Major Courses

Semester I

BCA1CJ101 - Fundamentals of Computers and Computational Thinking

Programme	BCA				
Course Code	BCA1CJ101				
Course Title	Fundamentals of Computers and Computational Thinking				
Type of Course	Major				
Semester	I				
Academic Level	100 - 199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	4	-	-	60
Pre-requisites	1. Fundamentals of electronic components 2. Basic mathematical operations				
Course Summary	This course provides a comprehensive overview of computing, covering historical milestones, hardware components, software systems, and computational thinking principles. Students will explore the evolution of computing systems, from early pioneers to modern processors and quantum units. The curriculum delves into hardware intricacies, software distinctions, and essential concepts in computer science, emphasizing problem-solving skills and algorithmic thinking. Practical aspects include hands-on experiences with hardware assembling, operating system installation, algorithm and flowchart visualization.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Develop a foundational knowledge of computing systems, encompassing their historical development, evolutionary milestones, and the notable contributions of key figures in the field.	U	F	Instructor-created exams / Quiz
CO2	Acquire familiarity with diverse hardware components constituting a computer system.	U	C	Practical Assignment / Observation of Practical Skills
CO3	Gain practical expertise by engaging in hands-on activities focused on the installation and configuration of diverse hardware components within a computer system.	Ap	P	Practical Assignment / Observation of Practical Skills
CO4	Explore the spectrum of software types, and actively participate in the	Ap	P	Practical Assignment /

	partitioning, installation, and configuration of operating systems to cultivate a comprehensive understanding of software systems.			Observation of Practical Skills
CO5	Develop a foundational understanding of computer science as a discipline, examining problems through the lens of computational thinking and cultivating analytical skills to address challenges in the field.	An	C	Instructor-created exams / Quiz
CO6	Represent complex problems using algorithmic approaches and enhance problem-solving skills by visualizing solutions through the utilization of various software tools.	Ap	P	Practical Assignment / Observation of Practical Skills
* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C) # - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)				

Detailed Syllabus

Module	Unit	Content	Hrs (48+12)	Marks
I	**History and Evolution of Computing System**		**10**	**15**
	1	**Evolution of Computers** – History, Generations	2	
	2	**Overview of Computer System**- Von Neumann Model, Number Systems (Binary, Hexa, Octal, Decimal)	2	
	3	**Number Conversion and Digital Codes** - Conversion from one number system to another, Digital Codes (Gray, Excess-3, BCD)	2	
	4	**Pioneers and Contributors of Computing Systems** - First Mechanical computer - Charles Babbage, Stored-Program Architecture - John von Neumann, Turing machine - Alan Turing, First General-Purpose Electronic Digital Computer - John Mauchly and J. Presper Eckert, Artificial Intelligence- John McCarthy (Contributions only).	2	
	5	**Computing Systems: Past to Present** - Single Core, Dual-Core and Multi-Core Processors, Graphics Processing Unit (GPU), Accelerated Processing Unit, Quantum Processing Units (QPU) (Concept only).	2	
II	**Hardware**		**11**	**20**
	6	**Electronic Components** – Active Components - Diode, Transistor, Integrated Circuits (Definition, Symbol and Function).	1	
	7	**Electronic Components** - Passive Components – Resistors, Capacitors, Inductors (Definition, Symbol and Function).	1	
	8	**Motherboard Components –** CPU and Cooling Fan, RAM, Expansion Slots (PCIe), Input/Output Ports, Chipset (Concept only).	2	
	9	**Motherboard Components –** BIOS/UEFI Chip, SATA/NVMe Slots, Network Interface, Ports- Ethernet, VGA, HDMI, USB (Concept only).	3	
	10	**Computer Components** – SMPS, Motherboard, Storage Devises	2	

