture	Evaluation through: short test Multiple choice questions Formative Assessment
	2.	Data types ,Variables	1	To understand about data types and variables	Lecture	
	3.	Type conversion and casting	1	To explain type conversion	Lecture, PPT	
	4.	Automatic type promotion in Expressions	1	To understand expressions	Lecture	
	5.	Strings,one dimensional arrays	1	To know about strings and 1D array	Lecture, PPT	

	6.	Multidimensional Arrays	1	To explore multidimensional arrays	Lecture	
	7.	Operators and Control statements	1	To create and execute various programs using operators and control variables	Lecture, Demonstration	
II	Class Fundamentals					
	1.	Declaring objects, Assigning object Reference variables	1	To create and start an activity in Reference variables	Lecture, Demonstration	Short test Quiz Formative Assessment Multiple Choice Questions
	2.	IntroducingMethods, Constructors , Garbage collection,Finalize () Method	1	To understand Methods	Lecture	
	3.	Overloading Methods	2	To be able to design program using Overloading	Lecture, Discussion	
	4.	Inheritance Basics & Types	1	To be able to use Inheritance	Lecture, Demonstration Discussion	
	5.	Method overriding	2	To understand the working of Overriding	Lecture, PPT	
	6.	Dynamic Method Dispatch, Using Abstract class	1	To understand Abstract class	Lecture	
	7.	Using final with inheritance.	1	To know about Final with Inheritance	Lecture, Demonstration	

III	Packages & Interface					
	1.	Packages and Interface	1	To understand Packages and Interfaces	Lecture, Demonstration	Short test Formative Assessment Multiple Choice Questions Assignment on various layouts
	2.	Exception Handling	2	To know about Exceptions	Lecture, Demonstration	
	3.	Creating your own Exception subclasses.	2	To be able to create Exception subclasses	Lecture, Demonstration	
	4.	Java Thread Model	1	To be able to understand Thread model	Lecture, PPT	
	5.	Main Thread	2	To be able to understand Main Thread	Lecture, Demonstration	
	6.	Creating a Thread	1	To be able to create a Thread	Lecture	
	7.	Creating Multiple Threads	2	To create Multiple Threads	Lecture, Demonstration	
	8.	Using is Alive () and join ()	1	To know about isAlive() and join() Methods	Lecture, Demonstration	

	9.	Thread Priorities	1	To understand Thread Priorities	Lecture, Demonstration	
IV	I/O & Applets					
	1.	I/O Basics Reading console Input,writing console output ,The Applet class,Applet Architecture	1	To be able to work with I/O and Applet class	Lecture, Demonstration	Short test Formative Assessment Quiz
	2.	Applet Skeleton,Applet Display method, Requesting Repainting	2	To be able to design an Applet	Lecture with PPT Discussion	
	3.	HTML APPLET tag, Passing Parameters to Applet	2	To discuss about passing parameters to Applet	Lecture	
	4.	Audio Clip Interface, Event Handling Mechanisms	2	To introduce various event handling mechanisms	Lecture	
	5.	Delegation Event Model	1	To understand Delegation event model	Lecture	
	6.	Event classes , Sources of Events	1	To be able to use Event classes	Lecture, Discussion	
	7.	Event Listener Interface	1	To create a java program using Event Listener Interface	Lecture, Demonstration	
V	AWT Classes					
	1.	Window fundamentals,working with Frame Windows	2	To create Frame	Lecture, Discussion	Short test
	2.	Working with Graphic	2	To implement various AWT	Lecture	

		Using AWT controls, Control fundamentals		controls		Formative Assessment
	3.	Labels,using Buttons,Applying check Boxes, Check Box group	2	To be able to use Labels,Buttons,Check box	Lecture, Discussion	Multiple Choice Questions
	4.	Choice controls,Using a Text field ,Using a Text Area	2	To design Menu bBars and Menus	Lecture, Discussion	

Course Instructor:M.Nithila **HOD:** J. Anto Hepzie Bai

Semester III

Name of the Course : Data Structures and Algorithms.

