

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

## MATERIALS RESEARCH CENTRE

### Scheme for M. Tech in Semiconductor Materials and Devices

#### Semester I

S. No.	Course Title	Course Category	Type	Credits	L-T-P
1	Fundamentals of Semiconductor Materials	Core	Theory	3	3-0-0
2	Structural and Functional Characterization of Materials	Core	Theory	3	3-0-0
3	Semiconductor Material Characterization lab	Core	Lab	3	0-0-6
4	Program Elective-I	Elective	Theory	3	3-0-0
5	Program Elective-II	Elective	Theory	3	3-0-0
6	Program Elective-III	Elective	Theory	3	3-0-0

#### List of Elective Courses in Semester I

S. No.	Course Title	Course Category	Type	Credits	L-T-P
1	Physical Processes in Microfabrication	Elective	Theory	3	3-0-0
2	Electronic Oxide Materials	Elective	Theory	3	3-0-0
3	Materials for Flexible Electronics	Elective	Theory	3	3-0-0
4	Computational Methods in Material Science	Elective	Theory	3	3-0-0
5	Energy Materials and Their Applications	Elective	Theory	3	3-0-0
6	2D Materials: Synthesis, Properties and Applications	Elective	Theory	3	3-0-0

## Semester II

S. No.	Course Title	Course Category	Type	Credits	L-T-P
1	Thin Film Technology	Core	Theory	3	3-0-0
2	Physics of Semiconductor Devices	Core	Theory	3	3-0-0
3	Semiconductor Device Characterization Lab	Core	Lab	3	0-0-6
4	Program Elective- IV	Elective	Theory	3	3-0-0
5	Program Elective-V	Elective	Theory	3	3-0-0
6	Open Elective-I	Elective	Theory	3	3-0-0

## List of Elective Courses in Semester II

S. No.	Course Title	Course Category	Type	Credits	L-T-P
1	Quantum Heterostructures and Their Applications	Elective	Theory	3	3-0-0
2	Electronic Materials and Devices	Elective	Theory	3	3-0-0

3	Machine Learning for Materials Science	Elective	Theory	3	3-0-0
4	Compound Semiconductor Devices	Elective	Theory	3	3-0-0
5	Photonics Technology	Elective	Theory	3	3-0-0
6	Electrochemical Processes in Semiconductors	Elective	Theory	3	3-0-0

### Semester III

S. No.	Course Title	Course Category	Type	Credit	L	T	P
1	Seminar	Program Core	-	3	0	0	6
2	Dissertation - I	Program Core	-	9	0	0	18

### Semester IV

S. No.	Course Title	Course Category	Type	Credit	L	T	P
1	Dissertation - II	Program Core	-	12	0	0	24