JSS MAHAVIDYAPEETHA

J S S COLLEGE FOR WOMEN (Autonomous)

(Affiliated to University of Mysore: Reaccredited by NAAC with 'A' Grade with 3.07 CGPA)

Saraswathipuram, Mysore – 570 009

Programme Matrix: Bachelor of Computer Science (BCA)

2026-2027

Programme Outcomes

After successful completion of the Bachelor of Computer Applications programme, students will be able to:

PO1: **Computational Knowledge**: Apply knowledge of computer science, programming languages and Mathematics and software development fundamentals.

PO2: **Problem Analysis**: Identify, analyze, and solve computing problems using appropriate algorithms and techniques.

PO3: **Software Development Skills**: Design, develop, test and maintain software applications using modern programming tools and technologies.

PO4: **Database Management**: Use database concepts and management systems for storing, retrieving and managing data effectively.

PO5: **Modern Tool Usage**: Utilize modern computing tools, frameworks and technologies in software development and IT applications.

PO6: **Communication Skills**: Communicate effectively through technical reports, presentations and teamwork activities.

PO7: **Teamwork and Leadership**: Work efficiently as an individual and as a member or leader in multidisciplinary teams.

PO8: **Ethics and Professional Responsibility**: Understand professional ethics, cyber laws and social responsibilities in the field of computing.

PO9: **Life-long Learning**: Engage in continuous learning to adapt to emerging technologies and industry requirements.

PO10: **Entrepreneurship and Employability**: Develop employability skills and entrepreneurial abilities in the IT and software industry.

Date of Approval: 16th July 2026

Programme Matrix: Bachelor of Computer Science (BCA) - I Semester

Course Type	Course Code	Course Title	Course Outcome
DSC	HRA210	Digital Computer Organization	CO1: Understand the digital computer system including classification of computers, anatomy of Computer, and input /output devices ad memory organization of computer. CO2: Illustrate the types of Software, Computer languages and Translator programs. CO3: Apply Boolean algebra to simplify logical expressions and solve problems using Karnaugh maps and other minimization techniques. CO4: Design and analyze combinational and sequential logic circuits, including adders, subtractors, flip-flops, encoders, decoders, multiplexers, and counters. CO5: Perform conversions between decimal, binary, octal, and hexadecimal number systems and carry out arithmetic operations in binary.
DSC	HRA220	Problem Solving using C++	CO1: Understand the fundamental concepts and benefits of Object-Oriented Programming (OOP) and how it differs from Procedure-Oriented Programming paradigms. CO2: Interpret and apply C++ syntax and structure, including input-output statements, keywords, identifiers, constants, variables, data types, operators, expressions and file handling to create basic programs and solve problems. CO3: Describe the control structures, functions, and different parameter passing methods and write programs to solve problems. CO4: Demonstrate the concepts of classes and objects, access specifiers, constructors, Destructors and OOP features like polymorphism, inheritance with the help of programs.
DSC	HRA230	Mathematical and Statistical Computing	CO1: Construct, evaluate, and apply logical statements and truth tables, understand the principles of set theory, perform various set operations, and effectively use Venn diagrams for solving complex problems. CO2: Understand Cartesian products, relations, and their properties, including equivalence relations and partitions. CO3: Develop Proficiency in function composition, inverse functions, and representing relations through matrices and directed graphs. CO4: Organize and interpret data using statistical methods, calculate measures of central tendency and dispersion, analyze correlation between variables, and perform linear regression analysis.
AECC	HRA020	Euphony I	CO1: Understand and appreciate various poetic themes and Forms. CO2: Analyze short stories to gain insights into human and social issues. CO3: Develop critical thinking through the study of essays. CO4: Apply grammar rules to improve communication Skills.
AECC	HRA060	ಬಿಸಿಎ : ಪತ್ರಿಕೆ–1 ಗಣಕ ಕನ್ನಡ–1	CO1: ಕನ್ನಡ ನಾಡು–ನುಡಿಯ ಬಗ್ಗೆ ಹೊಸ ಅರಿವನ್ನು ಮೂಡಿಸಲು ಸಹಕಾರಿ.

