

SR UNIVERSITY
Department of Mechanical Engineering
R25 Course Structure

I SEM						
Sl. No.	Course Code	Course	L	R	P	C
1	25MEC104PC101	Graphics Design and Modeling	1	0	4	3
2	25MEC104ES101	Product Design Studio	1	0	4	3
3	25EEE312ES103	Electrical and Electronics Engineering	3	1	2	4.5
4	25MAT310BS101	Calculus and Differential Equations	3	1	0	3.5
5	25SCI312BS105	Applied Physics and Chemistry for Mechanical Engineering	3	1	2	4.5
Total			11	3	12	18.5
		Total Lecture Hours will be 16				
II SEM						
			L	R	P	C
1	25MEC310PC102	Mechanics for Engineers	3	1	0	3.5
2	25ECE104ES101	Smart Product Design	1	0	4	3
3	25MAT310BS102	Linear Algebra and Numerical Methods	3	1	0	3.5
4	25HUM204HS101	Life Skills: Entrepreneurship, Language, Communication, and Personality	3	1	2	4.5
5		Open Elective - I	2	0	2	3
6	25SCI202BS106	Computational Chemistry and Biology	2	0	2	3
7	25HUM300HS102	Ancient Knowledge and Constitution of India	3	0	0	3
Total			17	3	10	23.5
		Hobbies, Co-Curricular and Extra-Curricular Elective	0	0	2	1
Total Credits Till First Year						43
III SEM						
			L	R	P	C
1	25MEC310PC201	Thermodynamics	3	1	0	3.5
2	25MEC302PC202	Mechanics of Solids	3	0	2	4
3	25MEC302PC203	Material Science Engineering	3	0	2	4
4	25MEC300PC204	Machines and Mechanisms	3	0	0	3
5	25CAI214ES210	Problem Solving Using Python	2	1	4	4.5
6	25MEC302PC205	Manufacturing Technology	3	0	2	4
Total			17	2	10	23
IV SEM						
			L	R	P	C
1	25MEC302PC206	Fluid Mechanics	3	0	2	4
2	25MEC302PC207	Applied Thermodynamics	3	0	2	4
3		Professional Elective-I	2	0	2	3
4		Specialization Core-I	3	0	2	4
5	25MEC302PC208	Additive Manufacturing	3	0	2	4
6	25MAT310BS103	Probability and Statistics	3	1	0	3.5
Total			14	0	10	22.5
Total Credits Till Second Year						88.5
V SEM						
			L	R	P	C
1	25MEC302PC301	Machine Tools and Metrology	3	0	2	4
2	25MEC310PC302	Machine Design	3	1	0	3.5
3	25HUM104HS202	Quantitative Aptitude and Logical Reasoning	1	0	4	3
4	25MEC302ES301	AI for Mechanical Engineering	3	0	2	4
5	25CIV200ES303	Sustainability and Ethical Innovation	2	0	0	2
6	25MEC002PR301	Undergraduate Research in Mechanical Engineering	0	0	2	1
7		Specialization Core-II	3	0	2	4
Total			15	1	12	21.5

VI SEM						
			L	R	P	C
1	25MEC300PC303	Design of Power Transmission Elements	3	0	0	3
2	25MEC006PC304	CAD/CAM	0	0	6	3
3	25MEC204PC305	Finite Element Method	2	0	4	4
4	25HUM104HS201	Critical Thinking and Interpersonal Skills	1	0	4	3
5	25MEC302PC306	Heat Transfer	3	0	2	4
6		Specialization Elective - I	2	0	2	3
Total			11	0	18	20
Total Credits Till Third Year						130
VII SEM						
			L	R	P	C
1		Open Elective-II	2	0	2	3
2		Professional Elective - II	2	0	2	3
3		Professional Elective - III	2	0	2	3
4		Professional Elective - IV	2	0	2	3
5		Specialization Elective - II	2	0	2	3
6	25MEC010PR401	Capstone Project	0	0	10	5
Or						
1	25MEC040PR402	Industrial Project/ R&D Project/ Industry Internship/Start-up/Externship	0	0	40	20
Total			0	0	40	20
VIII SEM						
			L	R	P	C
1	25MEC040PR403	Major Project/Industrial Project/ R&D Project/ Industry Internship/Start-up/Externship	0	0	40	20
Total			0	0	40	20
Total Credits						170
Smart Manufacturing Specialization Core						
			L	R	P	C
1	25MEC302SC201	Smart Manufacturing	3	0	2	4
2	25MEC302SC301	Digital Manufacturing System Design	3	0	2	4
Robotics and Automation Specialization Core						
			L	R	P	C
1	25MEC302SC202	Robotics and Automation	3	0	2	4
2	25MEC302SC302	Robotic System Design	3	0	2	4
Professional Elective						
			L	R	P	C
Professional Elective-I						
1	25MEC202PE201	Production & Operations Management	2	0	2	3
2	25MEC202PE202	Mechanical Vibrations	2	0	2	3
Professional Elective - II						
1	25MEC202PE401	Production Planning and Control	2	0	2	3
2	25MEC300PE402	Refrigeration and Air Conditioning	3	0	0	3
Professional Elective - III						
1	25MEC202PE403	Factory Automation	2	0	2	3
2	25MEC300PE404	Power Plant Engineering	3	0	0	3
Professional Elective - IV						
1	25MEC202PE405	Unconventional Machining Process	2	0	2	3
2	25MEC202PE406	Computational Fluid Dynamics	2	0	2	3
		Specialization Elective - I (Smart Manufacturing)				

