



*Maulana Azad*  
**NATIONAL INSTITUTE OF TECHNOLOGY, Bhopal-462003**  
**DEPARTMENT OF CIVIL ENGINEERING**  
**M. Tech. in CIVIL Engineering**  
*With Specialization in: Geotechnical Engineering*  
**SCHEME OF STUDY (Revised April 2020)**

**FIRST SEMESTER**

| Course No.                           | Subject                                    | Scheme of Studies<br>Periods per week |   |   | Total<br>Credits |
|--------------------------------------|--|---------------------------------------|---|---|------------------|
|                                      |  | L                                     | T | P |                  |
| MTH101GE                             | Advanced Mathematics                       | 3                                     | 1 | - | 4                |
| GE 102                               | Advanced Geotechnical Engineering          | 3                                     | 1 | - | 4                |
| GE 103                               | Advanced Foundation Engg                   | 3                                     | 1 | - | 4                |
| GE 104                               | Soil Dynamics                              | 3                                     | 1 | - | 4                |
|                                      | Elective 1(A)                              | 3                                     | 1 | - | 4                |
|                                      | Elective 2(B)                              | 3                                     | 1 | - | 4                |
| GE 105                               | Lab-1                                      | -                                     | - | 2 | 1                |
| GE 106                               | Seminar-1                                  | -                                     | - | 2 | 1                |
| GE 107                               | Communication Skills/NPTEL/MOOC/Hum. Dept. | 2                                     | - | - | 2                |
| <b>Total Hours 30</b>                |  | <b>Total credits</b>                  |   |   | <b>28</b>        |
| <b>Total Credits (Cumulative) 28</b> |  |                                       |   |   |                  |

**SECOND SEMESTER**

| Course No.                           | Subject  | Scheme of Studies<br>Periods per week |   |   | Total<br>Credits |
|--------------------------------------|--|---------------------------------------|---|---|------------------|
|                                      |  | L                                     | T | P |                  |
| GE 201                               | Design and Construction of Machine Foundation            | 3                                     | 1 | - | 4                |
| GE202                                | Ground Improvement Techniques                            | 3                                     | 1 | - | 4                |
| GE203                                | Reinforced Soil Structures                               | 3                                     | 1 | - | 4                |
|                                      | Elective 3(A)  | 3                                     | 1 | - | 4                |
|                                      | Elective 4(A)  | 3                                     | 1 | - | 4                |
|                                      | Elective 5(C)  | 3                                     | 1 | - | 4                |
| GE204                                | Lab - 2  | -                                     | - | 2 | 1                |
| GE205                                | Research Methodology, Technical Report and Paper Writing | -                                     | 2 | - | 2                |
| GE206                                | Seminar - 2  | -                                     | - | 2 | 1                |
| <b>Total hours30</b>                 |  | <b>Total Credits</b>                  |   |   | <b>28</b>        |
| <b>Total Credits (Cumulative) 56</b> |  |                                       |   |   |                  |

**THIRD SEMESTER**

| Course No.  | Subject              | Scheme of Studies Period<br>per week |   |    | Total<br>Credits |
|---|----------------------|--------------------------------------|---|----|------------------|
|   |                      | L                                    | T | P  |                  |
| GE 301  | Dissertation Phase-1 | -                                    | - | 24 | 12               |
| <b>Total Hours 24</b><br><b>Total Credits (Cumulative) 68</b> |                      | <b>Total Credits</b>                 |   |    | <b>12</b>        |

**FOURTH SEMESTER**

| Course No.  | Subject              | Scheme of Studies Period<br>per week |   |    | Total<br>Credits |
|---|----------------------|--------------------------------------|---|----|------------------|
|   |                      | L                                    | T | P  |                  |
| GE 401  | Dissertation Phase-2 | -                                    | - | 24 | 12               |
| <b>Total Hours 24</b><br><b>Total Credits (Cumulative) 80</b> |                      | <b>Total Credits</b>                 |   |    | <b>12</b>        |

## **LIST OF ELECTIVES**

### **Group – A Program Electives**

GE 501 Forensic Geotechnical Engineering  
GE 502 Environmental Geotechniques  
GE 503 Geotechnical Investigations and Field Testing of Soils  
GE 504 Critical State Soil Mechanics  
GE 505 Rock mechanics and Engineering Geology  
GE 506 Expansive and Shrinkable Soils  
GE 507 Strength and Deformation Behavior of Soils  
GE 508 Earthquake Engineering  
GE 509 Constitutive Soil Mechanics  
GE 510 Software Application in Geotechnical Engineering

### **Group – B Department Electives (for other programs of same department only)**

GE601 Advanced Geotechnical Engineering  
GE602 Advanced Foundation Engineering  
GE603 Soil Dynamics  
GE604 Geotechnical Investigations and Field Testing of Soils  
GE605 Earthquake Engineering

### **Group – C Institute Electives (for other departments only)**

GE701 Design and Construction of Machine Foundation  
GE702 Ground Improvement Techniques  
GE703 Reinforced Soil Structures  
GE704 Environmental Geotechniques