

DAYANANDA SAGAR UNIVERSITY

ShavigeMalleshwara Hills, Kumaraswamy Layout,
Bengaluru - 560078, Karnataka.

SCHOOL OF ENGINEERING



SCHEME & SYLLABUS FOR BACHELOR OF TECHNOLOGY (B.Tech.) – 2021

MECHANICAL ENGINEERING

(MECH)

(3rd to 8th SEMESTER)

(WITH EFFECT FROM 2021 - 22)

PROPOSED SCHEME - B.TECH – 2021 -22 ONWARDS

SEMESTER III

Sl. No.	Course Code	Course	$\frac{AU}{CR}$	Scheme of Teaching				
				Lecture	Tutorial	Practical	Seminar /Project	No of Credits
1	21ME2301	COMPLEX VARIABLES & NUMERICAL METHODS	CR	03	01	--	-	04
2	21ME2302	Engineering Materials	CR	02	--	02	--	03
3	21ME2303	Machining Process and Metrology	CR	02	--	02	--	03
4	21ME2304	Thermodynamics	CR	03	--	--	--	03
5	21ME2305	Computer Aided Machine Drawing	CR	01	--	04	--	03
6	21ME2306	Fundamentals of Artificial Intelligence & Machine Learning	CR	03	--	--	--	03
7	21ME2307	Special Topic- I	CR	--	--	--	04	02
8	21ME2308	Economics for Engineers	CR	02	--	--	--	02
TOTAL				16	01	08	04	23

BS-Basic Science, PC- Professional Core, LS-Liberal Science, CR – Credit, AU – Audit, CIA – Continuous Internal Assessment

DEPARTMENT OF MECHANICAL ENGINEERING
PROPOSED SCHEME - B.TECH. – 2021 -22 ONWARDS

SEMESTER IV

Sl. No.	Course Code	Course	AU CR	Scheme of Teaching				
				Lecture	Tutorial	Practical	Seminar/ Project	No of Credits
1	21ME2401	Applied Thermal Engineering	CR	03	--	02	--	04
2	21ME2402	Manufacturing Process	CR	02	--	02	--	03
3	21ME2403	Mechanics of Solids	CR	03	01	--	--	04
4	21ME2404	Fluid Mechanics and Machines	CR	03	--	02	--	04
5	21ME2405	Kinematics of Mechanism and Machines	CR	03	01	--	--	04
6	21ME2406	Special Topic -II	CR	--	--	--	04	02
7	21ME2407	Law for Engineers	CR	02	--	--	--	02
TOTAL				16	02	06	04	23

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DEPARTMENT OF MECHANICAL ENGINEERING
PROPOSED SCHEME - B.TECH – 2021 -22 ONWARDS
SEMESTER V

Sl. No.	Course Code	Course	AU CR	Scheme of Teaching					Scheme of Evaluation		Pre-requisite
									CIA	End Exam	
				L	T	P	S/P	C			
1	21ME3501	Heat Transfer	CR	03	--	02	--	04	60	40	21ME2304
2	21ME3502	Dynamics of Machines and Mechanism	CR	02	--	02	--	03	60	40	- -
3	21ME3503	Design of Machine Elements	CR	03			--	03	60	40	21ME2302
4	21ME3504	Digital Manufacturing	CR	03	--	--	--	03	60	40	
5	21ME35XX	Professional Elective – I	CR	03	--	--	--	03	60	40	-
6	21ME35XX	Professional Elective – II	CR	03	--	--	--	03	60	40	
7	21OEXXXX	Open Elective – I	CR	03	--	--	--	03	60	40	- -
8	21ME3505	Liberal Studies	CR	02	--	--		02	60	40	- -
Grand Total 800				22	--	04	--	24	480	320	

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PROFESSIONAL ELECTIVE -I			
S.No	Course Code	Course Title	Group
1	21ME3506	Introduction to robotics and Automation	ROBOTICS & AUTOMATION
2	21ME3507	Additive Manufacturing Technology	ADDITIVE MANUFACTURING
3	21ME3508	Introduction to Hybrid & Electric Vehicles	HYBRID & ELECTRIC VEHICLES
4	21ME3509	Refrigeration and Air Conditioning	GENERAL
5	21ME3510	Tool Design	

PROFESSIONAL ELECTIVE -II			
S.No	Course Code	Course Title	Group
1	21ME3511	Drives & Control systems	ROBOTICS & AUTOMATION
2	21ME3512	Electrical Machines and Power Systems	
3	21ME3513	Materials for Additive Manufacturing	ADDITIVE MANUFACTURING
4	21ME3514	Automotive Chassis & Transmission Systems	HYBRID & ELECTRIC VEHICLES
6	21ME3515	Renewable Energy Sources	GENERAL

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PROPOSED SCHEME – B.TECH – 2021 -22 ONWARDS