Course Code : SC2132

No. of Hours / Week	Credit	Total Hours	Marks
4	**4**	**60**	**100**

Objectives:

1. To introduce the various data structures and their implementations.
2. Study various sorting algorithms

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO -1	Summarize different categories of data Structures	**PSO – 1**	**U**
CO -2	Identify different parameters to analyze the performance of an algorithm.	**PSO – 2**	**AP**
CO -3	Explain the significance of dynamic memory management Techniques	**PSO - 3**	**U**

CO -4	Design algorithms to perform operations with Linear and Nonlinear datastructures	**PSO – 4**	**AP**
CO -5	Illustrate various technique to for searching, Sorting and hashing	**PSO –2**	**U**
CO -6	Choose appropriate data structures to solve real world problems efficiently.	**PSO –4**	**AP**

Modules

Total contact hours: 60 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Algorithms, Arrays,Stacks,Queues.**					
	1.	Introduction: Analyzing algorithms, Arrays: Representation ofArrays.	2	Understand algorithms and arrays.	Lecture with PPT	Evaluation through: short test Multiple choice questions Formative Assessment
	2.	Implementation of Stacks and queues.	2	Able to know about Stacks and Queues	Lecture with PPT	
	3.	Application of Stack	1	To explain Stack	Lecture, PPT	
	4.	Evaluationof Expression - Infix to postfix Conversion -	2	Able to distinguish the difference between Infix and Postfix Expression	Lecture, PPT	

	5.	Multiple stacks and Queues.	2	To illustrates the Multiple stacks and Queues.	Lecture, PPT	
	6.	Sparse Matrices.	1	To explain Sparse Matrices.	PPT, Demonstration	
II	**Linked list.**					
	1.	Singly Linked list - Linked stacks and queues	4	To explain the different types of Linked list	Lecture with PPT	Short test Quiz Formative Assessment
	2.	Polynomialaddition.	2	To explain Polynomialaddition.	Lecture, PPT, Demonstration	
	3.	More on linked Lists.	2	To explain linked Lists.	Lecture, Discussion, PPT	
	4.	Doubly linked List and Dynamic StorageManagement	3	To explain StorageManagement	Lecture, Demonstration Discussion	
III	**Trees and Graphs.**					
	1.	Basic Terminology, Binary Trees	4	To explain Tree terminology and binary trees	Lecture, PPT, Demonstration	Short test Formative Assessment
	2.	Binary Tree representations – BinarytreesTraversal	4	To explain about BinarytreesTraversal and representations	Lecture, Demonstration	

	3.	More on Binary Trees	1	Recall about Binary Trees	Lecture, Demonstration	
	4.	Graphs: Terminology and Representations	2	To explain Graph terminology	Lecture, PPT	
	5.	Traversals,connectedcomponents and spanning Trees, Single Source	3	To explain Traversals, Shortest path problem.	Lecture, PPT	
IV	**Symbol Tables and External sorting**					
	1.	Symbol Tables: Static Tree Tables – Dynamic Tree Tables.	2	Able to explain Symbol Tables	Lecture	Short test
	2.	Hash Tables: Hashing Functions – Overflow Handling.	4	Able to explain Hash Tables	Lecture with PPT Discussion	Assignment on data types, variables
	3.	External sorting: Storage Devices - - Magnetic Tapes-Disk DrivesSorting with Disks: K-way merging	3	Recall about Storage Devices and merge sorting	Lecture with PPT	Formative Assessment
V	**Internal sorting,Files,Index Techniques.**					
	1.	Internal sorting: Insertion sort ,Quick sort ,2 way Merge sort ,Heap sort	3	Understand the basic concepts of Internal sorting	Lecture, Discussion	Short test

	2.	Files, Queries and sequential organizations ,Index Techniques: Cylinder Surface Indexing, Hashed Indexes	5	Understand files and index.	Lecture with PPT	Formative Assessment
	3.	File organization: Sequential organizations, Random organizations, Linked organizations.	4	Able to explain File organization	Lecture, PPT, Discussion	

Course Instructor:V. R. Bithiah Blessie **HOD:**Mrs.J.Anto Hepzie Bai

Semester III

Name of the Course : Numerical and Statistical Methods

Course Code : SA2131

No. of Hours / Week	Credit	Total Hours	Marks
3	**3**	**45**	**100**

Objectives:

