



JECRCTM
UNIVERSITY
BUILD YOUR WORLD

School of Computer ApplicationsKL
Scheme & Syllabus
of
Bachelor of Computer Applications (BCA)
3 Years Full time program
Specialization- Artificial Intelligence and Data Science
Academic Program
July 2026

JECRC University, Jaipur
Plot No. IS-2036 to IS-2039 Ramchandrapura Industrial Area Jaipur, Sitapura, Vidhani,
Rajasthan 303905

| AI-DS Specializations Subjects (BCA) | | | | | | | |
|---|-----------------------|--|--------------------|--------------------|--------------------|----------------|-------------|
| Semester | Code | Course Name | L (Hr.) | T (Hr.) | P (Hr.) | Credits | Type |
| I | BCA520A/ B | Introduction to Artificial Intelligence Machine Learning and Data Science | 3 | 0 | 2 | 4 | SP |
| I | BCA521A/ B | Python for Artificial Intelligence and Data Science | 3 | 0 | 2 | 4 | SP |
| II | BCA522A | Mathematical Foundation for Artificial Intelligence Machine Learning and Data Science | 4 | 0 | 0 | 4 | SP |
| IV | BCA523A/ B | Data Visualization Tools and Techniques | 2 | 0 | 4 | 4 | SP |
| IV | BCA524A/ B | Deep Learning | 3 | 0 | 4 | 5 | SP |
| V | | ELECTIVE (Artificial Intelligence Machine Learning and Data Science) | 4 | 0 | 0 | 4 | SP |
| Total | | | 19 | 0 | 12 | 25 | |

| SEMESTER I | | | | | | | |
|--------------|---------------|---|------------|------------|------------|-----------|------|
| S. No. | Code | Course Name | L (Hr.) | T (Hr.) | P (Hr.) | Credits | Type |
| 1 | BCA520A/ B | Introduction to Artificial Intelligence Machine Learning and Data Science | 3 | 0 | 2 | 4 | SP |
| 2 | BCA925A | Programming in C | 2 | 0 | 0 | 2 | CORE |
| 3 | BCA926A | Programming in C Lab | 0 | 0 | 4 | 2 | CORE |
| 4 | BCA521A/ B | Python for Artificial Intelligence Machine Learning and Data Science | 3 | 0 | 2 | 4 | SP |
| 6 | BCA113B | Operating System | 4 | 0 | 0 | 4 | CORE |
| 7 | DCH010A | Environmental Education | 2 | 0 | 0 | 2 | VAC |
| 8 | BCO570A | Digital Data and AI Literacy | 0 | 0 | 4 | 2 | SEC |
| 9 | DEN001C/ D | Communication Skills/ Communication Skills Lab | 1 | 0 | 2 | 2 | AEC |
| 10 | JIC002A | Entrepreneurship Development | 0 | 0 | 2 | 1 | SEC |
| Total | | | 16 | 0 | 14 | 23 | |

SEMESTER II

| S. No. | Course Code | Course Name | L (Hr.) | T (Hr.) | P (Hr.) | Credits | Type |
|---------------|---------------------|--|----------------|----------------|----------------|----------------|-------------|
| 1 | BCA114B | Database Management Systems | 3 | 0 | 0 | 3 | CORE |
| 2 | BCA126B | Object Oriented Programming Using C++ | 2 | 0 | 0 | 2 | CORE |
| 3 | BCA522A | Mathematical Foundation for Artificial Intelligence Machine Learning and Data Science | 4 | 0 | 0 | 4 | SP |
| 4 | BCA130B | Project Lab Using C++ | 0 | 0 | 4 | 2 | CORE |
| 5 | BCA118B | Database Management Systems Lab | 0 | 0 | 4 | 2 | CORE |
| 6 | IKS001A | Inculcation of Human Values and Professional Ethics in Higher Education Institutions | 2 | 0 | 0 | 2 | VAC |
| 7 | DCO018A | Advance Excel | 0 | 0 | 4 | 2 | SEC |
| 8 | DEN002C/ DEN002D | Professional Skills / Lab | 1 | 0 | 2 | 2 | AEC |
| 9 | | Departmental Elective –1 | 3 | 0 | 0 | 3 | DE |
| Total | | | 15 | 0 | 14 | 22 | |

