

**DEPARTMENT OF METALLURGICAL ENGINEERING AND MATERIALS SCIENCE**  
Credit Structure and semester-wise scheduling of courses for M.Tech. Programme

Specialization: **Materials Science**

|                      | CREDITS        |               |                |               |                      |
|----------------------|----------------|---------------|----------------|---------------|----------------------|
| <b>Course Work</b>   | <b>Sem I</b>   | <b>Sem II</b> | <b>Sem III</b> | <b>Sem IV</b> | <b>Total Credits</b> |
| Core Courses         | 24             | 12            | -              | -             | 36                   |
| Electives (**)       | 6              | 12            | 6              | -             | 24                   |
| Ins. Elective        | -              | 6             | -              | -             | 6                    |
| Lab. Course          | 3              | 3             | -              | -             | 6                    |
| Seminar              | -              | 4             | -              | -             | 4                    |
| R&D Project*         | -              | -             | -              | -             | -                    |
| Communication Skills | +6             | -             | -              | -             | +6                   |
| Training             | -              | -             | -              | -             |                      |
| Course Total         | 33 (+6)        | 37            | 06             | -             | 76 +6                |
| Project              | -              |               | 50*            | 40            | 90                   |
| <b>Total Credits</b> | <b>33 (+6)</b> | <b>37</b>     | <b>56</b>      | <b>40</b>     | <b>166 +6</b>        |

\* Registration in II Semester (January)

\*\*There are a total of 2 courses under this item listed above as “Electives”. Out of these one course must be taken from the Restricted Electives basket, and the other can be any course from the department.

[P.T.O. for semester-wise scheduling of courses]

**First Semester**

| <b>Course No.</b>                         | <b>Course Name</b>                                                                                                                                                                                | <b>L T P C</b>                                           |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| MM651                                     | Thermodynamics of Materials                                                                                                                                                                       | 3 0 0 6                                                  |
| MM 759                                    | Structure and Defects                                                                                                                                                                             | 3 0 0 6                                                  |
| MM 685                                    | Electrical Materials: fundamentals and applications                                                                                                                                               | 3 0 0 6                                                  |
|                                           |                                                                                                                                                                                                   |                                                          |
| MM 732                                    | Structural Characterization of Materials                                                                                                                                                          | 3 0 0 3 (Half semester course to run in the First Half)  |
| MM 733 /<br>MM 734 /<br>MM 735/<br>MM 729 | Mechanical Characterization of Materials/<br>Electrical characterization of Materials/<br>Materials Characterization at High Temperatures/<br>Characterization of Materials for Corrosion Control | 3 0 0 3 (Half semester course to run in the Second Half) |
|                                           | Department Open Elective I                                                                                                                                                                        | 3 0 0 6                                                  |
| MM 768                                    | Materials processing and characterization Lab I (Thin film techniques)                                                                                                                            | 0 0 3 3                                                  |
| MM 899                                    | Communication and Presentation Skills                                                                                                                                                             | 1 2 0 6 <sup>#</sup>                                     |
|                                           | Total Credits                                                                                                                                                                                     | <b>33+6</b>                                              |

PP/NP Course, L – Lecture, T – Tutorial, P – Practical, C – Credit

**Second Semester**

|        |                                             |         |
|--------|---------------------------------------------|---------|
| MM 677 | Diffusion and Kinetics                      | 3 0 0 6 |
| MM 730 | Topics in Mechanical Behaviour of Materials | 3 0 0 6 |
|        | Department Open Elective II                 | 3 0 0 6 |
|        | Department Open Elective III                | 3 0 0 6 |
|        | Institute Elective I                        | 3 0 0 6 |

|        |                                                                    |           |
|--------|--------------------------------------------------------------------|-----------|
| MM 769 | Materials processing and characterization Lab II (Bulk techniques) | 0 0 3 3   |
| MM 694 | Seminar                                                            | 0 0 0 4   |
|        | Total Credits                                                      | <b>37</b> |

### **Third Semester**

|        |                             |           |
|--------|-----------------------------|-----------|
|        | Department Open Elective IV | 3 0 0 6   |
| MM 797 | Project Stage I             | 50        |
|        | Total Credits               | <b>56</b> |

### **Fourth Semester**

|        |                  |           |
|--------|------------------|-----------|
| MM 798 | Project Stage II | <b>40</b> |
|--------|------------------|-----------|