1. To equip the students with statistical tools and concepts that help in decision making.
2. To apply the knowledge of computing and mathematical methods appropriate to various discipline.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO -1	Solve an algebraic and Transcendental Equations using an appropriate numerical method	**PSO – 1**	**C**

CO -2	Find an error analysis for a given numerical method	**PSO – 4**	**R**
CO -3	Solve a simultaneous equation using an appropriate numerical method	**PSO – 4**	**C**
CO -4	Find a polynomial using interpolation methods	**PSO – 2**	**R**
CO-5	Finding Arithmetic Mean , Median and Mode for the frequency distribution	**PSO – 3**	**R**
CO -6	Determine correlation and rank correlation coefficient between two variables	**PSO – 2**	**E**
CO -7	Find a regression equation using the given data	**PSO – 4**	**AP**

Modules

Total contact hours: 45 (Including lectures, assignments and tests)

Unit	Section	Topics	Lecture Hours	Learning utcome	Pedagogy	Assessment / Evaluation
I	**Algebraic and Transcendental Equations**					
	1	Introduction to algebraic and transcendental equations	1			Short test on iteration method
	2	Errors in Numerical Computation	1	Find an error analysis for a given numerical method	Lecture with illustration	
	3	Iteration Method- Theorem and Problems 1-3	2	Solve algebraic and Transcendental Equations using iteration method	Lecture with illustration	
	4	Iteration Method- Problem 4-7	1	Solve algebraic	Lecture with	

				and Transcendental Equations using iteration method	illustration	Short test on Bisection Method
	5	Bisection Method- Problem 1-3	1	Solve algebraic and Transcendental Equations using Bisection method	Lecture with illustration	
	6	Bisection Method- Problem 4-7	1	Solve algebraic and Transcendental Equations using Bisection method	Lecture with illustration	
II	**Simultaneous Equations**					
	1	Introduction and Simultaneous Equations	1	Solve a simultaneous equation	Lecture with illustration	Formative assessment test1
	2	Back Substitution Method- Theorem,	2	Solve a simultaneous equationusing Back Substitution Method	Lecture with illustration	
	3	Gauss Elimination Method- Problems 1-5	1	Solve a simultaneous equationusing Gauss Elimination Method	Lecture with illustration	Short test on Gauss Jordan Elimination Method
	4	Gauss Jordan Elimination Method-	2	Solve a	Lecture	

		Problem 1-3		simultaneous equation using Gauss Jordan Elimination Method	with illustration	
	5	Gauss Jordan Elimination Method- Problem 4, 5	1	Solve a simultaneous equation using Gauss Jordan Elimination Method	Lecture with illustration	
III	**Interpolation**					
	1	Introduction Newton's forward Interpolation formulae- Theorem	1	Deriving Newton's forward Interpolation formula	Lecture with illustration	Short test on Newton's forward & backward interpolation
	2	Newton's forward Interpolation formulae- Problem 1-4	2	Find a polynomial using Newton's forward Interpolation formula	Lecture with illustration	
	3	Newton's backward Interpolation formulae- Theorem and Problem 1-3	2	Find a polynomial using Newton's backward Interpolation formula	Lecture with illustration	

	4	Lagrange's Interpolation formulae- Theorem and Problem 1-5	2	Find a polynomial using Lagrange's Interpolation formula	Lecture with illustration	Short test on Lagrange's Interpolation formulae
IV	**Measures of Central tendency**					
	1	Measures of Central tendency Arithmetic Mean	3	Calculating Arithmetic Mean for the frequency distribution	Lecture with illustration	Short test on Mean and Median
	2	Median	2	Finding Arithmetic Median for the frequency distribution	Lecture with illustration	
	3	Mode	2	Finding Mode for the frequency distribution	Lecture with illustration	Short test on Mode
V	**Correlation and Regression**					
|	1	Introduction and Correlation – Theorem	1			Short test on correlation
	2	Correlation – Problems1-7	1	Determine correlation coefficient between two variables	Lecture with illustration	
	3	Rank Correlation- Theorem and Problems 1-5	2	Determine rank correlation coefficient between two variables	Lecture with illustration	

	4	Regression- Theorem 1-4	1	Find a regression equation using the given data	Lecture with illustration	Formative assessment test2
	5.	Regression- Theorem 5-7	1	Find a regression equations using the given data	Lecture with illustration	
	6	Regression- Problem 1-7	1	Find a regression equations using the given data	Lecture with illustration	