| SEMESTER III | | | | | | | |
|--------------|-------------|--|-----------|----------|-----------|-----------|------|
| S.No. | Course Code | Course Name | L (Hr.) | T (Hr.) | P (Hr.) | Credits | Type |
| 1 | BCA305A | Data Structures and Algorithms -I | 3 | 0 | 0 | 3 | CORE |
| 2 | BCA133B | Programming in JAVA | 3 | 0 | 0 | 3 | CORE |
| 3 | BCA306A | Data Structures and Algorithms -I Lab | 0 | 0 | 4 | 2 | CORE |
| 4 | BCA136B | Project Lab using JAVA | 0 | 0 | 4 | 2 | CORE |
| 5 | | Open Elective/MOOC | 3 | 0 | 0 | 3 | MD |
| 6 | | Mathematics in India | 2 | 0 | 0 | 2 | VAC |
| 7 | | Leadership and Management Skills | 1 | 0 | 2 | 2 | AEC |
| 8 | | Generative Artificial Intelligence Tools | 0 | 0 | 4 | 2 | SEC |
| | | Total | 12 | 0 | 14 | 19 | |

| SEMESTER IV | | | | | | | |
|-------------|-------------|---|-----------|----------|-----------|-----------|------|
| S. No. | Course Code | Course Name | L (Hr.) | T (Hr.) | P (Hr.) | Credits | Type |
| 1 | BCA523A /B | Data Visualization Tools and Techniques | 3 | 0 | 2 | 4 | S |
| 2 | BCA524A /B | Deep Learning | 3 | 0 | 4 | 5 | S |
| 3 | | Universal Human Values | 2 | 0 | 0 | 2 | VAC |
| 4 | | Health and Yoga | 1 | 0 | 2 | 2 | AEC |
| 5 | | Prompt Engineering for coding | 0 | 0 | 4 | 2 | SEC |
| 6 | | Open Elective/Mooc | 3 | 0 | 0 | 3 | MD |
| | | Total | 12 | 0 | 12 | 18 | |

| SEMESTER V | | | | | | | |
|------------|---|---|-----------|----------|-----------|-----------|-----------|
| S. No. | Course Code | Course Name | L (Hr.) | T (Hr.) | P (Hr.) | Credits | Type |
| 1 | BCA135A | Computer Network | 3 | 0 | 0 | 3 | CORE |
| 2 | | Departmental Elective-5 | 3 | 0 | 0 | 3 | DE |
| | | Departmental Elective-6 | 2 | 0 | 2 | 3 | DE |
| | | Departmental Elective-7 | 3 | 0 | 0 | 3 | DE |
| 3 | BCA147B | Major Project (IOT/Mobile app/AIML/Soft) (IOT/Mobile app/AIML/Soft) | 0 | 0 | 6 | 3 | CORE |
| 4 | Elective (Artificial Intelligence Machine Learning and Data Science) | | 4 | 0 | 0 | 4 | SE |
| | | | | | | | |
| 6 | Open Elective/Mooc | | 3 | 0 | 0 | 3 | MD |
| | | Total | 18 | 0 | 08 | 22 | |

| Semester – VI | | | | | |
|---------------|--------------------------------|---------|---------|---------|------|
| Course Code | Course Name | L (Hr.) | P (Hr.) | Credits | Type |
| BCA165A | Industrial Training/Internship | 0 | 0 | 16 | CORE |

| SEMESTER VII | | | | | | | |
|---------------------|--------------------|---|----------------|----------------|----------------|----------------|-------------|
| S. No. | Course Code | Course Name | L (Hr.) | T (Hr.) | P (Hr.) | Credits | Type |
| 1 | | Literature Review | 3 | 0 | 0 | 3 | CORE |
| 2 | | Statistical Analysis using R | 3 | 0 | 4 | 5 | CORE |
| 3 | | Data Analytics | 3 | 0 | 4 | 5 | CORE |
| 4 | | Scientific Paper Writing | 3 | 0 | 0 | 3 | CORE |
| 5 | | Research Project-I/ Research Internship Report and viva voce | 0 | 0 | 8 | 4 | CORE |
| Total | | | 12 | 0 | 16 | 20 | |

| Semester – VIII | | | | | |
|------------------------|---|----------------|----------------|----------------|-------------|
| Course Code | Course Name | L (Hr.) | P (Hr.) | Credits | Type |
| | Research Project/Capstone Project/ Dissertation (For Research Track) | 0 | 40 | 20 | CORE |