BACHELOR OF COMPUTER APPLICATIONS

Curriculum and Syllabus

(For Students admitted from academic year

2022– 2023 onwards)

UNDER CHOICE BASED CREDIT SYSTEM

[Regulations 2019]

DIRECTORATE OF DISTANCE EDUCATION
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
SRM NAGAR, KATTANKULATHUR – 603 203

BACHELOR OF COMPUTER APPLICATIONS
(For Students admitted from academic year 2022 - 2023 onwards)
CURRICULUM

SEMESTER – IV

Course Code	Course Title	L	T	P	L+T+P	C
BCAD1941	MULTIMEDIA AND ANIMATION	4	1	0	5	5

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To understand the different components, different file formats and various tools of multimedia system	a	b			
2.	To gain knowledge in Animation and images			c	l	

UNIT - I

Multimedia: What Is Multimedia: Interactive Multimedia – Advantages Of Interactive Multimedia – Where To Use Multimedia – Text – Graphics – Audio – Film – Video. Understanding Text: Typeface or Fonts – Types of Fonts. Computer Graphics: 2D Computer Graphics – 3D Computer Graphics API. Understanding Sound: Basic Sound Concept – Audio Formats and Quality Levels – AIF Format – AU Format – EA Format – MIDI Format – Mp3 Format. Understanding Video: Digital Vs Analog Video.

UNIT - II

Photoshop: Fundamentals – Opening and Importing Images – Resolution – Models and Colour Spaces – Layers. Painting Pixels: The Painting Tools – Erasing – Fills – Type. Selection and Allied Operations: Marquee selection and cropping – Lasso Selection – Paths – Combining and Transforming Selections.

UNIT - III

Adjustments and Retouching: Tonal Adjustment – Colour Adjustments – Retouching By Hand. Effects and Filters: Blurring and Sharpening – Special Effects and Distortion – Layer Effects and Layer Styles.

UNIT - IV

FLASH: Animation with Interacting – Basic Concepts – Drawing – Lines and Shapes – Strokes and Fill – Shapes and Brushes – Selection – Transformation and Reshaping – Importing Artwork and Manipulating Images. ANIMATION: Animating One Frame at a Time – Motion Tweening – Symbols and Instances – Shape Tweening – Sound.

UNIT - V

ACTIONS: Buttons – Button action – Frame Action – Action and Movie Clip Symbols – Actions – Browsers and Networks – Beyond the Basic Actions. FLASH MX275: Interface Elements – Panels – Tools – Layer Folders – Accessibility – Video – Components – User Interface Components – Changing the Appearance of Components.

TEXT BOOKS

1. Vishnu Priya Singh (2006), "*A Text Book of Multimedia*", 1st Ed., Computech Pub. Ltd, New Delhi,. UNIT I
2. Nigel Chapman and Jenny Chapman, "*Practical Multimedia*", 2nd Ed., Wiley – Dream Tech Pvt. Ltd. UNITS II, III, IV & V

REFERENCES

1. Thiagharajan and Anbumani, "*Flash MX 2004*", Tata McGraw Hill, New Delhi.
2. Laurie Ulrich Fuller and Robert C. Fuller, "*Photoshop CS3 Bible*", Willey India Pvt. Ltd.

Course Nature: Theory				
Assessment Method(Maximum marks)				
In Semester	Assessment Tool	Assignment I	Assignment II	Total
	Marks	15	15	30
End Semester				70
Total				100

2

Course Code	Course Title	L	T	P	L+T+P	C
BCAD1942	WINDOWS PROGRAMMING USING VB .NET	4	1	0	5	5

	INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:	Student Outcomes				
1.	To gain knowledge in the concepts of the .NET framework as a whole and the technologies that constitute the framework	a				
2.	To gain knowledge about various object oriented concepts in VB.Net.		b			
3.	To gain programming skills in VB.Net both in basic and advanced levels.			c	e	
4.	To enable the learner for aiming careers in software development related fields				l	j	k

UNIT - I

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.

UNIT - II

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

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.