Course Instructor: Dr.G.J.JovitVinish Melma **HOD:** J. Anto Hepzie Bai

Semester V

Name of the Course : Web Technology: Theory and Practice

Course Code : SC2051

No. of Hours / Week	Credit	Total Hours	Marks
6	**5**	**90**	**100**

Objectives:

1. To study the various HTML tags and design simple web pages.
2. To study the scripting language Java Script.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO -1	develop an ability to design and implement static and dynamic web pages.	**PSO – 1**	**C**

CO -2	differentiate web applications using client-side (JavaScript, HTML, XML) and server-side technologies (ASP.NET, ADO.NET).	**PSO –1**	**AN**
CO -3	define the fundamental ideas and standards underlying Web Service Technology	**PSO – 1**	**U**
CO -4	apply the knowledge of the internet and related internet concepts that are vital in understanding web application development and analyze the insights of internet programming to implement complete application over the web.	**PSO –3**	**AP**

Modules

Total contact hours: 90 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Structuring Documents for the Web, Links & Navigation, Images, Audio, and Video**					
	1.	Introducing HTML and XHTML, Basic Text Formatting, Presentational Elements	3	To recall the several versions of HTML, Difference between HTML and XHTML. To be able to use the basic text formatting elements and presentational elements	Lecture with PPT	Evaluation through: short test Multiple choice questions
	2.	Phrase Elements,Lists, Core Elements and	3	To be able to use the phrase elements and	Lecture with PPT,	Formative

		Attributes		able to add a list to your pages. To recall the main elements that forms the basic structure in every document.	Demonstration, Illustration by examples	Assessment
	3.	Basic Links, Creating Links with the <a> Element	3	To be able to create link between pages of web site, and to link to other sites.	Lecture with PPT, Illustration by examples	
	4.	Adding Images Using the <img> Element	2	To be able to addimagesin web site and know the attributes of the<img> element.	Lecture with PPT, Demonstration with examples	
	5.	Using Images asLinks, Image Maps	3	To be able to turn an image into a link and also able to add multiple links to the same image using image maps.	Lecture with PPT, Illustration by examples	
II	**Images, Audio, and Video, Tables, Forms**					
	1.	Adding Flash, Video and Audio to your web pages: Adding videos to your Site, Adding Audio to your Site	3	To be able to upload video and audio on the web site.	Lecture with PPT	Short test Quiz
	2.	Introducing Tables, Basic Table	3	To recall the basic elements	Lecture	

		Elements and Attributes		and attributes needed to create a table.	with PPT	Formative Assessment
	3.	Adding a <caption> to a Table, Grouping Section of a Table, Nested Tables	3	To be able to add caption to a table. To recall techniques that allows to group rows and columns of a table, and creating nested tables.	Lecture, Group Discussion	
	4.	Introducing Forms, Form Controls	4	To be able to create a form using <form> element. To recall different types of form controls you can use to make a form.	Lecture, Illustration by examples, Discussion	
	5	Sending Form Data to the Server	2	To recall the methods used by the browser to send form data to the server.	Lecture with PPT, Illustration by examples	
III	**Frames, Cascading Style Sheets**					
	1.	Introducing Frameset, The <frameset> Element	2	To be able todivide the pages into many sections using <frameset>	Lecture with PPT, Demonstration, Illustration	Short test Formative Assessment

				element. To recall the attributes of the <frameset> tag.	by examples	
	2.	The <frame> Element, Creating Links Between Frames	3	To recall the attributes of the <frame> elements. To be able to create links between the frames.	Lecture, Group Discussion	
	3.	Nested Framesets	2	Tobe able to create nested framesets.	Lecture, PPT, Group Discussion	
	4.	Introducing CSS, Where you can Add CSS Rules, CSS Properties	3	To define CSS and CSS properties. To be able to place CSS rules within the document and how to link to an external CSS document.	Lecture, PPT, Illustration by examples	
	5.	Controlling Text, Text Formatting	3	To recall the properties that allows controlling the appearance of	Lecture, PPT, Illustration	

