

**School of Computer Applications**

**Scheme & Syllabus**

**of**

**Bachelor of Computer Applications (BCA)**

**3 Years Full time program**

**Specialization- Data Science & Data Analytics**

**(In Association with Samatrix)**

**Academic Program**

**July 2023-24**

JECRC University, Jaipur

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

**Total Credits for the Batch 2023-26 = 132 Credits**

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| **Semester wise credit** | **Credits** |
| **I** | **II** | **III** | **IV** | **V** | **VI** | **Total** |
| **23** | **22** | **26** | **24** | **21** | **16** | **132** |

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| **Semester – I** |
| **S. No.** | **Code** | **Course Name** | **L****(Hr.)** | **T (Hr.)** | **P****(Hr.)** | **Credits** | **Type** |
| **1** | **BCA220A** | **Introduction To AI, Data Science, Ethics and Foundation of Data Analysis**  | **4** | **0** | **0** | **4** | **S** |
| 2 | BCA302A | Fundamental of Computers & Programming in C | 4 | 0 | 0 | 4 | CORE |
| 3 | BCA114B | Database Management Systems | 3 | 1 | 0 | 4 | CORE |
| 4 | BCA118B | Database Management Systems Lab | 0 | 0 | 2 | 1 | CORE |
| 5 | BCA303A | Fundamental of Computers & Programming in C Lab | 0 | 0 | 2 | 1 | CORE |
| 6 | DCH001A | Environmental Studies | 4 | 0 | 0 | 4 | ID |
| 7 | DEN001A/DEN001B | Communication Skills/ Communication Skills Lab  | 2 | 0 | 2 | 3 | ID |
| 8 | DIN001A | Culture Education-I  | 2 | 0 | 0 | 2 | ID |
|  |  | **Total** | **19** | **1** | **8** | **23** |  |

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| **Semester – II** |
| **S. No.** | **Course Code** | **Course Name** | **L****(Hr.)** | **T (Hr.)** | **P (Hr.)** | **Credits** | **Type** |
| **1** | **BCA221A** | **Data Analysis using Python** | **3** | **0** | **0** | **3** | **S** |
| 2 | BCA126B | Object Oriented Programming Using C++ | 3 | 0 | 0 | 3 | CORE |
| 3 | BCA300A | Python Programming  | 3 | 0 | 0 | 3 | CORE  |
| 4 | BCA113B |  Operating System | 3 | 0 | 2 | 4 | CORE |
| **5** | **BCA222A** | **Probabilistic Modeling & Reasoning** | **3** | **0** | **0** | **3** | **S** |
| 6 | BCA130B | Project Lab Using C++ | 0 | 0 | 2 | 1 | CORE |
| 7 | BCA301A | Python Programming Lab | 0 | 0 | 2 | 1 | CORE |
| 8 | DIN002A | Culture Education-II  | 2 | 0 | 0 | 2 | ID |
| 9 | DEN002A/DEN002B | Professional Skills/Professional Skills Lab  | 2 | 0 | 2 | 2 | ID |
|  |  | Total | **19** | **0** | **08** | **22** |  |

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|  **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** | **BCA223A** | **R Programming for Data Science & Analysis** | **3** | **0** | **0** | **3** | **S** |
| 3 | BCA133B | Programming in JAVA | 4 | 0 | 0 | 4 | CORE |
| **4** | **BCA224A** | **Foundation of Machine Learning & Pattern Recognition** | **3** | **0** | **0** | **3** | **S** |
| 5 | BCA306A | Data Structures and Algorithms -I Lab  | 0 | 0 | 2 | 1 | CORE |
| 6 | BCA136B | Project Lab using JAVA | 0 | 0 | 2 | 1 | CORE |
| 7 | DMA051B | Mathematical Foundation | 3 | 1 | 0 | 4 | F |
| 8 | DEN003A | Life Skills - 1 (Personality Development) | 1 | 0 | 2 | 2 | F |
| 9 | DIN003A | Value Education and Ethics -1 | 1 | 0 | 2 | 2 | F |
| 10 |  Open Elective | 3 | 0 | 0 | 3 | GE |
|  |  | **Total** | **18** | **1** | **10** | **26** |  |

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| **Semester – IV** |
| **S. No.** | **Course Code** | **Course Name** | **L****(Hr.)** | **T (Hr.)** | **P (Hr.)** | **Credits** | **Type** |
| **1** | **BCA225A** | **Data Science- Tools & Techniques** | **3** | **0** | **0** | **3** | **S** |
| 2 | BCA127A | Software Engineering | 4 | 0 | 0 | 4 | CORE |
| 3 | BCA307A | Data Structures and Algorithms – II | 4 | 0 | 0 | 4 | CORE |
| **4** | **BCA226A** | **Project**  | **0** | **0** | **2** | **3** | **S** |
| 5 | BCA308A | Data Structures and Algorithms - II Lab | 0 | 0 | 2 | 1 | CORE |
| 6 | DMA003A | Life Skills - 2 (Aptitude) | 1 | 0 | 2 | 2 | F |
| 7 | DIN004A | Value Education and Ethics -2 | 1 | 0 | 0 | 1 | F |
| 8 | Departmental Elective – I (202/300) | 3 | 0 | 0 | 3 | E |
| 9 |  Open Elective | 3 | 0 | 0 | 3 | GE |
|  |  | **Total** | **20** | **0** | **6** | **24** |  |

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|  **Semester – V** |
| **S.No.** | **Course Code** | **Course Name** | **L****(Hr.)** | **T (Hr.)** | **P****(Hr.)** | **Credits** | **Type** |
| 1 | BCA163A | Introduction to Cloud Computing  | 4 | 0 | 0 | 4 | CORE |
| 2 | BCA317A | Information Security Essentials | 4 | 0 | 0 | 4 | CORE |
| 3 | BCA318A | Information Security Lab  | 0 | 0 | 2 | 1 | CORE |
| 4 | BCA180A | Cloud Computing Lab  | 0 | 0 | 2 | 1 | CORE |
| 5 | BCA147B | Major Project | 0 | 0 | 2 | 1 | CORE |
| 6 | Departmental Elective –II  | 3 | 0 | 0 | 3 | E |
| 7 | Departmental Elective –III  | 3 | 0 | 1 | 4 | E |
| 8 | Open Elective | 3 | 0 | 0 | 3 | GE |
|  |  | **Total** | **17** | **0** | **7** | **21** |  |

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