UNIT - IV
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   (15 Hours)
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.

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.

Course Nature: Theory				
Assessment Method(Maximum marks)				
In Semester	Assessment Tool	Assignment I	Assignment II	Total
	Marks	15	15	30
End Semester				70
Total				100

Course Code	Course Title	L	T	P	L+T+P		C
BCAD1943	**MULTIMEDIA AND ANIMATION LABORATORY**	0	0	4	4		2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		**Student Outcomes**				
1.	To acquire basic knowledge about basic Photoshop and Flash	a	b			
2.	To develop the skills in spplying the tools for solving different problems			c	e	

LIST OF EXPERIMENTS

Photoshop

1. Create an image using different properties.

2. Picture manipulation using filter.

3. Design pictures using layers.

4. Design our college ID Card.

5. Design Marriage Invitation.

Flash

6. Design a car.

7. Move a Ball.

8. Human Movement using animation.

9. Create an Advertisement.

10. Develop a webpage using Photoshop and flash.

Course Nature: Practical					
Assessment Method(Maximum marks)					
In Semester	Assessment Tool	Practical exercises - I	Practical exercises - II	Practical exercises - III	Total
		10	10	10	**30**
End Semester		Practicals			**70**
				Total	**100**

Course Code	Course Title	L	T	P	L+T+P	C
BCAD1944	WINDOWS PROGRAMMING USING VB .NET LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:	Student Outcomes			
1.	To acquire basic knowledge about basic programming techniques in .Net	a	b		
2.	To develop the skills in spplying the tools for solving different problems			c	e

LIST OF EXPERIMENTS

1. Develop an Image Viewer Application
2. Simulate a Math Calculator
3. Develop a Notepad Editor using Dialog Control
4. Develop an Application to draw different shapes.
5. To Move an object using Timer Control
6. Develop a Simple Student Information System Using Files
7. Develop a College Admission Form Using MDI
8. Validate a Bio – Data Application Form
9. Develop an Inventory Control System Using ADO.NET
10. Develop a mark sheet preparation system Using Grid Control.

Other than these, possible lab exercises related to syllabus can also be included.

Course Nature: Practical					
Assessment Method(Maximum marks)					
In Semester	Assessment Tool	Practical exercises - I	Practical exercises - II	Practical exercises - III	Total
		10	10	10	**30**
End Semester		Practicals			**70**
				Total	**100**

Course Code	Course Title	L	T	P	L+T+P	C
BCAD1945	PYTHON PROGRAMING	2	0	4	6	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes			
1.	To know the basics of algorithmic problem solving and Python programming	a	b		
2.	To develop the programming skill in PYTHON	a	b	c	e

UNIT I - ALGORITHMIC PROBLEM SOLVING

Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, guess an integer number in a range.

UNIT II - DATA, EXPRESSIONS, STATEMENTS

Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.

UNIT III - CONTROL FLOW, FUNCTIONS

Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays. Illustrative programs: square root, gcd, exponentiation, sum an array of numbers, linear search, binary search.

UNIT IV - LISTS, TUPLES, DICTIONARIES

Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing - list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

UNIT V FILES, MODULES, PACKAGES

Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages; Illustrative programs: word count, copy file.

TEXT BOOKS

1. Allen B. Downey (2016), "Think Python: How to think like a Computer Scientist", 2nd Edition, O' Reilly Publishers.
2. Guide Van Rossum and Fred L. Drake Jr (2011), "An Introduction to Python", Network Theory Ltd.

REFERENCES

1. John V Gultag(2013),"Introduction to Computation and Programming Using Python", MIT Press
2. Kenneth A. Lambert (2012), "Fundamentals of Python:First Programs", CENGAGE Learning.

Course Nature: Theory-Cum-Practical						
Assessment Method(Maximum marks)						
In Semester	Assessment Tool	Practical exercises -I		Practical exercises - II		Total
		Theory	Practical	Theory	Practical	
		10	5	10	5	
	Total	15		15		30
End Semester	Marks	Theory			Practical	70
		40			30	
					Total	100