			CO2: ಕನ್ನಡದಲ್ಲಿ ಅಭಿವ್ಯಕ್ತಿಸುವ ಹೊಸ ಪ್ರಕಾರಗಳ ಶೋಧನೆಗೆ ಅವಕಾಶ ನೀಡುತ್ತದೆ. CO3: ತಂತ್ರಜ್ಞಾನದ ವಿಚಾರಗಳನ್ನು ಕನ್ನಡದಲ್ಲಿ ತಿಳಿದುಕೊಳ್ಳುವ ಆಸಕ್ತಿ ಮೂಡಿಸುತ್ತದೆ. CO4: ಸಮಾಜದ ಬಗ್ಗೆ ಜಾಗೃತಿಯನ್ನು ಮೂಡಿಸಲು ಪ್ರೇರೇಪಿಸುತ್ತದೆ.
AECC	HRA050	गद्य के विविध आयाम तथा पद्य साहित्य एवं संगणक	CO1: विद्यार्थी हिंदी कहानी साहित्य की प्रमुख विशेषताओं एवं कथानक तत्वों को समझ सकेंगे। विद्यार्थी कहानियों में निहित सामाजिक, पारिवारिक एवं मानवीय मूल्यों का विश्लेषण कर सकेंगे। CO2: विद्यार्थी गद्य साहित्य की विभिन्न विधाओं एवं लेखकों के विचारों को समझ सकेंगे। विद्यार्थी आत्मकथा, जीवनी एवं एकांकी के माध्यम से जीवन-मूल्यों एवं सामाजिक यथार्थ का विवेचन कर सकेंगे। CO3: विद्यार्थी आधुनिक हिंदी कविता के भाव, भाषा, शैली एवं काव्य-सौंदर्य की पहचान कर सकेंगे। विद्यार्थी कविताओं में निहित मानवीय संवेदना, प्रकृति एवं सामाजिक चेतना को स्पष्ट कर सकेंगे। CO4: विद्यार्थी संगणक के सामान्य परिचय एवं उसकी उपयोगिताओं का ज्ञान प्राप्त करेंगे। विद्यार्थी इंटरनेट एवं ई-मेल सेवाओं के प्रयोग तथा उनके व्यावहारिक महत्व को समझ सकेंगे।
AECC	HRA090	Prose and Grammar	CO1: Appreciate the transformation of classical dramatic plots into highly accessible prose narrative layouts. CO2: Use base grammatical concepts to correctly construct elementary expressions in Sanskrit. CO3: Recall the plots, character arcs, and core moral dilemmas presented in the Karna Parva narrative and the Malavikagnimitra story collection. CO4: Critically analyze the contrasting character choices, emotional arcs, and narrative structures used by authors like Lakshmana Suri and Kalidasa.
AECC	HRA130	Constitutional values (with references to Constitution of India)	CO1: Understand the evolution, making, features and core values of the Indian Constitution. CO2: Analyze Fundamental Rights, Duties, DPSP and provisions relating to equality and social justice. CO3: Analyze the structure, powers and functions of the Legislature, Executive and Judiciary. CO4: Evaluate the role of constitutional institutions in upholding democracy and constitutional values.

Programme Matrix: Bachelor of Computer Science (BCA) - II Semester

Course Type	Course Code	Course Title	Course Outcome
DSC	HRB210	Data Structure	CO1: Understand the basics of Data Structures. CO2: Identify the appropriate data structures and algorithms for solving real world problems. CO3: Understand the practical applications of Tree and Graph. CO4: Understand the fundamentals of sorting and searching algorithms.
DSC	HRB220	Object Oriented Programming with Java	CO1: Understand the Java programming fundamentals. CO2: Describe with examples of basic Java OOP concepts. CO3: Understand the Java Interfaces and Packages.