		(HDD, SSD, NVMe (Concept only).		
	11	**Computer Components** – RAM (DRAM, SRAM, DDR SDRAM), ROM, Cache (Concept only).	2	
III	**Software**		**12**	
	12	**Software -** Application Software, System Software, Examples	2	
	13	**Operating System** – Need of OS, Types – Proprietary and Open Source, Hardware Software Compatibility, POST, Booting.	4	
	14	**OS Installation –** Bootable Media, UEFI/Legacy BIOS, Disk Partitioning, Dual Booting, Boot Manager – BOOTMGR, Grub, File Systems- FAT, NTFS, ext4.	4	**15**
	15	**Device Drivers –** Need of Device Drivers, Driver Interactions (Basic concept only).	2	
IV	**Computer Science and Computational Thinking**		**15**	
	16	**Computer Science**- Role of Computer Science in the Modern Era.	1	
	17	**Problem Solving -** Defining the Problem, Systematic Approach.	2	**20**
	18	**Computational Thinking** – Problem Decomposition, Pattern Identification, Abstraction, Generalization.	2	
	19	**Logical Thinking** – Inductive and Deductive Reasoning, Logical Expressions.	2	
	20	**Algorithmic Thinking** – Intuition vs Precision, Defining algorithms.	2	
	21	**Algorithm** – Need of Algorithm, Qualities of a Good Algorithm, Examples.	3	
	22	**Flowchart -** Flowchart Symbols, Examples. Raptor.	3	
V	**Open Ended Module**		**12**	
		Strictly do the following activities from the Lab. 1. Identify, categorize and list out specifications of given **electronic components**. 2. Identify and list out specifications of given **motherboard components**. 3. Identify and Describe various **ports and connectors on motherboard**. 4. Installation of various **components on motherboard** (Processor, Fan, Heat Sink, RAM etc.) 5. Hands-on experience in **assembling and disassembling** a computer system (SMPS, Motherboard, Storage Device etc.). 6. Accessing and configuring the **Basic Input/Output System (BIOS) or Unified Extensible Firmware Interface (UEFI)** settings. 7. Preparation of **Bootable media** with software like ***Rufus***. 8. Check the hardware compatibility and **Install operating system** (single booting) on given computer. 9. Check the hardware compatibility and **Install operating systems** (dual booting – Windows and Linux) on given computer. **Develop algorithms and implement** the solutions using ***RAPTOR*** flowchart execution tool for the following problems.		

		10. Read and print a number. 11. Read the price of three items and print the total bill amount. 12. Read ages of two persons and print the elder one. 13. Read the number of units of electricity consumed and print the bill amount for various slabs. 14. Read a year and check whether it is a leap year. 15. Print first N numbers (using loop).		

Mapping of COs with PSOs and POs:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	1	3	-	-	-	1						
CO 2	1	3	-	-	1	-						
CO 3	1	3	-	-	2	2						
CO 4	1	3	-	-	2	2						
CO 5	2	1	3	1	1	-						
CO 6	2	1	3	2	2	1						

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics:

	Internal Exam	Assignment	Practical Evaluation	End Semester Examinations
CO 1	✓	✓		✓
CO 2	✓	✓	✓	✓
CO 3	✓	✓	✓	✓
CO 4		✓	✓	✓

CO 5		✓		✓
CO 6	✓	✓	✓	✓

References:

1. Gary B. Shelly, Thomas J. Cashman, and Misty E. Vermaat. “Introduction to Computers”, Cengage Learning, 2008.

2. Pradeep K. Sinha and Priti Sinha, Computer Fundamentals: Concepts, Systems & Applications. BPB Publications.

3. Kevin Wilson, Computer Hardware: The Illustrated Guide to Understanding Computer Hardware. Amazon Digital Services LLC – KDP, 2018.