1	25MEC202SE301	Industrial IoT	2	0	2	3	
2	25MEC202SE302	Smart Materials	2	0	2	3	
		Specialization Elective - I (Robotics and Automation)					
1	25MEC300SE303	Sensors and Control for Robotics	3	0	0	3	
2	25MEC300SE304	AI in Robotics	3	0	0	3	
		Specialization Elective - II (Smart Manufacturing)					
1	25MEC202SE401	Data Analytics in Manufacturing	2	0	2	3	
2	25MEC202SE402	Advanced Digital Technology in Manufacturing	2	0	2	3	
		Specialization Elective - II (Robotics and Automation)					
1	25MEC300SE403	Robotics Operating System	3	0	0	3	
2	25MEC300SE404	Machine Vision & Safety	3	0	0	3	
Courses for Honors in Mechanical Engineering							
			L	R	P	C	
		Semester III					
1	25MEC302HN401	Advanced Solid Mechanics	3	0	2	4	
		Semester IV					
2	25MEC302HN402	Precision Manufacturing	3	0	2	4	
		Semester V					
3	25MEC302HN403	Advanced Heat and Mass Transfer	3	0	2	4	
		Semester VI					
4	25MEC302HN404	Sustainable Manufacturing	3	0	2	4	
Courses for Minors in Smart Manufacturing							
			L	R	P	C	
		Semester III					
1	25MEC302MN401	Introduction to Digital Manufacturing and Design	3	0	0	4	
		Semester IV					
2	25MEC302MN402	Foundations of Smart Manufacturing	3	0	2	4	
		Semester V					
3	25MEC302MN403	3D Printing	3	0	2	4	
		Semester VI					
4	25MEC302MN404	Mechatronics	3	0	2	4	
Open Elective							
			L	R	P	C	
1	25CAI202OE401	Fundamentals of Database Management Systems	2	0	2	3	CSE
2	25CAI202OE402	Fundamentals of Data Structures	2	0	2	3	
3	25CAI202OE403	Analysis and Design of Algorithms	2	0	2	3	
4	25ECE300OE404	Principles of Communication	3	0	0	3	
5	25ECE300OE405	Sensors and Transducers	3	0	0	3	ECE
6	25ECE300OE405	Design for Social Impact	3	0	0	3	
7	25EEE300OE406	Introduction to Electric Vehicle Technologies	3	0	0	3	EEE
8	25EEE202OE407	Introduction to PLC Programming	3	0	0	3	
9	25MEC300OE408	Operations Research	3	0	0	3	ME
10	25MEC202OE409	3D Printing	2	0	2	3	
11	25MEC300OE410	Renewable Energy Resources	3	0	0	3	
12	25CIV300OE411	Disaster Management	3	0	0	3	CE
13	25CIV300OE412	Pollution and Control Engineering	3	0	0	3	
14	25CIV300OE413	Smart Cities	3	0	0	3	
15	25BUS300OE414	Digital Marketing	3	0	0	3	SoB
16	25BUS300OE415	Startup Launch	3	0	0	3	
17	25BUS300OE416	Finance for Engineers	3	0	0	3	
18	25SCI202OE417	Space Physics	2	0	2	3	Bas Scien
19	25SCI202OE418	Nanomaterials & Technology	2	0	2	3	

20	25SCI202OE419	AI for Drug Discovery	2	0	2	3	ce	c
21	25MAT300OE420	Integral Transforms & Partial Differential Equation	3	0	0	3		
22	25MAT300OE421	Optimization Techniques	3	0	0	3	Math	
23	25HUM202OE422	LSRW Language Skills	2	0	2	3		
24	25HUM300OE423	Learning How to Learn	3	0	0	3	ENGLISH	
25	25HUM300OE424	German for Professionals	3	0	0	3		
26	25HUM202OE425	Japanese Language and Culture	2	0	2	3		
27	25HUM202OE426	Spanish for Global Work Place	2	0	2	3		
Hobbies, Co-Curricular and Extra-Curricular (HCE) Electives								
			L	R	P	C		
1	25HUM002AU401	NSS	0	0	2	1		
2	25HUM002AU402	Club	0	0	2	1		
3	25HUM002AU403	Sports	0	0	2	1		
4	25HUM002AU404	Community Services	0	0	2	1		
5	25HUM002AU405	Hobby	0	0	2	1		
6	25HUM002AU406	Summer Internship	0	0	2	1		
7	25HUM002AU407	Boot Camp	0	0	2	1		
8	25HUM002AU408	Music	0	0	2	1		
9	25HUM002AU409	Dance	0	0	2	1		
10	25HUM002AU410	Fitness	0	0	2	1		
11	25HUM002AU411	Photography	0	0	2	1		
12	25HUM002AU412	Cooking	0	0	2	1		
13	25HUM002AU413	Hackathon	0	0	2	1		
		Flexible Courses for Open and Professional Electives	L	R	P	C		
1	25HUM202CR401	Industry Certification	3	0	0	3		
2	25HUM300CR402	Professional Skill Development Training	3	0	0	3		
3	25HUM300CR403	Self Paced Learning	3	0	0	3		

Minor Courses offered by NEST						
S.No.	Course Code	Course	L	R	P	C
1	25BUS400MN401	Startup Garage	4	0	0	4
2	25BUS400MN402	Startup Launch and Business Operation	4	0	0	4
3	25BUS400MN403	Digital Marketing	4	0	0	4
4	25BUS400MN404	Growth Hacking	4	0	0	4