			CO4: Deliberate the Details of Multithreading, Exception Handling & File Handling CO5: Design GUI applications using tools like AWT.
DSC	HRB230	Operating System	CO1: Understand the fundamentals of the operating system. CO2: Describe the concepts of process, process management, CPU Scheduling, process synchronization. CO3: Dead locks, memory management and Virtual Memory management. CO4: Illustrate the file system and structure. CO5: Understand the UNIX OS, Shell Programming, and Conditional Control Structures in Shell Programming.
AECC	HRB020	Euphony II	**CO1:** Understand and appreciate diverse poetic themes. **CO2:** Analyze short stories for human and cultural insights. **CO3:** Develop critical thinking through essays. **CO4:** Use grammar concepts to improve communication.
AECC	HRB060	ಬಿಸಿಎ : ಪತ್ರಿಕೆ–2 ಗಣಕ ಕನ್ನಡ–2	CO1: ಕಂಪ್ಯೂಟರ್‌ನಲ್ಲಿ ಕನ್ನಡವನ್ನು ಬಳಸಲು ಪ್ರೇರಣೆ ನೀಡುತ್ತದೆ. CO2: ಭಾಷೆಯ ಮೂಲಕ ತಾಂತ್ರಿಕ ಅವಿಷ್ಕಾರಗಳನ್ನು ಶೋಧಿಸಲು ಅವಕಾಶ ನೀಡುತ್ತದೆ. CO3: ಬ್ಲಾಗ್‌ಗಳಲ್ಲಿ ಲೇಖನಗಳನ್ನು ಪ್ರಕಟಿಸಲು ಉತ್ತೇಜಿಸುತ್ತದೆ. CO4: ಬ್ಲಾಗ್‌ಗಳನ್ನು ಸೃಷ್ಟಿಸಿ ತಮ್ಮ ಅಭಿಪ್ರಾಯ ಮಂಡಿಸುವ ಅವಕಾಶ ನೀಡುತ್ತದೆ.
AECC	HRB050	कविता एवं गद्य साहित्य तथा कंप्यूटर और भाषा	CO1: विद्यार्थी हिंदी एकांकी साहित्य के माध्यम से सामाजिक, नैतिक एवं मानवीय मूल्यों को समझते हुए पात्रों, कथानक तथा संवाद शैली का विश्लेषण करने में सक्षम होंगे। CO2: विद्यार्थी हिंदी कहानियों के अध्ययन द्वारा सामाजिक यथार्थ, मानवीय संवेदनाओं तथा जीवन-मूल्यों को समझते हुए कथानक एवं पात्रों का विश्लेषण कर सकेंगे। CO3: विद्यार्थी जीवनी, डायरी एवं रिपोर्ताज जैसी गद्य विधाओं का अध्ययन कर साहित्यिक अभिव्यक्ति, चिंतन-शक्ति तथा सामाजिक जागरूकता विकसि त कर सकेंगे। CO4: विद्यार्थी कंप्यूटर एवं हिंदी भाषा के संबंध, हिंदी के तकनीकी प्रयोग, इंटरनेट सेवाओं तथा हिंदी सॉफ्टवेयर अनुप्रयोगों का व्यावहारिक ज्ञान प्राप्त कर सकेंगे।
AECC	HRB090	Poetry and Grammar	CO1: Synthesize worldly ethics, social values, and leadership psychology from Niti Shataka and regional Vachanas. CO2: Build enhanced translation capabilities by mapping vernacular metrics to classical Sanskrit styles. CO3: Apply principles of Sanskrit grammar to identify and form *Vyanjana Sandhi* (Consonant Sandhi) and compound words (*Samasa*: *Dvandva*, *Bahuvrihi*, *Avyayibhava*). CO4: Demonstrate effective cross-linguistic translation skills (*Bhashantara*) between Sanskrit and the regional language/English.