4. John Hanna, OS Installation 101: A Step-by-Step Approach for Newbies.

5. David Riley and Kenny Hunt, Computational thinking for modern solver, Chapman & Hall/CRC, 2014.

6. R.G. Dromey, How to solve it by Computer, PHI, 2008.

BCA1CJ102/BCA1MN 101 - Mathematical Foundation for Computer Applications

Programme	BCA				
Course Code	BCA1CJ102/BCA1MN 101				
Course Title	Mathematical Foundation for Computer Applications				
Type of Course	Major/Minor (A1)				
Semester	I				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	4	-	-	60
Pre-requisites	Basic Mathematics is required (Algebra, Arithmetic)				
Course Summary	This course provides a fundamental exploration of mathematical concepts essential for computer science. Students will explore into key topics including Linear Algebra, Differential and Integral Calculus. The course aims to equip students with the mathematical tools and reasoning skills necessary for creating and analyzing algorithms, understanding and solving computational problems in various areas of computer science like Data science, Artificial Intelligence.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Reflect the concept of matrices and determinants as a way to depict and streamline mathematical ideas to perform basic operations.	U	C	Instructor- created exams / Quiz/Assignment/ Seminar
CO2	Able to find the inverse of square matrices using different methods and demonstrate a solid understanding of eigen values.	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO3	Proficiency in solving linear equations using different techniques and understanding the geometric interpretation of solutions.	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO4	Gain proficiency in representing vectors geometrically and algebraically, understanding vector addition, dot and cross products.	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO5	Able to apply differential and integral calculus to various functions encountered in computer applications such as polynomials, exponentials and logarithmic functions.	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO6	Represent various mathematical problems using algorithmic approaches and enhance problem-solving skills by visualizing solutions through the utilization of software tools.	U, Ap	C, P	Practical Assignment / Observation of Practical Skills

* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C)
# - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)

Detailed Syllabus

Module	Unit	Contents	Hrs (48+12)	Marks
I		**Matrices and Determinants**	**14**	**18**
	1	Matrices: Definition, Order of a matrix, Types of matrices	2	
	2	Operations on matrices: Addition, Subtraction, Multiplication	3	
	3	Properties of matrix: Various kind of Matrices, Transpose of a matrix	2	
	4	Elementary Transformations of Matrices and Rank of Matrices	2	

	5	Symmetric and Skew Symmetric Matrices	2	
	6	Determinants, Minors, Cofactors, Inverse of a matrix	3	
II	**Linear Algebra and Vector Calculus**		**12**	**18**
	7	Linear Independence: Characteristic equations,	1	
	8	Eigen values, Eigen Vector	2	
	9	Solving system of linear equations: Gauss Elimination Method, Gauss Jordan method, Gauss Siedel Methods	3	
	10	Vectors: Definition Magnitude of a vector, Types of Vectors, Vector addition	2	
	11	Dot products and Cross products	2	
	12	Vectors in 2- and 3-space	2	
III	**Differentiation**		**11**	**17**
	13	Limits; Definition (concept only), Derivative of a Point, Derivative at Function	2	
	14	Differentiation: Definition, Differentiation from first principle, Differentiation of important function	2	
	15	Product rule, Quotient rule	3	
	16	Derivative of function of a function	2	
	17	Logarithmic differentiation	2	
IV	**Integration**		**11**	**17**
	18	Integration: Integral as Anti-derivative, Indefinite integral & constant of integration	2	
	19	Fundamental theorems, Elementary Standard results	2	
	20	Integral of different functions, Integration by Substitution	3	
	21	Definite Integrals, Properties of definite integrals	2	
	22	Evaluation of Definite Integrals by Substitution	2	
V	**Open Ended Module – Application Level**		**12**	
	1	Discuss topics from the following: • Differential Equation. • Concept of First Order ODE's. • Concept of Second Order ODE's. • Application of Logarithm. • Combinatorics. • Trigonometric concept. • Applications of Matrices in various field of computer like image processing, cryptography etc. • Real-world examples for using eigen values and eigen vectors. • Vectors assist in GPS technology to provide accurate	10	

		navigation data. • 3D vectors enhancement in virtual reality experiences. • Discuss the importance of differentiation and integration in various computer fields, such as Machine Learning, Robotics, Quantum Computing, etc.		
	2	Case Study	2	

Mapping of COs with PSOs and POs:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	1	-	1	1	-	-						
CO 2	2	-	2	2	-	-						
CO 3	2	-	2	2	-	-						
CO 4	2	-	2	2	-	-						
CO 5	2	-	2	2	-	-						
CO 6	2	-	2	2	-	-						

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Discussion / Seminar
- Midterm Exam
- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics:

	Internal Exam	Assignment	Practical Evaluation	End Semester Examinations
CO 1	✓	✓		✓
CO 2	✓	✓		✓
CO 3	✓	✓		✓
CO 4	✓	✓		✓

