

SHIV NADAR

INSTITUTION OF EMINENCE DEEMED TO BE
UNIVERSITY
DELHI NCR

2025-29 UG batch: B.Tech Curriculum Overview

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

1-3: Mandatory courses

4-6: One out of these courses to be credited.

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

1-2: Mandatory courses

3-7: Two out of these courses to be credited.

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.