Programme Matrix: Bachelor of Computer Science (BCA): III Semester

Course Type	Course Code	Course Title	Course Outcome
DSC	HRC210	C#.NET Programming	CO1: Understand C# basics, syntax, control statements, arrays, and strings. CO2: Apply OOP concepts like inheritance and overloading in C#. CO3: Use delegates, events, and file I/O in C#. CO4: Build GUI apps using Windows Forms and ADO.NET.
DSC	HRC220	Data Base Management System	CO1: Understand basic concepts of databases, data models, and ER diagrams. CO2: Apply relational algebra and SQL to query and manipulate data. CO3: Analyze database normalization to improve design and remove anomalies. CO4: Evaluate transaction management and database security features.
DSC	HRC230	Web Technologies	CO1: Understand Internet basics, WWW, and HTML5 structure. CO2: Design responsive web pages using HTML forms and CSS. CO3: Write JavaScript code using variables, functions, and control structures. CO4: Use JavaScript objects, arrays, events, and DOM manipulation.
DSE	HRC240	Software Engineering System Software	CO1: Explain software engineering concepts, process models, and agile practices. CO2: Apply techniques to gather and manage software requirements. CO3: Model systems using UML diagrams and system modeling techniques. CO4: Design software architecture using patterns and UML notations.
DSE	HRC250	Cloud Computing	CO1: Understand cloud computing concepts, architecture, benefits and challenges. CO2: Describe deployment models, virtualization types and hypervisors. CO3: Explore cloud storage, databases, networking and DevOps practices.
AECC	HRC020	*Julius Caesar* and Language Component	CO1: Explain the events, characters, and major themes in Acts I and II of *Julius Caesar*. CO2: Analyze the plot development, conflicts, and major themes in Acts III and IV of *Julius Caesar*. CO3: Evaluate the ending, character development, and central themes in Act V of *Julius Caesar*. CO4: Develop language skills through reading comprehension, essay writing, précis writing, and dialogue writing.
AECC	HRC060	ಬಿಸಿಎ : ಪತ್ರಿಕೆ–3 ಗಣಕ ಕನ್ನಡ–3	CO1: ತಮ್ಮ ಸುತ್ತಲಿನ ಸಂಗತಿಗಳನ್ನು ಗಮನಿಸಲು ಮತ್ತು ಅಭಿವ್ಯಕ್ತಿಸಲು ಉತ್ತೇಜಿಸುತ್ತದೆ. CO2: ತಂತ್ರಜ್ಞಾನದ ಬಗ್ಗೆ ಕನ್ನಡದಲ್ಲಿ ತಿಳಿದುಕೊಳ್ಳುವ ಆಸಕ್ತಿ ಮೂಡಿಸುತ್ತ CO3: ತಂತ್ರಜ್ಞಾನದ ಹೊಸ ಪದಕೋಶಗಳನ್ನು ಪರಿಚಯಿಸುತ್ತದೆ. CO4: ಭಾಷೆ ಮತ್ತು ತಂತ್ರಜ್ಞಾನದ ಸಂಬಂಧವನ್ನು ಕಂಡುಕೊಳ್ಳು ಪ್ರೇರೇಪಿಸುತ್ತದೆ

AECC	HRC050	हिंदी कविता तथा गद्य साहित्य एवं मीडिया लेखन	CO1: छात्र कहानी, कविता तथा गद्य की विभिन्न विधाओं का अध्ययन कर सामाजिक यथार्थ, मानव संवेदनाओं और सांस्कृतिक मूल्यों को समझने में सक्षम होंगे। साहित्यिक पाठों का सूक्ष्म विश्लेषण व मूल्यांकन कर सकेंगे। CO2: छात्र - कथानक, चरित्र-चित्रण, भाषा-शैली तथा प्रतीक-विधान को पहचान सकेंगे। कहानियों से जुड़े सामाजिक तथा मनोवैज्ञानिक संदर्भों को समझकर उनका विश्लेषण करेंगे। CO3: छात्र विभिन्न कवियों की भाषा, भाव, बिंब, छवियाँ और काव्य-दृष्टि को समझ पाएँगे। समाज, किसान, जीवन-संघर्ष, सृजन और कविता के भविष्य जैसे विषयों पर कविताओं का सार्थक विश्लेषण कर सकेंगे। CO4: छात्र समाचार, फीचर, संवाद, विज्ञापन, रिपोर्ताज, रेडियो नाटक और पटकथा लेखन के मूल सिद्धांतों को समझेंगे। मीडिया लेखन की भाषा-शैली, संरचना, संक्षिप्तता और प्रभावोत्पादकता में दक्ष होंगे। संचार कौशल एवं भाषा-प्रयोग में निपुणताI सृजनात्मक लेखन और विश्लेषणात्मक सोच का विकासI
AECC	HRC090	Champu and Grammar	CO1: Critically evaluate the deep interpersonal dynamics, moral duties, and sacrifices highlighted in Ayodhya Kanda. CO2: Analyze Bhoja's aesthetic usage of rhetorical devices and explain *Lakshana* (definitions) and *Udaharna* (illustrations) in poetic contexts. CO3: Motivate individual creative writing, sentence formation, and analytical skills in Sanskrit. CO4: Evaluate contextual meaning, tone, and grammatical accuracy to produce coherent cross-linguistic translations.

