

SHIV NADAR

INSTITUTION OF EMINENCE DEEMED TO BE
UNIVERSITY

DELHI NCR

BTech Mechanical Engineering

Priorities for our new curriculum

Our curriculum transformation is guided by four strategic priorities that reflect the evolving demands of engineering education and industry needs. These foundational principles ensure our graduates emerge as innovative, adaptable professionals ready to lead in a rapidly changing technological landscape.

- Hands-On Learning
- Interdisciplinary Systems
- Critical Thinking
- Emerging Technologies

CREDIT DISTRIBUTION: SEMESTER-WISE - Semester I

SEMESTER I: 20 Credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	PHY1001	Fields, Waves, and Quanta	3:1:1	5
2	MAT1003	Multivariate Calculus	3:1:0	4
3	CSD1001	Problem Solving Using Programming	3:0:1	4
4	ECE1001	The Electron's Path: Fundamentals of EEE	2:0:1	3
5	SOE4801	Introduction to Engineering: Ideas to Impact	1:0:1	2
6	SNS1001	Nature's Code: Chemistry and Biology	2:0:0	2
Semester Credits				20

CREDIT DISTRIBUTION: SEMESTER-WISE - Semester II

SEMESTER II: 18 Credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	TBA	Forces in Action	2:0:1	3
2	MAT1004	Linear Systems and Transforms	3:1:0	4
3	ECE1002	Connected Intelligence: Sensors and IoT	2:0:1	3
4	TBA	The Matter of Materials	2:0:0	2
5	SOE4802	Design to Reality: CAD and 3D Printing	0:1:1	2
6	CCC	Environment & Sustainability	3:1:0	4
Semester Credits				18

CREDIT DISTRIBUTION: SEMESTER-WISE - Semester III

SEMESTER III: 23 Credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED2001	Materials Science & Engineering	2:0:1	3
2	MED2002	Manufacturing Technology I	2:0:1	3
3	MED2003	Mechanics of Solids	3:0:1	4
4	MED2004	Mechanics of Fluids	3:0:1	4
5		CCC-1		3
6		CCC-2		3
7		UWE-1		3
Semester Credits				23

CREDIT DISTRIBUTION: SEMESTER-WISE - Semester IV

SEMESTER IV: 24 Credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED2005	Kinematics & Dynamics of Machines	3:0:1	4
2	MED2006	Engineering Thermodynamics	2:1:0	3
3	MED2007	Manufacturing Technology II	2:0:1	3
4	MED2008	Principles of Industrial Engineering	3:0:0	3
5	MED2009/ MED4801	Computer-Aided Design [Experiential Learning: 2 credits]	2:0:1	3
6	MED2101	Computer-Aided Manufacturing	2:0:0	2
7		CCC-3		3
8		UWE-2		3
Semester Credits				24

CREDIT DISTRIBUTION: SEMESTER-WISE - Semester V

SEMESTER IV: 23 Credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED2005	Applied Thermodynamics	2:1:0	3
2	MED2006	Heat and Mass Transfer	3:0:1	4
3	MED2007	Operations Research	2:1:0	3
4	MED2008	Mechatronics & Control System [Experiential Learning: 2 credits]	3:0:1	4
5	MED2009/ MED4801	Machine Design	3:0:0	3
6	MED2101	Major Elective - 1		3
7		UWE-3		3
Semester Credits				23

CREDIT DISTRIBUTION: SEMESTER-WISE - Semester VI

SEMESTER VI: 22 Credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED3006	I. C. Engines & Automobiles	3:0:1	4
2	MED33xx	Major Elective - 2		3
3	MED33xx	Major Elective - 3		3

4	MED33xx	Major Elective - 4		3
5		CCC-4		3
6		UWE-4		3
7		UWE-5		3
Semester Credits				22

CREDIT DISTRIBUTION: SEMESTER-WISE - Semester VII

SEMESTER VII: 21 Credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED4901	Project I	0:0:6	6
2	MED42xx	Major Elective - 5		3
3	MED42xx	Major Elective - 6		3
4	MED42xx	Major Elective - 7		3
5		UWE-6		3
6		CCC/UWE		3
Semester Credits				21

CREDIT DISTRIBUTION: CATEGORY-WISE | Major Elective [21 credits]

