**GIRIJANANDA CHOWDHURY UNIVERSITY**

**MCA (2 YR) SYLLABUS**

(Wef Session 2023-24)

**BRIDGE COURSE**

**( For Non Comp SC/ IT Students)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Theory/**  **Practical** | **Sl. No** | **Course Type** | **Course Code** | **Course Name** | **Hours per week** | | | **Credit** | **Mark** | |
| L | T | P | C | CA | FA |
| **T** | **1** | **BRIDGE COURSE** | **MCA001T** | **Bridge Course ( Theory )**   * Computer Organization * Programming Fundamentals * Computer Networks | **4** | **0** | **0** | **0** | 40 | 60 |
| **P** | **2** | **BRIDGE COURSE** | **MCA021P** | **Bridge Course ( Lab)**   * C Programming   Office Automation Software | **0** | **0** | **4** | **0** | 40 | 60 |

**SEMESTER-I**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Theory/**  **Practical** | **Sl. No** | **Course Type** | **Course Code** | **Course Name** | **Hours per week** | | | **Credit** | **Mark** | |
| L | T | P | C | CA | FA |
| **T** | **1** | **DSCC** | **MCA23 501T** | Programming Techniques using Python | **3** | **0** | **0** | **3** | 40 | 60 |
| **T** | **2** | **DSCC** | **MCA23 502T** | Computer Organization and architecture | **3** | **0** | **0** | **3** | 40 | 60 |
| **T** | **3** | **DSCC** | **MCA23 503T** | Introduction to data Science | **3** | **1** | **0** | **4** | 40 | 60 |
| **T** | **4** | **DSCC** | **MCA23 504T** | Web Technology | **3** | **0** | **0** | **3** | 40 | 60 |
| **T** | **5** | **AEC** | **MCA23 505T** | Personality and Soft Skill development | **3** | **0** | **0** | **3** | 40 | 60 |
| **P** | **6** | **DSCC** | **MCA23 521P** | Programming Lab (Python) | **0** | **0** | **4** | **2** | 40 | 60 |
| **P** | **7** | **DSCC** | **MCA23 522P** | Web Technology Lab | **0** | **0** | **4** | **2** | 40 | 60 |
|  | | | | | **15** | **1** | **8** | **20** | 280 | 420 |

**SEMESTER-II**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Theory/**  **Practical** | **Sl. No** | **Course Type** | **Course Code** | **Course Name** | **Hours per week** | | | **Credit** | **Mark** | |
| L | T | P | C | CA | FA |
| **T** | **1** | DSCC | **MCA23 506T** | Data Structures and algorithms | **3** | **0** | **0** | **3** | 40 | 60 |
| **T** | **2** | DSCC | **MCA23 507T** | Database Management Systems | **3** | **0** | **0** | **3** | 40 | 60 |
| **T** | **3** | DSCC | **MCA23 508T** | Object Oriented Programming using Java | **3** | **0** | **0** | **3** | 40 | 60 |
| **T** | **4** | OEC | **MCA23 53XT** | **Elective-I** ( As per Table-I) | **3** | **1** | **0** | **4** | 40 | 60 |
| **T** | **5** | DSCC | **MCA23 509T** | Data Communication and Computer Networks | **3** | **0** | **0** | **3** | 40 | 60 |
| **P** | **6** | DSCC | **MCA23 523P** | Object Programming Lab using Java | **0** | **0** | **4** | **2** | 40 | 60 |
| **P** | **7** | DSCC | **MCA23 524P** | DBMS Lab ( SQL/ NoSQL) | **0** | **0** | **4** | **2** | 40 | 60 |
|  | | | | | **15** | **1** | **8** | **20** | 280 | 420 |

**SEMESTER-III**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Theory/**  **Practical** | **Sl. No** | **Course Type** | **Course Code** | **Course Name** | **Hours per week** | | | **Credit** | **Mark** | |
| L | T | P | C | CA | FA |
| **T** | **1** | DSCC | **MCA23 601T** | Artificial Intelligence and machine learning | 3 | 0 | 0 | 3 | 40 | 60 |
| **T** | **2** | DSCC | **MCA23 602T** | Operating Systems | 3 | 1 | 0 | 3 | 40 | 60 |
| **T** | **3** | OEC | **MCA23 63XT** | Elective-II ( As per Table-I) | 3 | 1 | 0 | 4 | 40 | 60 |
| **T** | **4** | DSCC | **MCA23 604T** | Software Engineering | 3 | 0 | 0 | 3 | 40 | 60 |
| **T** | **5** | DSCC | **MCA23 605T** | Distributed systems | 3 | 0 | 0 | 3 | 40 | 60 |
| **P** | **6** | DSCC | **MCA23 621P** | System Administration and Shell Programming | 0 | 0 | 4 | 2 | 40 | 60 |
| **P** | **7** | DSCC | **MCA23 622P** | Machine learning Lab | 0 | 0 | 4 | 2 | 40 | 60 |
|  | | | | | 12 | 4 | 8 | 20 | 240 | 360 |