				text in the documents.	by examples	
	6.	Text Pseudo Classes, Lengths, Introducing the Box Model	3	To recall the two pseudo classes that help to work with text, the three ways lengths specified in CSS and how elements are positioned within the browser window.	Lecture with PPT, Demonstration, Illustration by examples	
IV	**Java Script, Working with JavaScript**					
	1.	How to Add Script to Your Pages	1	To be able to add scripts to the page using <script>element.	Lecture with PPT	Short test Assignment Quiz Formative Assessment
	2.	Variables and Data Types, Operator	4	To recall data types, variables and types of operators in JavaScript.	Lecture with PPT, Illustration by examples	
	3.	Control Structures, Conditional Statements	4	To analyze different types of control flow statements and conditional statements in Java Script.	Lecture with PPT, Demonstration, Illustration by examples	
	4.	Looping, Functions, Built in Functions	4	To analyze different types of looping in Java Script.	Lecture with PPT, Demonstrat	

				To be able to define and call a function.	ion, Illustration by examples	
	5.	Practical Tips for Writing Scripts	2	To be able to create own basic scripts.	Lecture with PPT, Demonstration, Illustration by examples	
V	**JavaScript Objects**					
	1.	Window Object, Document object, Browser Object	4	To be able to define different types of object models	Lecture with PPT, Discussion	Short test Formative Assessment
	2.	Form Object, Navigator object, Screen object	3	To be able to define different types of object models	Lecture with PPT	
	3.	Events, Event Handlers	4	To be able to define events and also how to handle the events when an error occurred.	Lecture with PPT, Group Discussion	
	4.	Forms Validations	3	To be able to define form validation, when to validate, what to validate and how to validate the form in Java	Lecture, Discussion	

				Script.		
	5.	Form Enhancements	2	To recallhow to enhance the usability of a form.	Lecture with PPT	

Course Instructor: J. Anto Hepzie Bai **HOD:**J. Anto Hepzie Bai

Semester V

Name of the Course : Mobile Computing and its Applications

Course Code : SC2052

No. of Hours / Week	Credit	Total Hours	Marks
5	**5**	**75**	**100**

Objectives:

1. To understand mobile computer systems particularly in the context of wireless network systems.
2. To emphasize how to interface hardware to mobile computing devices**.**

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO -1	Understand the basic concepts and principles in mobile computing	**PSO – 1**	**U**
CO -2	Describe the concepts of Bluetooth, FDMA, TDMA, packet delivery and handover management.	**PSO - 1**	**U**
CO -3	Acquire and apply the knowledge of conventional TCP/IP protocols.	**PSO – 4**	**U, AP**
CO -4	Classify the various data delivery mechanisms and data synchronization.	**PSO – 4**	**U**

CO -5	Understand and apply various routing algorithms for mobile applications	**PSO – 9**	**U,AP**

Modules

Total contact hours: 75 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Mobile Communication: An Overview, Mobile Computing Archtitecture: An Overview, Second Generation Architecture – GSM, GPRS and Others**					
	1.	Mobile Communications, Mobile Computing	2	To be able to define mobile computing and mobile communications	Lecture with PPT	Evaluation through: short test
	2.	Paradigm, Promises/Novel Applications and Impediments and Architecture	2	To be able to recall the applications and examples of mobile computing	Lecture with PPT	Multiple choice questions
	3.	Mobile and Handheld Devices, Limitations of Mobile and Handheld Devices	2	To be able to illustrate the limitations of mobile computing.	Lecture, PPT	Formative Assessment
	4.	GSM – **Services**, System Architecture	1	To be able to say the services available in		

				GSM and the architecture of GSM comprising sub-systems used for operation and maintenance of a GSM network.	Lecture, PPT	
	5.	Radio Interfaces, Protocols, Localization	2	To be able to recall the various protocol used at different layers in a communicatio n network. To be able to define localization and the functions of an HLR.	Lecture, PPT	
	6.	Calling, Handover, Security	2	To be able to know the various types of calls and their procedures. To be able to define handover and the types of it.	PPT, Demonstrati on	
	7.	New Data Services, GPRS	1	To be able to explain the GRPS data		

