Dr. MGR - JANAKI COLLEGE

VELS

INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University under Section 3 of the UGC Act, 1956)
(ADYAR CAMPUS)

BCA (ARTIFICIAL INTELLIGENCE AND DATA SCIENCE)

Under Credit Based Choice System (CBCS)

PROGRAMME OVERVIEW

Programme Title : B.C.A (Artificial Intelligence and Data Science)

Duration : 3 Years (6 Semesters)

Total Credits : 132

Nature of Programme : Multidisciplinary, Skill-Oriented

PROGRAMME OBJECTIVES

The programme aims to:

- Provide strong foundation in computer science, programming, and software development
- Develop analytical, logical, and problem-solving skills
- Equip students with knowledge in emerging technologies and applications
- Prepare graduates for careers in IT industry and higher education

PROGRAMME OUTCOMES (PO)

Graduates will be able to:

- Apply programming concepts and computational techniques to solve real-world problems
- Design and develop software applications using modern tools and technologies
- Analyze data and implement appropriate solutions using computing principles
- Demonstrate professional ethics, teamwork, and communication skills

CREDIT DISTRIBUTION

Category	Credits
Core Courses (CC)	72
Ability Enhancement Courses (AEC)	18
Skill Enhancement Courses (SEC)	12
Discipline Specific Electives (DSE)	15
Project/Internship	07
Value Added Courses (VAC)	08
Total	**132**

SEMESTER-WISE COURSE STRUCTURE

SEMESTER I

Category	Course Title	Credits
AEC	Tamil I / Hindi I / French I	2
AEC	English I	2
CC	Problem Solving Techniques using C	3
CC	Data Structures	3
CC	Digital Logic and Computer Architecture	3
MDE	Mathematics – I	3
CC Lab	Programming in C Lab	1
CC Lab	Data Structures Lab	1
VAC	Web Programming	1
VAC	Communication Skills	2
SEC	Soft Skills I	2

Total: 25 Credits

SEMESTER II

Category	Course Title	Credits
AEC	Tamil II / Hindi II / French II	2
AEC	English II	2
CC	Object Oriented Programming using C++	3
CC	Open Source Technologies	3
MDE	Mathematics – II	3
CC Lab	OOP using C++ Lab	1
CC Lab	Open Source Lab	1
CC	Computer Graphics and Multimedia	4
VAC	Universal Human Values	1
SEC	Soft Skills II	2

Total: 22 Credits

SEMESTER III

Category	Course Title	Credits
CC	Programming in Java	4
CC	Database Management System	3
CC	Probability and Statistics	3
DSE	Discipline Specific Elective I	3
CC Lab	Java Programming Lab	2
CC Lab	DBMS Lab	2
VAC	Yoga / NSS / NCC / Sports	2
MDE	Indian Knowledge System	2
SEC	Soft Skills III	2

Total: 23 Credits

SEMESTER IV

Category	Course Title	Credits
CC	Python Programming	4
CC	Artificial Intelligence	3
CC	Design and Analysis of Algorithms	3
CC	Computer Networks	3
DSE	Discipline Specific Elective II	3
CC Lab	Python Lab	1
CC Lab	AI Lab	1
VAC	Environmental Studies	2
SEC	Design Thinking and Innovation	2

Total: 22 Credits

SEMESTER V

Category	Course Title	Credits
CC	Natural Language Processing	4
DSE	Discipline Specific Elective III	3
DSE	Discipline Specific Elective IV	5
CC Lab	NLP Lab	2
DSE Lab	Elective Lab	2
SEC	Quantitative Techniques	2
SEC	Internship I	4

Total: 22 Credits

SEMESTER VI

Category	Course Title	Credits
CC	Generative AI	5
DSE	Discipline Specific Elective V	5
DSE	Discipline Specific Elective VI	5
DSE Lab	Elective Lab	2
SEC	Major Project	4

Total: 21 Credits

SKILL DEVELOPMENT & PRACTICAL TRAINING

Students gain exposure to:

- Programming languages such as C, C++, Java, and Python
- Database management systems and software development tools
- Web technologies and application development
- Data structures, algorithms, and problem-solving techniques
- Artificial intelligence and emerging technologies
- Internship training, project development, and industry exposure

MULTIDISCIPLINARY INTEGRATION

Domain	Integrated Areas
Computer Science	Programming, Data Structures, Algorithms, Software Development
Mathematics & Analytics	Statistics, Probability, Quantitative Techniques
Business & Management	IT Management, Entrepreneurship, Business Applications
Digital Technologies	Web Development, AI, Data Science Fundamentals
Research & Innovation	Project Work, Research Methods, Problem Solving

CAREER PATHWAYS

Graduates may pursue:

- Higher education such as MCA, M.Sc (IT/CS), MBA
- Careers in software development, web development, and IT services
- Roles in data analysis, system administration, and technical support
- Opportunities in AI, data science, and emerging technologies
- Government and public sector jobs through competitive examinations