**SEMESTER-IV**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Theory/**  **Practical** | **Sl. No** | **Course Type** | **Course Code** | **Course Name** | **Hours per week** | | | **Credit** | **Mark** | |
| L | T | P | C | CA | FA |
| **T** | **1** | VAC | **MCA23 601T** | Universal Human Values (Through Swayam) | 2 | 0 | 0 | 0 | 40 | 60 |
| **T** | **2** | OEC | **MCA23 6XXT** | Elective-III(Through Swayam) | 3 | 0 | 0 | 3 | 40 | 60 |
| **T** | **3** | OEC | **MCA23 6XXT** | Elective-IV(Through Swayam) | 3 | 0 | 0 | 3 | 40 | 60 |
| **P** | **4** | DSCC=8  SEC=6 | **MCA23 623P** | System Development Project | - | - | \* | 14 | 40 | 60 |
|  | | | | | **8** | **0** | **0** | **20** | 160 | 240 |

**TABLE-I**

**OPEN ELECTIVE COURSES (SPECIALIZATION)**

|  |  |  |  |
| --- | --- | --- | --- |
| CODE | Elective-I | CODE | Elective-II |
| **MCA23 531T** | Advanced web Technology | **MCA23 631T** | Big data analytics |
| **MCA23 532T** | Cloud Computing | **MCA23 632T** | Graph Theory and its applications |
| **MCA23 533T** | Data warehousing and Data mining | **MCA23 633T** | Statistical and multivariate analysis |
| **MCA23 534T** | Natural Language Processing | **MCA23 634T** | Deep Learning |
| **MCA23 535T** | Malware Analysis and Intrusion Detection | **MCA23 635T** | Cyber Forensics, Audit and Investigation |
| **MCA23 536T** | Bioinformatics And Sequence Analysis | **MCA23 636T** | Biomedical Data Analysis |
| **MCA23 537T** | Cyber Security | **MCA23 637T** | Information Theory and coding |

**( MOOCS : SWAYAM COURSES)**

|  |  |  |  |
| --- | --- | --- | --- |
| **CODE** | **Elective-III** | **CODE** | **Elective-IV** |
| **MCA23 641T** | Quantum Computing | **MCA23 671T** | Internet of Things/ Introduction to Internet Of Things |
| **MCA23 642T** | Molecular Computing | **MCA23 672T** | Image Processing/ Digital Image Processing |
| **MCA23 643T** | Nano Technology | **MCA23 673T** | Wireless Networks |
| **MCA23 644T** | Robotics | **MCA23 674T** | Android Mobile Application Dev |
| **MCA23 645T** | Remote Sensing & GIS/ Remote Sensing | **MCA23 675T** | Database and Content Organization |
| **MCA23 646T** | Mobile Computing | **MCA23 676T** | Cloud Computing |
| **MCA23 647T** | Remote Sensing and GIS for rural development | **MCA23 677T** | Bioinformatics |
| **MCA23 648T** | Cyber Security | **MCA23 678T** | Simulation and Modeling |
| **MCA23 649T** | Introduction to Cyber Security | **MCA23 679T** | Foundation of cryptography |
| **MCA23 650T** | Big Data Computing | **MCA23 680T** | Computer Vision and Image Processing |
| **MCA23 651T** | Deep learning | **MCA23 681T** | Data Analytics With Python |
| **MCA23 652T** | Blockchain and its Applications | **MCA23 682T** | Privacy and Security In Online Social Media |
| **MCA23 653T** | AI Knowledge Representation and Reasoning | **MCA23 683T** | Cryptography and network security |
| **MCA23 654T** | Ethical hacking | **MCA23 684T** | Competitive Programming |

**(or any other Course added time to time)**