				transmission service designed for GSM systems and the GPRS system architecture.		
II	**Medium Access Control, Wireless LAN, Mobile IP Network Layer**					
	1.	Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals)	2	To be able to tell the problems when motivation for using a specialized MAC will arise.	Lecture with PPT	Short test Quiz Formative Assessment
	2.	SDMA, FDMA, TDMA, CDMA	2	To be able to recall the biggest challenge that facing the MAC	Lecture, PPT, Demonstartion	
	3.	Wireless LAN/(IEEE 802.11)	1	To be able to know the architecture IEEE 802.11 protocol layers.	Lecture, Discussion, PPT	
	4.	Mobile Network Layer IP	2	To be able to explain the purpose of developing this protocol,	Lecture, PPT Demonstrati	

				evolution of mobile IP, entities and terminologies used in Mobile IP	on Discussion	
	5.	Mobile IP Network Layers	2	To be able to understand the architecture for the mobile IP network	Lecture, PPT	
	6.	Packet Delivery and Handover Management	2	To be able to know the various scenarios encountered in handover management.	Lecture, PPT	
	7.	Location Management, Registration	2	To be able to understand the protocols used for recovering an agent by the MN.	Lecture, Demonstration Discussion	
	8.	Tunneling and Encapsulation, Route Optimization, DHCP.	2	To be able to describe the packet formation in the IP protocol. To be able to show three ways of encapsulation	Lecture, PPT PPT	

III	**Mobile Transport Layer, Database Management Issues in Mobile Computing**					
	1.	Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP	2	To be able to recall the main features of TCP, suggests how to split the TCP layer into two TCP sub layers.	Lecture, PPT, Demonstration	Short test Formative Assessment
	2.	Mobile TCP, Other Transport Layer Protocols for Mobile Networks	3	To be able to know how to split the TCP layer into two TCP sub-layers and a mechanism to reduce the window size to zero. To be able to describe the fast re-transmission /recovery method for congestion control.	Lecture, Demonstration PPT	
	3.	Database Issues: Database Hoarding and Caching Techniques	2	Able to study GPRS architecture and study the techniques.	Lecture, PPT Demonstration	
	4.	Client-Server Computing with	2	To be able to recall the four-tier	Lecture,	

		Adaptation		architecture in which a client device connects to a data presentation server.	PPT	
	5.	Transactional Models, Query processing	2	To be able to recall how to maintain data integrity and enforce acid rules and how to use relational algebraic equations for query processing, architecture of query processing	Lecture, PPT	
	6.	Data Recovery Process and QoS Issues	2	To be able to understand the reasons which warrant database recovery and the issues relating to quality of service.	Lecture, PPT	
IV	**Smart Client, DataStore, Application and Enterprise Server-based Architecture**					
	1.	Communications Asymmetry, Classification of Data Delivery	3	To be able to define communicatio n asymmetry	Lecture PPT	Short test

		Mechanisms		and know how data delivery mechanisms is classified.		Assignment on data types, variables Formative Assessment
	2.	Data Dissemination, Broadcast Models	4	To be able to recall the broadcast models and define data dissemination.	Lecture with PPT	
	3.	Selective Tuning and Indexing Methods	4	To be able to recall selective tuning and indexing methods.	Lecture with PPT	
	4.	Data Synchronization	4	Able to study the Architecture of Wireless Local Area Network.	Lecture with PPT	
V	**Mobile Ad Hoc Networks and Wireless Sensor Networks, Wireless LAN and Personal Area Network Protocols, Mobile Application Languages and Framework – Java, J2ME, Python and .NET, Mobile Operating Systems, Development Environments, iOS and Android**					
	1.	Introduction, Applications and Challenges of a MANET, Routing	2	To be able to tell the applications and challenges of MANET. To be able to define routing	Lecture, PPT Discussion	Short test

	2.	Classification of Routing Algorithms	2	To be able to explain the various types of routing algorithms.	Lecture with PPT	Formative Assessment
	3.	Algorithms such as DSR, AODV, DSDV, Mobile Agents, Service Discovery	2	To be able to differentiate the various types of algorithms. To be able to understand the meaning of service, service discovery middleware.	Lecture, PPT, Discussion	
	4.	Protocols and Platforms for Mobile Computing: WAP, Bluetooth	2	To be able to define protocols and the platforms used for mobile computing.	Lecture, PPT Discussion	
	5.	J2ME,iOS/Windows CE, Android-Security	2	To be able to explain the mobile application languages and framework and the device in which ios and android works.	Lecture, PPT Discussion	

