

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
*(Formerly West Bengal University of Technology)*  
**Syllabus for M. Sc. In Data Science**  
**(Effective for Academic Session 2019-2020)**

**COURSE STRUCTURE**

**1<sup>ST</sup> YEAR**

| SL No               | CODE    | Paper  | Contact Periods per week |   |   | Total Contact Hours | Credits |
|---------------------|---------|--|--------------------------|---|---|---------------------|---------|
|                     |         |  | L                        | T | P |                     |         |
| <b>SEMESTER I</b>   |         |  |                          |   |   |                     |         |
| <b>Theory</b>       |         |  |                          |   |   |                     |         |
| 1                   | MDS101  | Statistical Methods                            | 3                        | 1 |   | 4                   | 4       |
| 2                   | MDS102  | Data Base Management System                    | 3                        | 1 |   | 4                   | 4       |
| 3                   | MDS103  | Programming using Python                       | 3                        | 1 |   | 4                   | 4       |
| 4                   | MDS104  | Fundamentals of Analytics                      | 3                        | 1 |   | 4                   | 4       |
| <b>Practical</b>    |         |  |                          |   |   |                     |         |
| 1                   | MDS191  | Analytics Lab I                                | 1                        | 1 | 2 | 4                   | 4       |
| 2                   | MDS192  | DBMS Lab                                       | 1                        | 1 | 2 | 4                   | 4       |
| 3                   | MDS193  | Python Lab                                     | 2                        |   | 2 | 4                   | 4       |
| <b>Total Credit</b> |         |  | <b>28</b>                |   |   |                     |         |
| <b>SEMESTER II</b>  |         |  |                          |   |   |                     |         |
| <b>Theory</b>       |         |  |                          |   |   |                     |         |
| 1                   | MDS201  | Modeling Techniques                            | 3                        | 1 |   | 4                   | 4       |
| 2                   | MDS202  | Advanced Programming in Python                 | 3                        | 1 |   | 4                   | 4       |
| 3                   | MDS203  | Data Warehousing                               | 3                        | 1 |   | 4                   | 4       |
| 4                   | MDS204  | Data Visualisation using Business Intelligence | 3                        | 1 |   | 4                   | 4       |
| 5                   | MDS 205 | Cloud Computing                                | 3                        | 1 |   | 4                   | 4       |
| <b>Practical</b>    |         |  |                          |   |   |                     |         |
| 1                   | MDS291  | Advanced Python Lab                            | 1                        | 1 | 2 | 4                   | 4       |
| 2                   | MDS292  | Analytics Lab II                               | 2                        |   | 2 | 4                   | 4       |
| <b>Total Credit</b> |         |  | <b>28</b>                |   |   |                     |         |

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**2<sup>ND</sup> YEAR**

| SL No               | CODE     | Paper                                | Contact Periods per week         |   |   | Total Contact Hours | Credits |
|---------------------|----------|--------------------------------------|----------------------------------|---|---|---------------------|---------|
|                     |          |                                      | L                                | T | P |                     |         |
| <b>SEMESTER III</b> |          |                                      |                                  |   |   |                     |         |
| <b>Theory</b>       |          |                                      |                                  |   |   |                     |         |
| 1                   | MDS301   | Time Series Analysis and Forecasting | 3                                | 1 |   | 4                   | 4       |
| 2                   | MDS302   | Data Mining                          | 3                                | 1 |   | 4                   | 4       |
| 3                   | MDS303   | Big Data Technology                  | 3                                | 1 |   | 4                   | 4       |
| 4                   | MDS304   | Design and Analysis of Algorithm     | 3                                | 1 |   | 4                   | 4       |
| 5                   | MDS305   | Machine Learning                     | 3                                | 1 |   | 4                   | 4       |
| <b>Practical</b>    |          |                                      |                                  |   |   |                     |         |
| 1                   | MDS391   | Data Mining Lab                      | 3                                | 1 |   | 4                   | 4       |
| 2                   | MDS392   | Big Data Technology and OLTP Lab     | 1                                |   | 3 | 4                   | 4       |
| <b>Total Credit</b> |          |                                      | <b>28</b>                        |   |   |                     |         |
| <b>SEMESTER IV</b>  |          |                                      |                                  |   |   |                     |         |
| <b>Theory</b>       |          |                                      |                                  |   |   |                     |         |
| 1                   | MDSE401A | Elective-I                           | Internet Of Things               | 3 | 1 | 4                   | 4       |
|                     | MDSE401B |                                      | Green Computing                  |   |   |                     |         |
|                     | MDSE401C |                                      | Optimization Techniques          |   |   |                     |         |
| 2                   | MDSE402A | Elective-II                          | Soft Computing                   | 3 | 1 | 4                   | 4       |
|                     | MDSE402B |                                      | Data Security and Authentication |   |   |                     |         |
|                     | MDSE402C |                                      | Game Theory                      |   |   |                     |         |
| <b>Sessional</b>    |          |                                      |                                  |   |   |                     |         |
| 1                   | MDS481   | Major Project                        | 3                                | 1 |   | 4                   | 4       |
| 2                   | MDS482   | Grand Viva                           | 3                                | 1 |   | 4                   | 4       |
| <b>Total Credit</b> |          |                                      | <b>16</b>                        |   |   |                     |         |