Programme Matrix: Bachelor of Computer Science (BCA): IV Semester

Course Type	Course Code	Course Title	Course Outcome
DSC	HRD210	Computer Networks	CO1: Explain digital data transmission between computers. CO2: Apply data communication and network types in real life. CO3: Compare layers in networking models. CO4: Compare protocols in OSI and TCP/IP models.
DSC	HRD220	Python Programming	CO1: Demonstrate basic Python programs using control structures and arrays. CO2: Use functions, strings, lists, and dictionaries in Python. CO3: Apply OOP, file handling, and exception handling concepts. CO4: Build GUI apps, work with databases, and visualize data using Python libraries.
DSC	HRD230	PHP & MySQL	CO1: Understand PHP basics, syntax, variables, data types, and control structures. CO2: Use arrays, functions, and strings to create dynamic PHP programs. CO3: Apply object-oriented concepts and exception handling in PHP. CO4: Build web applications using forms, sessions, and MySQL with PHP.
DSE	HRD240	Fundamentals of Data	CO1: Explain key concepts of data mining, KDD, and its real-

		Science	world applications. CO2: Apply data preprocessing and perform frequent pattern mining using Apriori and FP- Growth. CO3: Implement and evaluate classification techniques and prediction models. CO4: Apply clustering methods and evaluate clustering results.
DSE	HRD250	Digital Marketing	CO1: Identify and differentiate various digital marketing channels and tools. CO2: Create and optimize social media profiles, content, and promotional campaigns. CO3: Design marketing content for different platforms including email, social media, and mobile. CO4 Analyze digital advertisements, campaigns, and metrics to evaluate effectiveness. CO5: Develop and implement a digital marketing plan for real-world business scenarios. CO6: Conduct surveys and research to understand digital tool adoption in small businesses.
AECC	HRD020	*The Vendor of Sweets* and Language Component	CO1: Explain the events, characters, and themes in the 1-4 of *The Vendor of Sweets*. CO2: Analyze the conflicts, relationships, and character development in the 5-8 of *The Vendor of Sweets*. CO3: Evaluate the ending, character transformation, and major themes in the 9-12 of *The Vendor of Sweets*. CO4: Develop effective written communication skills through emails, job application letters with CV/resume, bank correspondence, and business correspondence.
AECC	HRD060	ಬಿಸಿಎ : ಪತ್ರಿಕೆ–4 ಗಣಕ ಕನ್ನಡ–4	CO1: ತಂತ್ರಜ್ಞಾನದ ವಿಚಾರಗಳನ್ನು ಓದುವ ಆಸಕ್ತಿ ಮೂಡಿಸುತ್ತದೆ. CO2: ಮಾನವೀಯ ಮೌಲ್ಯಗಳ ಚಿಂತನೆ ನಡೆಸುವ ಹೊಸ ಬಗೆಯಲ್ಲಿ ಅಭಿವ್ಯಕ್ತಿಸುವ ಅರಿವು ಮೂಡಿಸುತ್ತದೆ. CO3: ಆನ್‌ಲೈನ್ ಗುಂಪು ರಚನೆ ಮತ್ತು ಸಂವಾದ ನಡೆಸಲು ಅವಕಾಶ ನೀಡುತ್ತದೆ. CO4: ಮನುಷ್ಯ ಭಾಂದವ್ಯ ವೃದ್ಧಿಗೆ ಅವಕಾಶ ನೀಡುತ್ತದೆ.
AECC	HRD050	हिंदी कविता एवं गद्य साहित्य और साइबर पत्रकारिता	CO1: स्वतंत्रता, सामाजिक असमानता, स्त्री अनुभव, संघर्ष और मानवाधिकार जैसे विषयों का काव्यात्मक विश्लेषण कर सकेंगे। विविध कवियों की भाषा-शैली, भाव, प्रतीक एवं बिंबों की पहचान कर सकेंगे। आधुनिक हिंदी कविता की विचारधारा और सौंदर्यबोध को समझ पाएँगे। CO2: कहानियों में चित्रित सामाजिक, धार्मिक, जातीय, मानवीय और राजनीतिक मुद्दों की आलोचनात्मक व्याख्या कर सकेंगे। कथा-तत्त्व—कथानक, पात्र, संवाद, प्रतीक आदि—का विश्लेषण करने में सक्षम होंगे। मानव मूल्यों, नैतिकता और सामाजिक न्याय से जुड़े मुद्दों पर संवेदनशील दृष्टि विकसित करेंगे। CO3: संस्मरण, निबंध और व्यंग्य की भाषा-शैली, उद्देश्य और संरचना को समझ सकेंगे। महात्मा गांधी, मोहन राकेश और हरिशंकर परसाई की रचनाओं में निहित वैचारिकता, सामाजिक आलोचना और मानवीय सरोकारों को समझ पाएँगे। गद्य लेखन की विश्लेषणात्मक क्षमता और अभिव्यक्ति का कौशल विकसित करेंगे। CO4: साइबरनेटिक्स और साइबर पत्रकारिता की मूल अवधारणाओं को समझ सकेंगे। इंटरनेट, नेटवर्किंग और डिजिटल संचार प्रणालियों की आधारभूत जानकारी प्राप्त करेंगे। ऑनलाइन पत्रकारिता के इतिहास, महत्व और कार्यप्रणाली का ज्ञान प्राप्त करेंगे।