CO 5	✓	✓		✓
CO 6	✓	✓	✓	✓

References:

1. Advanced Engineering Mathematics, Erwin Kreyszig, Wiley
2. Higher Engineering Mathematics, John Bird, Elsevier Direct
3. Skills in Mathematics: Algebra, S.K.Goyal
4. Higher Engineering Mathematics, B S Grewal, Khanna Publishers
5. Higher Engineering Mathematics, Ramana, Tata McGraw Hill
6. Engineering Mathematics, P Kandasamy, S. Chand Group
7. Gilbert Strang, "Introduction to Linear Algebra", Wellesley-Cambridge Press, 2023.
8. Kenneth Hoffman, Ray Kunze, " Linear Algebra", Prentice Hall India Learning, 2015.
9. Gilbert Strang, "Calculus", Wellesley-Cambridge Press, 2023.
10. Joseph Edwards, "Differential Calculus for Beginners", Arihant Publications, 2016.
11. Joseph Edwards, "Integral Calculus for Beginners", Arihant Publications, 2016.

BCA1CJ103/BCA1MN 102 - Discrete Structures for Computer Applications

Programme	BCA				
Course Code	BCA1CJ103/BCA1MN 102				
Course Title	Discrete Structures for Computer Applications				
Type of Course	Major/Minor (B1)				
Semester	I				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	4	-	-	60
Pre-requisites	No pre-requisites required				
Course Summary	This course provides a foundational understanding of essential concepts that are fundamental to computer science and various branches of mathematics. The course explores topic related to Propositional Logic, Sets and Relations, Graphs and Trees. This helps the students to equip with the analytical and problem-solving skills necessary for applications in computer science and algorithm design.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Acquire a comprehensive understanding of propositional logic and its applications, with a focus on constructing and interpreting truth tables.	U	C	Instructor- created exams / Quiz/Assignment/ Seminar
CO2	Able to proficiently define and manipulate sets, analyse relations and functions and their representation by Venn diagrams	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO3	Acquire a basic understanding of graph theory including representations, types of graphs, their properties such as connectivity, cycles, paths and degrees.	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO4	Able to demonstrate a deep understanding of advanced graph theory concepts, focusing on Euler's graph, Hamiltonian graphs, Isomorphism and Homeomorphism.	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO5	Able to proficiently understand the tree data structures, spanning trees and associated algorithms for solving problems such as Prim's and Kruskal.	U	C	Instructor-created exams/ Quiz/Assignment/ Seminar
CO6	Represent various mathematical problems using algorithmic approaches and enhance problem-solving skills by visualizing solutions through the utilization of software tools.	U, Ap	C, P	Practical Assignment / Observation of Practical Skills

* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C)
\# - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)

Detailed Syllabus

Module	Unit	Contents	Hrs (48+12)	Mark
I		**Mathematical Logic**	**09**	**17**
	1	Propositional Logic: Definition, Logical Operators (Negation, Disjunction, Conjunction, Implication, Biconditional), Truth Table	2	
	2	Law of Logic: Tautology, Contradiction, Contingency, Logical equivalence	2	
	3	Algebra of Propositions, Solving logic with and without truth table	2	

	4	Validity of Arguments, Logical implication	2	
	5	Quantifiers: Universal and Existential	1	
II	**Set Theory and Relations**		**12**	**17**
	6	Set Theory: Definition, Concept of Set Theory, Cardinality, Types of sets	1	
	7	Properties of Set: Subsets, Power set, Venn Diagrams, Set operations, Partition	2	
	8	Relation: Definition and Examples, Type of Relations with example,	2	
	9	Equivalence relation, Equivalence Class and Di-Graph and problems	3	
	10	Functions: Introduction, type of function, Composition function	2	
	11	One-to-one function, Onto function, One-to-one correspondence	2	
III	**Introduction to Graphs**		**16**	**20**
	12	Graph: Definition, Properties of Graph, Simple Graph, Regular Graph, Null Graph, Subgraph and Isomorphism	2	
	13	Walk, Path, Trail, Circuit, Cycle, Complete Graph, Hand-Shaking Theorem	2	
	14	Connected Graph, Complete Graph, Euler Graph, Hamiltonian graph, Travelling Sales Man Problem, Operations on Graph, Homeomorphism	3	
	15	Planar Graph, Kuratowski's two graph, Matrix Representation of Graph	3	
	16	Bi-Partite Graph, Graph colouring, Chromatic number	2	
	17	Basic theorems on Graph, Hand-Shaking Theorem	4	
IV	**Trees and Applications**		**11**	**16**
	18	Tress: Definition, Properties, Pendant vertex, Distance, Eccentricity and Center of Tress	2	
	19	Rooted Tress, Binary Tress and Its Properties	2	
	20	Basic Theorems on Tress	3	
	21	Minimum Spanning Tree: Definition, Prim's Algorithm and Kruskal's Algorithm (Algorithm and Problem Based)	2	
	22	Cut-Set and Cut-Vertices, Connectivity of Graph and Weighted Graph	2	

