

Department of Metallurgical Engineering and Materials Science
Course Requirement for PhD Programme
(With effect from Batch Joining July 2024)

1. Course requirements

1.1 Course Requirements for students admitted with M-Tech degree

- 4 full-semester courses (minimum 24 credits)
 - 2 fundamental courses (from list of 6 courses shown below)
 - 2 specialization courses relevant to the research area (600-level and above)
- 1 Ph.D. seminar course (4 credits) (can be with any faculty including PhD guide)

Total credits – 28 minimum (Institute requirement 22 credits + Dept. requirement 6 credits)

1.2 Course requirements for students admitted with B.Tech./M.Sc. Degree

- 7 courses (minimum 42 credits)
 - 6 full-semester courses
 - 2 fundamental courses (from list of 6 courses shown below)
 - 4 specialization courses relevant to the research area (600-level and above)
 - 1 Free elective for 6 credits or more – can be 2 half-semester courses. UG/PG as per institute rules.
 - 1 Ph.D. seminar course (can be with any faculty including PhD guide) – 4 credits
- minimum Total credits – 46 minimum** (< institute requirements of maximum credits 56)

2. List of Six Fundamental Courses

- Thermodynamics of Materials (**MM 651**)
- Diffusion and Kinetics (**MM 677**)
- Electronic Properties of Materials (**MM 685**)
- Mechanical Behaviour of Materials (**MM 730**)
- X-ray diffraction and Electron Microscopy (**MM 684**)
- Structure and Defects (**MM 759**)

3. Guidelines for Selection of Specialisation Courses

- Must be relevant to the research area – preferably selected in consultation with PhD guide
- Students need to justify their choices to show relevance to their research area/ thesis
- One specialisation course can be a 600 or higher level from outside the department
- If additional specialisation courses are from outside the department (600-level and above), strong additional justification must be provided (approved by DPGC)
- Must be theory courses at 600 level or higher. Lab courses cannot be taken as specialisation courses.