AECC	HRD090	Drama and Grammar	CO1: Critically analyze *Bhasa's Svapnavasavadatta* as a classical drama, focusing on emotional depth, character arcs, and dramatic aesthetics. CO2: Evaluate dramatic dialogues and structural innovations in Sanskrit plays through practical *Prayoga* (application). CO3: Execute accurate *Bhashantara* (translation) between Sanskrit and Kannada/English, maintaining cultural and grammatical integrity. CO4: Synthesize dramatic theory with practical grammar, enabling independent analysis of Sanskrit literature.

Programme Matrix: Bachelor of Computer Science (BCA): V Semester

Course Type	Course Code	Course Title	Course Outcome
DSC	HME210	Network Security	CO1: Build foundational knowledge. CO2: Focus on cryptography and secure communication CO3: Emphasize practical tools and mechanisms. CO3: Emphasize practical tools and mechanisms. CO4: Introduce advanced, real-world applications and legal aspects
DSC	HME220	Design and Analysis of Algorithms	CO1: Understand fundamental concepts of algorithms and analyze their time and space complexity using asymptotic notations. CO2: Apply brute force and divide-and-conquer techniques to solve searching and sorting problems. CO3: Design solutions for optimization problems using greedy method and understand minimum spanning tree algorithms. CO4: Know the concepts of backtracking and dynamic programming and apply them to solve computational problems.
DSC	HME230	Computer Graphics & Multimedia	CO1: Understand the fundamentals of computer graphics and multimedia. CO2: Apply different graphics algorithms for drawing and displaying graphical objects such as lines, circles and polygons. CO3: Implement geometric transformations such as translation, rotation, scaling, reflection, and shearing in computer graphic. CO4: Analyze multimedia elements such as text, images, audio, video, and animation used in multimedia applications. CO5: Use multimedia tools and software such as Adobe Photoshop, Blender, and Adobe Animate for creating multimedia content.
DSC	HME240	Block chain Technology	CO1: Describe the fundamental concepts of block chain technology including distributed ledger systems, block structure, hashing, and types of block chain. CO2: Demonstrate the role of cryptographic techniques such as hash functions, digital signatures, and public key cryptography in ensuring block chain security. CO3: Analyze the working of cryptocurrencies and Bitcoin including transaction processes, mining, and consensus mechanisms.

