**BHARATHIAR UNIVERSITY, COIMBATORE-641 046**

**(For the students admitted from the academic year 2022-2023 onwards)**

**B.Sc. Data Science (CBCS pattern)**

**SCHEME OF EXAMINATIONS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Part** | **Study Components** | **Course Title** | **Ins. hrs / week(Theory)** | **Examinations** | | | | **Credits** |
| **Dur. Hrs.** | **CIA** | **End Sem Exam** | **Total** |
|  | **SEMESTER –I** | | | | | | | |
| I | Language-I | | 6 | 3 | 50 | 50 | 100 | 4 |
| II | English-I | | 6 | 3 | 50 | 50 | 100 | 4 |
| III | Core 1: Computer Fundamentals and Python  Programming | | 4 | 3 | 50 | 50 | 100 | 4 |
| III | Core 2: Database Management System with SQL | | 4 | 3 | 50 | 50 | 100 | 4 |
| III | Core Lab 1: Python Programming & SQL Lab | | 4 | 3 | 25 | 25 | 50 | 3 |
| III | Allied Paper I: Descriptive Statistics | | 4 | 3 | 50 | 50 | 100 | 3 |
| IV | Environmental Studies # | | 2 | 3 | - | 50 | 50 | 2 |
|  | **Total** | | **30** |  | **275** | **325** | **600** | **24** |
|  | **SEMESTER –II** | | | | | | | |
| I | Language-II | | 6 | 3 | 50 | 50 | 100 | 4 |
| II | English-II | | 4 | 3 | 25 | 25 | 50 | 3 |
| III | Core 3: Data Analytics | | 5 | 3 | 50 | 50 | 100 | 3 |
| III | Core Lab 2: Advanced Excel Lab | | 4 | 3 | 25 | 25 | 50 | 2 |
| III | Core Lab 3: Internet Basics Lab | | 2 | 3 | 25 | 25 | 50 | 2 |
| III | Allied Paper II: Mathematical Foundations  for Machine Learning | | 5 | 3 | 50 | 50 | 100 | 4 |
| IV | Value Education – Human Rights # | | 2 | 3 | - | 50 | 50 | 2 |
|  | NaanMuthalvan - Skill Course Effective English http://kb.naanmudhalvan.in/images/c/c7/Cambridge\_Course\_Details.pdf | | 2 | 3 | 25 | 25 | 50 | 2 |
|  | **Total** | | **30** |  | **250** | **300** | **550** | **22** |
|  | **SEMESTER –III** | | | | | | | |
| I | Language – III | | **4** | 3 | 50 | 50 | 100 | 4 |
| II | English-III | | **4** | 3 | 25 | 25 | 50 | 4 |
| III | Core 5: Data Engineering | | **4** | 3 | 50 | 50 | 100 | 3 |
| III | Core 6: Artificial Intelligence | | **4** | 3 | 50 | 50 | 100 | 3 |
| III | Core 7: Applied Data Structures | | **3** | 3 | 30 | 45 | 75 | 2 |
| III | Core Lab 5: ETL Lab | | **3** | 3 | 25 | 25 | 50 | 2 |
| III | Allied Paper III: Inferential Statistics | | **4** | 3 | 50 | 50 | 100 | 3 |
| IV | Skill based Subject-1: Mini project using Python Programming / Advanced Excel | | **2** | 3 | 25 | 25 | 50 | 2 |
| IV | Tamil @ / Advanced Tamil # (or) Non-Major Elective–I:  Yoga for Human Excellence # / Women’s Rights # Constitution of India # | | **2** | 3 | - | 50 | 50 | 2 |
|  | Naan mudhalvan skill course-programming essential for employability | | **2** | 3 | 25 | 75 | 100 | 2 |
|  | **Total** | | **32** |  | **330** | **445** | **775** | **27** |
|  | **SEMESTER –IV** | | | | | | | |
| I | Language – IV | | **4** | 3 | 50 | 50 | 100 | 4 |
| II | English-III | | **4** | 3 | 25 | 25 | 50 | 4 |
| III | Core 8: R Programming | | **4** | 3 | 50 | 50 | 100 | 3 |
| III | Core 9: Machine Learning Techniques | | **4** | 3 | 50 | 50 | 100 | 3 |
| III | Core Lab 6: R Programming Lab | | **3** | 3 | 25 | 25 | 50 | 2 |
| III | Allied Paper IV: Digital Marketing | | **3** | 3 | 30 | 45 | 75 | 3 |
| IV | Skill based Subject-2: Optimization Techniques | | **4** | 3 | 25 | 25 | 50 | 2 |
| IV | Tamil @ / Advanced Tamil # (or)  Non-major elective -II : General Awareness # | | **2** | 3 | - | 50 | 50 | 2 |
|  | NaanMuthalvan – Skill Course Office Fundamentals - Lab http://kb.naanmudhalvan.in/Bharathiar\_University\_(BU) | | **2** | 3 | 25 | 25 | 50 | 2 |
|  | **Total** | | **30** |  | **280** | **345** | **625** | **25** |
|  | **SEMESTER –V** | |  |  |  |  |  |  |
| III | Core 10: Data Visualization | | 6 | 3 | 50 | 50 | 100 | 4 |
| III | Core 11: Deep Learning | | 6 | 3 | 50 | 50 | 100 | 4 |
| III | Core Lab 7: Data Visualization Lab | | 6 | 3 | 25 | 25 | 50 | 3 |
| III | Elective–I: | | 6 | 3 | 50 | 50 | 100 | 4 |
| IV | Skill based Subject-3: Social Media Analytics | | 6 | 3 | 25 | 25 | 50 | 3 |
|  | Naan mudhalvan skill course –cloud and IT essential for employability | | 2 | 3 | 25 | 75 | 100 | 2 |
|  | **Total** | | **32** |  | **225** | **275** | **475** | **20** |
|  | **SEMESTER –VI** | |  |  |  |  |  |  |
| III | Core 12: Natural Language Processing | | 6 | 3 | 50 | 50 | 100 | 4 |
| III | Core Lab 8: Natural Language Processing Lab | | 3 | 3 | 25 | 25 | 50 | 3 |
| III | Core 13: Project Work Lab %% | | 4 | 3 | 60 | 90 | 150 | 4 |
| III | Elective –II: | | 6 | 3 | 50 | 50 | 100 | 4 |
| III | Elective –III: | | 6 | 3 | 50 | 50 | 100 | 4 |
| IV | Skill based Subject-4: Capstone Project using  Python or R Programming, Data Visualization Tools. | | 3 | 3 | 25 | 25 | 50 | 3 |
| V | Extension Activities@ | | - | - | 50 | - | 50 | 2 |
|  | **Naan Muthalvan - Skill Course Cyber Security @ http://kb.naanmudhalvan.in/images/7/71/Cybersecurity.pdf (or) Machine Learning # http://kb.naanmudhalvan.in/images/1/19/PBL\_Google.pdf (or) Android APP Development $ http://kb.naanmudhalvan.in/images/0/08/Android\_App\_Dev.pdf** | | 2 |  | 25 | 25 | 50 | 2 |
|  | **Total** | | **30** |  | **335** | **315** | **650** | **26** |
|  | **Grand Total** | |  |  | **1695** | **2005** | **3700** | **144** |