V	**Open-Ended Module – Application Level**		**12**	
	1	Discuss topics from the following: • First Order Logic. • Application of Logic in Intelligence System. • Set theory in Computer Applications. • POSET and Hasse Diagram. • Di-Graph of the relation. • Application of Graphs like Königsberg Bridge Problem, Utilities Problem, Electrical Network Problems, Seating Problem. • Different type of Binary Tree and their applications. • BFS and DFS Algorithm. • Directed Graphs and Directed Trees. • Application of Graphs in Computer fields. • Basic Concept of Group and Ring.	10	
	2	Case Study	2	

Mapping of COs with PSOs and POs:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	1	-	1	1	-	-						
CO 2	2	-	2	2	-	-						
CO 3	2	-	2	2	-	-						
CO 4	2	-	2	2	-	-						
CO 5	2	-	2	2	-	-						
CO 6	2	-	2	2	-	-						

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Discussion / Seminar
- Midterm Exam
- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics:

	Internal Exam	Assignment	Practical Evaluation	End Semester Examinations
CO 1	✓	✓		✓
CO 2	✓	✓		✓
CO 3	✓	✓		✓
CO 4	✓	✓		✓
CO 5	✓	✓		✓
CO 6	✓	✓	✓	✓

References:

1. C L Liu, D P Mohapatra, "Elements of Discrete Mathematics", McGraw Hill Education (India) Private Limited, 2008.
2. Seymour Lipscutz, Marc Lars Lipson, " Discrete Mathematics", Tata McGraw Hill Education Private Limited, 2015.
3. Kenneth A Ross, Charles R B Wright, "Discrete Mathematics", 5th Edition, Pearson Education India, 2012.
4. Swapan Kumar Sarkar, "Discrete Mathematics", 9th Edition, S Chand & Co Ltd, 2016.
5. Elements of Discrete Mathematics, C. L. Liu, TMH Edition
6. Discrete Mathematical Structures with applications to Computer Science, J.K. Tremblay and R Manohar, McGraw Hill
7. Discrete mathematical Structures, Kolman, Busby, Ross, Pearson
8. Graph theory, Harry, F., Addison Wesley.

General Foundation Courses

Multi-Disciplinary Course (MDC)

BCA1FM 105 – Digital Marketing

Programme	BCA				
Course Code	BCA1FM 105				
Course Title	Digital Marketing				
Type of Course	MDC/MDE				
Semester	I				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	3	3	-	-	45
Pre-requisites	1. Basic Computer Literacy 2. Familiarity with Online Platforms				
Course Summary	This course provides students with a foundational understanding of key concepts and techniques in the rapidly evolving field of digital marketing. Through engaging lectures. Students will explore various digital marketing channels, including search engine optimization (SEO), social media marketing, email marketing, and content marketing.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	To understand the concept of digital marketing and its integration with traditional marketing	U	C	Instructor-Create Exams or Quiz
CO2	To understand customer value journey in digital context and behaviour of online consumers	A	P	Discussions and Quizzes
CO3	To examine various tactics for enhancing a website's position and ranking with search engines	U	F	Instructor created exams or Home assignments
CO4	To Identify and differentiate between various digital marketing channels, including SEO, social media, email, and content marketing.	A ,E	P	Discussions, Quizzes
CO5	To get overall idea in implementing basic digital marketing strategies to enhance	Ap	P	Viva Voce Observation of

	online visibility and engagement.			practical skills
CO6	To get to know about ethical considerations and best practices in digital marketing, including privacy, data protection, and consumer trust	U	M	Instructor Created -Exams, Assignments

* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C)
# - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)

Detailed Syllabus

Module	Unit	Content	Hrs (36+9)	Marks
I	**Digital Marketing Basics**		**9**	**12**
	1	Overview of digital marketing	2	
	2	Importance of digital marketing for businesses	2	
	3	Introduction to key digital marketing channels (SEO, social media, email marketing)	3	
	4	Basics of creating a digital marketing strategy	2	
II	**Content Marketing & Social Media**		**9**	**12**
	5	Content Marketing Fundamentals	2	
	6	Content Strategy Development	2	
	7	Content Creation for Different Platforms	2	
	8	Introduction to Social Media Marketing & keyword Optimization	2	
	9	Social Media Strategy & Community Management	1	
III	**Search Engine Optimization (SEO) & Paid Advertising**		**9**	**14**
	10	Introduction to Search Engine Optimization	2	
	11	On-page and Off-page SEO Techniques	2	
	12	Search Engine Marketing (SEM) Fundamentals	2	
	13	Pay-Per-Click (PPC) Advertising with Google Ads	2	
	14	Social Media Advertising Platforms	1	

IV	**Web Analytics & Emerging Trends**		**9**	**12**
	13	Introduction to Web Analytics & Key Metrics	2	
	14	Using Analytics Tools for Data-Driven Decision Making	2	
	15	Conversion Tracking & Optimization	2	
	16	Emerging Trends in Digital Marketing	2	
	17	The Future of Marketing	1	
V	**Hands-on: Practical Applications, Case Study and Course Project**		**9**	
	1	**S**ocial Media Marketing-Social media Channels	2	
	2	Leveraging social media for brand conversions and buzz	2	
	3	Recent trends in digital marketing	3	
	4	Demonstrate how to use google web masters Indexing Using API	2	

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics:

	Internal Exam	Assignment	Practical Evaluation	End Semester Examinations
CO 1	✓			✓
CO 2	✓	✓		✓
CO 3	✓			✓
CO 4	✓			✓
CO 5		✓		✓
CO6				✓

References:

1. DeWald, R. (2021). Digital Marketing for Dummies.
2. Kotler, P., Kartajaya, H., & Setiawan, I. (2017). Marketing 4.0: Moving from

Traditional to Digital.

3. Ryan, D. (2014). Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation. Kogan Page Limited.
4. Kumar, S., & Kaur, S. (2020). Digital Marketing. Taxmanns.
5. Hill, R. (2024). Social Media Marketing 2024: Mastering New Trends & Strategies for Online Success.

Skill Enhancement Course (SEC)

BCA1FS111– Introduction to Computers and Office Automation

Programme	BCA				
Course Code	BCA1FS111				
Course Title	Introduction to Computers and Office Automation.				
Type of Course	SEC				
Semester	I				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	3	3	-	-	45
Pre-requisites	Basic knowledge of computers & Internet.				
Course Summary	This course focuses on the use of computer technology and software applications to automate routine office tasks and streamline business processes. Students will be able to use computer technology to enhance communication and data management.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Understand the fundamentals of computer Hardware and Software and Computer Networks.	U	C	Instructor-created exams / Quiz/ Assignment/ Seminar
CO2	Understand the fundamentals of word processing and its importance in office automation. Demonstrate proficiency in creating, editing, and formatting documents using word processing software. Explore advanced formatting options and features	Ap	P	Practical Assignment / Instructor-created exams / Quiz
CO3	Understand the fundamentals of electronic spreadsheets and their role in data analysis, manipulation, and presentation. Demonstrate proficiency in creating, saving, and editing workbooks and worksheets within electronic spreadsheet software. Utilize various data entry techniques. Handle operators in formulas and utilize a wide range of functions.	Ap	P	Practical Assignment / Instructor-created exams / Quiz