			CO4: Apply the concepts of smart contracts and block chain platforms such as Ethereum and Hyper ledger to understand real-world block chain applications.
DSE	HME250	Enterprise Resource Planning	CO1: Understand ERP Fundamentals CO2: Evaluate ERP Marketplace CO3: Manage Implementation Lifecycle CO4: Adapt to Emerging Trends.
DSC	HME260	Fundamentals of Artificial Intelligence	CO1: Explain the basic concepts, history, scope, and applications of Artificial Intelligence. CO2: Describe intelligent agents, their structure, types, and apply basic AI problem- solving and search techniques. CO3: Understand Machine Learning fundamentals including supervised, unsupervised and Reinforcement learning concepts. CO4: Gain the knowledge of representation techniques, logic-based representation and Expert systems. CO5: Demonstrate basic usage of AI tools for simple real-world applications.

Programme Matrix: Bachelor of Computer Science (BCA) - VI Semester

Course Type	Course Code	Course Title	Course Outcome
DSC	HMF210	Scientific Computing Techniques	CO1: Explain the basic concepts, history, scope, and applications of Artificial Intelligence Understand the concepts of computer arithmetic including fixed-point and floating-point representation, normalization, and error analysis in numerical computations. CO2: Apply iterative methods such as Bisection, Newton–Raphson, Regula Falsi, and Secant methods to find roots of polynomial equations. CO3: Solve ordinary differential equations and numerical integration problems using methods such as Euler's method, Runge–Kutta methods, Simpson's rule, and the Trapezoidal rule CO4: Analyze and compute solutions of simultaneous linear equations using numerical techniques such as Gauss Elimination, Gauss–Jordan, LU Decomposition, and Gauss–Seidel methods.
DSC	HMF220	Big Data Analytics	CO1: Identify and list various Big Data concepts, tools and applications. CO2: Describe Hadoop architecture and ecosystem. CO3: Analyze MapReduce data processing. CO4: Understand NoSQL databases and gain the basic knowledge of Hive queries. CO5: Understand social network analysis basics.
DSC	HMF230	Web Content Management System	CO1: Explain the principles of web content development, content formats, and guidelines for creating effective digital multimedia content. CO2: Develop digital media elements such as graphics, audio, presentations, and multilingual web content using appropriate tools. CO3: Design and manage dynamic web content including blogs, wiki sites, and websites using CSS and content

			management techniques.CO4: Analyze multimedia elements such as text, images, audio, video, and animation used in multimedia applications. CO5: Apply modern web technologies and platforms such as Moodle, Joomla, and Drupal for course creation, content management, and online publishing.
DSE	HMF240	Software Project Management	CO1: Understand software project basics. CO2: Analyze the requirements and formulate appropriate plan. CO3: Design Software effort estimation by adopting different project control measures activity planning. CO4: Use resource allocation and risk project management techniques appropriately. CO5: Demonstrate Managing people and organizing teams uploading software quality management guidelines.
DSE	HMF250	Mobile Communication	CO1: Understand the basic concepts of wireless and mobile communication. CO2: Explain multiple access techniques used in mobile communication such as FDMA, TDMA, and CDMA. CO3: Analyze radio propagation mechanisms and wireless transmission techniques used in mobile communication environments. CO4: Focus on cellular network design concepts, including frequency reuse, handoff strategies, and channel allocation.
DSE	HMF260	Power BI	CO2: Import, clean, and transform datasets using tools such as Power Query Editor for effective data preparation. CO2: Create meaningful data visualizations including bar charts, line charts, pie charts, and donut charts to represent business data. CO3: Develop interactive reports and dashboards to analyze key performance indicators (KPIs) and business performance. CO4: Apply data modeling techniques and DAX expressions to establish relationships between tables and generate calculated fields for advanced analysis.