Course Instructor: Ms. Sibija **HOD:**J. Anto Hepzie Bai

Semester V

Name of the Course : Multimedia Systems

Course Code : SC2053

No. of Hours / Week	Credit	Total Hours	Marks
5	4	75	100

Objectives

1. To understand the standards available for different audio, video and text applications
2. To learn various multimedia authoring systems in multimedia production team

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO -1	convey multimedia and design fonts used in texts	PSO – 3	C
CO -2	create image and produce audio inserted multimedia projects	PSO –1	AP
CO -3	make animations and video clips	PSO – 3	AP
CO -4	Understand the requirements for multimedia preparation	PSO – 1	U
CO - 5	analyze the process of planning, preparing and owning the multimedia	PSO – 4	AN

Modules

Total contact hours: 75 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Multimedia Definition,Text.**					
	1.	Multimedia Definition	2	Understand fundamental	Lecture	Evaluation through:

				principles of multimedia.	with PPT	short test
	2.	Use Of Multimedia	2	Able to know about usage of multimedia	Lecture with PPT	Multiple choice questions
	3.	Delivering Multimedia.	1	To explain Delivering Multimedia	Lecture, PPT	
	4.	About Fonts and Faces	2	Able to distinguish the difference between fonts and faces	Lecture, PPT	Formative Assessment
	5.	Using Text in Multimedia, Computers and Text., Font Editing and Design Tools	2	To illustrates the usage of text in multimedia	Lecture, PPT	
	6.	Hypermedia and Hypertext	3	Able to distinguish the difference between hypermedia and hypertext	PPT, Demonstration	
II	**Images and Sounds**					
	1.	Plan Approach - Organize Tools - Configure Computer	2	To explain the different types images	Lecture with PPT	Short test

		Workspace				
	2.	Making Still Images - Color - Image File Formats.	4	To explain still images	Lecture, PPT, Demonstartion	Quiz Formative Assessment
	3.	The Power of Sound - Midi Audio - Midi vs. Digital Audio	2	To explain about sound	Lecture, Discussion, PPT	
	4.	Multimedia System Sounds - Audio File Formats	2	To explain audio file formats	Lecture, Demonstration Discussion	
	5.	Vaughan's Law of Multimedia Minimums - Adding Sound to Multimedia Project.	3	Able to explain how sound is added to multimedia project	Lecture, PPT	
III	**Animation and video**					
	1.	The Power of Motion - Principles of Animation	4	To explain principles of animation	Lecture, PPT, Demonstration	Short test Formative Assessment
	2.	Animation by Computer - Making Animations that Work**.**	2	To explain about making animation	Lecture, Demonstration	

	3.	Using Video - Working with Video and Displays	2	To explain about video concepts	Lecture, Demonstration	
	4.	Digital Video Containers	3	To know about Digital Video Containers	Lecture, PPT	
	5.	Obtaining Video Clips	2	To know about Video Clips	Lecture, PPT	
IV	**Making Multimedia**					
	1.	The Stage of Multimedia Project	2	Able to explain stages of multimedia	Lecture	Short test
	2.	The Intangible Needs - The Hardware Needs - The Software Needs	4	Able to explain needs of multimedia	Lecture with PPT Discussion	Assignment on data types, variables
	3.	An Authoring Systems Needs.	2	Recall about needs of multimedia	Lecture with PPT	
	4.	Multimedia Production Team.	3	Understand about production team.	Lecture with PPT	Formative Assessment

V	**Planning and Costing**					
	1.	The Process of Making Multimedia - Scheduling - Estimating	7	Understand the basic concepts planning and costing	Lecture, Discussion	Short test
	2.	RFPs and Bid Proposals	1	Understand RFP	Lecture with PPT	Formative Assessment
	3.	Designing- Content and Talent: Acquiring Content - Ownership of Content Created for Project - Acquiring Talent	5	Able to design multimedia project	Lecture, PPT, Discussion	

Course Instructor: V.R. BithiahBlessie **HOD:** Mrs. J.Anto Hepzie Bai