# No Continuous Internal Assessment (CIA). Only University Examinations.   
@ No University Examinations. Only Continuous Internal Assessment (CIA).

\*\*\* Certificate Mandatory (No CIA and CEE) - Add-On Courses: Naan Mudhalvan Scheme : [www.naanmudhalvan.tn.gov.in](http://www.naanmudhalvan.tn.gov.in)

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| **S. No** | **Semester** | **Name of the course** | **Offered by** | **Link** |
| 1 | I | English | Cambridge | [www.naanmudhalvan.tn.gov.in](http://www.naanmudhalvan.tn.gov.in) |
| 2 | II | Business English | STEP | [www.naanmudhalvan.tn.gov.in](http://www.naanmudhalvan.tn.gov.in) |
| 3 | III | IT Courses | Infosys springboard | <https://infosysspringboard.ausnz.onwingspan.com/> |
| 4 | IV | Entrepreneurship Skills | TANSIM | [www.naanmudhalvan.tn.gov.in](http://www.naanmudhalvan.tn.gov.in) |
| 5 | V | IT Courses | Infosys - springboard | <https://infosysspringboard.ausnz.onwingspan.com/> |
| 6 | VI | Life Skills | Mahindra Pride | [www.naanmudhalvan.tn.gov.in](http://www.naanmudhalvan.tn.gov.in) |

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| **List of Elective Papers (Colleges can choose any one of the paper as electives)** | | |
| **Elective – I** | **A** | Marketing Analytics |
| **B** | Data Security and Compliance |
| **C** | Computer Vision |
| **Elective – II** | **A** | Supply Chain and Logistics Analytics |
| **B** | Business and Financial Analytics |
| **C** | Recommender system |
| **Elective - III** | **A** | HR Analytics |
| **B** | Data Mining |
| **C** | Big Data and Cloud Computing |
|  |  |  |