MAJOR ELECTIVE [3rd Year onwards]: 21 credits				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED3301	Finite Element Method	3:0:0	3
2	MED3302	Mechanical Vibrations	3:0:0	3
3	MED3303	Fundamentals of Hydrogen Fuel Cells	2:0:1	3
4	MED3304	Energy Conversion Tech and Energy Management	3:0:0	3
5	MED3305	Soft Robotics	2:0:1	3
6	MED3306	Electric Vehicle Technology	3:0:0	3
7	MED3307	Adv. Comp. Programming & Numerical Techniques	2:0:1	3
8	MED3308	Computational Fluid Dynamics	3:0:0	3
9	MED3309	Solar Energy	2:0:1	3
10	MED3310	Fluid Machinery	2:0:1	3
11	MED3311	Industrial Automation	2:0:1	3
12	MED3312	Advanced Machine Design	3:0:0	3
13	MED3313	Mechanics of Soft Materials	3:0:0	3
14	MED4201	Mechanics of Composite Structures	3:0:0	3
15	MED4202	Power Plant Engineering	3:0:0	3
16	MED4203	Refrigeration and Air Conditioning	2:0:1	3
17	MED4204	Robotics	2:0:1	3
18	MED4205	Energy Storage & Conversion Devices for Electric Vehicles	2:0:1	3
19	MED4206	Supply Chain Management	3:0:0	3

CREDIT DISTRIBUTION: CATEGORY-WISE | Major Electives [21 credits]

MAJOR ELECTIVE (3rd Year onwards) 21 Credits

SPECIALIZATION TRACKS [12 credits of major electives]

Track 2: Energy Technology [12 credits]				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED3303	Fundamentals of Hydrogen Fuel Cells	2:0:1	3
2	MED3304	Energy Conversion Tech and Energy Management	3:0:0	3
3	MED3308	Computational Fluid Dynamics	3:0:0	3
4	MED3309	Solar Energy	2:0:1	3
5	MED3310	Fluid Machinery	2:0:1	3
6	MED4202	Power Plant Engineering	3:0:0	3
7	MED4203	Refrigeration and Air Conditioning	2:0:1	3
8	MED4205	Energy Storage & Conversion Devices for Electric Vehicles	2:0:1	3

INTERDISCIPLINARY SPECIALIZATION TRACKS

Interdisciplinary Track 1 : E-Mobility [12 credits] MED-ECE-CSD				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED3306	Electric Vehicle Technology	3:0:0	3
2	ECE3310	EV Converters and Power Train	2:0:1	3
3	CSD4236	Connected Car Technology	2:0:1	3
4	MED4205	Energy Storage & Conversion Devices for Electric Vehicles	2:0:1	3
5	CSD4209	Computer Vision	2:0:1	3
6	ECE4203	Digital Control of Power Converter	2:0:1	3

INTERDISCIPLINARY SPECIALIZATION TRACKS

Interdisciplinary Track 2 : Cognitive Robotics [12 credits] MED-ECE-CSD				
S.No.	Course Code	Course Title	L:T: P	Credits
1	MED4204	Robotics	2:0:1	3
2	ECE3318	Modern Control Systems	2:0:1	3
3	MED3305	Soft Robotics	2:0:1	3
4	CSD4209	Computer Vision	2:0:1	3
5	MED3311	Industrial Automation	2:0:1	3
6	ECE3311	IoT- Architecture, Communication Technology and Applications	2:0:1	3
7	ECE4206/ CSD4210	Foundations of Deep Learning	3:0:0	3

INTERDISCIPLINARY SPECIALIZATION TRACKS

Interdisciplinary Track 3 : Computational Mechanics [12 credits] MED-CHD-CED				
S.No.	Course Code	Course Title	L:T: P	Credits
1	TBA	Modelling & Simulation for Engineering Systems	TBA	3
2	MED3301	Finite Element Method	3:0:0	3
3	MED3308	Computational Fluid Dynamics	3:0:0	3
4	MEDxxxx	Fracture Mechanics	TBA	3
5	CEDxxxx	Continuum Mechanics	TBA	3
6	CHDxxxx	Molecular Simulation	TBA	3
7	TBA	Optimization Methods for Engineering Process & Design	TBA	3
8	TBA	Computational Multiphase Flows	TBA	3

1: Mandatory course.

2-3: One of these courses is mandatory.

4-8: Two out of these courses to be credited