CO4	Demonstrate proficiency in creating, manipulating, and enhancing slides within presentation software, including adding text, images, shapes, and multimedia elements. Expertise in utilizing organizational charts and various chart types to represent hierarchical structures and data trends effectively. Explore drawing tools to create custom shapes, diagrams, and illustrations.	Ap	P	Practical Assignment / Instructor-created exams / Quiz
CO5	To empower students to design and implement automation solutions in real- world scenarios.	Ap	P	Case study/ Project
CO6	Gaining a deep understanding of emerging trends and technologies in the field of automation.	U, Ap	P	Assignment/ Seminar
* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C) # - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)				

Detailed Syllabus

Module	Unit	Content	Hrs (36+9)	Marks
I		**Introduction To Computers**	**8**	**14**
	1	Types of Computers	1	
	2	Hardware: CPU, Input/Output Devices. Storage Devices, memory hierarchy, RAM, ROM, Secondary Memory,and Registers.	3	
	3	Software: Types of Software, computer languages, language translators, and Operating Systems.	2	
	4	Computer Networks: LAN, WAN, MAN, Client -Server	2	
II		**Documentation Using a Word Processor (OpenOffice Writer / M.S. Word)**	**8**	**12**
	5	Introduction to Office Automation, Word Processing Concepts - creating and editing documents, Formatting documents.	3	
	6	Finding and Replacing Text, Printing documents, Auto-text, Autocorrect, Spelling and Grammar Tools.	2	
	7	Document Dictionary, Graphics, Tables, Charts, Columns, Page Borders, Bookmark.	1	
	8	Advanced Features- Mail Merge, Macros, Tables, File Management, Printing, Styles, linking and embedding objects, Template.	2	
III		**Electronic Spread Sheet (Open Office Calc/MS- Excel)**	**10**	**12**
	9	Introduction to Spread Sheet, Spreadsheet Concepts, Creating, Saving, and Editing a Workbook.	2	
	10	Inserting, deleting worksheets, entering data in a Cell/Formula, Copying and moving data from selected Cells.	1	

	11	Handling Operators in Formula. Functions: Mathematical, Logical, Statistical, Text, Financial, Date and Time, Function Wizard.	1	
	12	Formatting a Worksheet, Formatting Cells, and Changing Data alignments. Changing date, Character, Number, Currency format, Changing font.	2	
	13	Adding borders and colors, Printing Worksheets, Charts and graphs, creating previewing and modifying charts, Conditional Formatting, and Filters.	3	
	14	Advanced features – Pivot table & Pivot Chart, Linking and Consolidation	1	
IV	**Presentation using (OpenOffice Impress/MS- Power Point)**		**10**	**12**
	15	Presentations, Creating, Manipulating & Enhancing Slides.	2	
	16	Organizational Charts, Charts, Drawing objects, clip arts, Word Art, Layering art Objects.	4	
	17	Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect.	4	
V	**Open Ended Module**		**9**	
	1	• Design and Implement Automation Solutions in real-world scenarios • Understand Future Trends in Automation	9	

Mapping of COs with PSOs and POs:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	2	3	-	-	-	-						
CO 2	3	2	-	-	3	-						
CO 3	3	2	-	-	3	-						
CO 4	3	2	-	-	3	-						
CO 5	3	1	-	-	3	-						
CO 6	3	1	-	-	3	3						

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam

- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics:

	Internal Exam	Assignment	Practical Evaluation	End Semester Examinations
CO 1	✓	✓		✓
CO 2	✓	✓		✓
CO 3	✓	✓		✓
CO 4	✓	✓		✓
CO 5	✓	✓		✓
CO 6	✓	✓		✓

References:

1. P. K. Sinha and P. Sinha, “Foundations of Computing”. BPB Publicaiion.
2. Russell A. Stultz, Learn Microsoft Office, BPB Publication.
3. S. Sagman. “Microsoft Office 2000 for Windows”. Pearson Education.
4. Turban, Mclean and Wetherbe. “Information Technology and Management John Weily and Sons.
5. H.M.Deitel, P. J. Deitel, et al., Internet & World Wide Web - How to program, Prentice Hall.