SEMESTER VI

Sl. No.	Course Code	Course	$\frac{AU}{CR}$	Scheme of Teaching					Scheme of Evaluation		Pre-requisite
				Lecture	Tutorial	Practical	Seminar/Project	No of Credits	CIA	End Exam	
1	21ME3601	Machine Design Practice	CR	02	01	02	--	04	60	40	Mechanics of solids(IV)
2	21ME3602	Finite Element Analysis	CR	03	--	02	--	04	60	40	
3	21ME3603	Control Systems Engineering	CR	03	--	02	--	04	60	40	
4	21ME36XX	Professional Elective – III	CR	03	--		--	03	60	40	
5	21ME36XX	Professional Elective – IV	CR	03	--	--	--	03	60	40	--
6	21OEXXXX	Open Elective – II	CR	03	--	---	---	03	60	40	--
7	21ME3604	Liberal Studies	CR	01	--	--	--	01	60	40	--
Grand Total 800				18	01	08	--	22	420	280	

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PROFESSIONAL			
S.No	Course Code	Course Title	Group
1	21ME3605	Robot Kinematics and Dynamics	ROBOTICS & AUTOMATION
2	21ME3606	Industrial Automation-I	
3	21ME3607	Computational Tools for Additive Manufacturing	ADDITIVE MANUFACTURING
4	21ME3608	HEV / EV System Design Architecture	HYBRID & ELECTRIC

PROFESSIONAL ELECTIVE -IV			
S.No	Course Code	Course Title	Group
1	21ME3609	Noise, Vibration and Harshness	GENERAL
2	21ME3610	Experimental methods for Mechanical Engineers	ROBOTICS & AUTOMATION
3	21ME3611	Rapid Tooling and Industrial Applications	ADDITIVE MANUFACTURING
4	21ME3612	Fundamental of Drives and DC Machine Modelling	HYBRID & ELECTRIC VEHICLES

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PROPOSED SCHEME - B.TECH – 2021 -22 ONWARDS

SEMESTER VII

S l. N o .	Course Code	Course	$\frac{AU}{CR}$	Scheme of Teaching					Scheme of Evaluati on		Pre- requis ite
				Lect ure	Tuto rial	Pra ctic al	Semi nar/ Proj ect	No of Cre dit s	CI A	En d Ex am	
1	21ME47X X	Profession al Elective – V/MOOC	C R	03	--	--	--	03	60	40	--
2	21ME47X X	Profession al Elective – VI	C R	03	--	--	--	03	60	40	--
3	21OEXXX X	Open Elective-III	C R	03	--	--		03	60	40	--
4	21ME470 1	Project Stage-I	C R	--	---	---	06	03	60	40	--
Grand Total 260				09	--	--	06	12	2 4 0	16 0	--

PC- Professional Core, PE- Professional Elective, P/S-Project/Seminar, CR – Credit, AU – Audit, CIA – Continuous Internal Assessment

PROFESSIONAL ELECTIVE -V			
S.No	Course Code	Course Title	Group
1	21ME4702	Industrial Automation-II	ROBOTICS & AUTOMATION
2	21ME4703	Automation System Design	
3	21ME4704	Introduction to Composite Materials	ADDITIVE MANUFACTURING
4	21ME4705	CAD/CAM for Additive Manufacturing	
5	21ME4706	Vehicle Dynamics Advanced Powertrain	HYBRID & ELECTRIC VEHICLES
6	21ME4707	Advanced Energy Storage	
7	21ME4708	Internal Combustion Engines	GENERAL
8	21ME4709	MEMS (Micro Electro Mechanical Systems)	
9	21ME4710	MOOC	

PROFESSIONAL ELECTIVE -VI			
S.No	Course Code	Course Title	Group
1	21ME4711	Robot Vision Systems	ROBOTICS & AUTOMATION
2	21ME4712	Robot Programming	
3	21ME4713	Intelligent Manufacturing Systems	ADDITIVE MANUFACTURING
4	21ME4714	Powder Metallurgy Manufacturing	
5	21ME4715	Power train Integration in HEV	HYBRID & ELECTRIC VEHICLES
6	21ME4716	Energy management and control strategies	
7	21ME4717	FEM- Structural Mechanics Applications	GENERAL
8	21ME4718	Computational Fluid Dynamics	

DEPARTMENT OF MECHANICAL ENGINEERING
PROPOSED SCHEME - B.TECH. – 2021 -22 ONWARDS
SEMESTER VIII

Sl. No.	Course Code	Course Code	$\frac{AU}{CR}$	Scheme of Teaching					Scheme of Evaluation		Pre - requisite
									C o n t i n u o u s	Exami nation	
				Le ct ur e	Tu tor ial	Pra ctic al	Se mi nar / Pro ject	No of Cre dits		End Exam	
1	21ME48XX	Professional Elective -VII	CR	03	--	--	--	03	60	40	--
2	21ME4801	Project Stage-II	CR	--	--	06	12	09	60	40	---
Grand Total		200		03	--	06	12	12	120	80	--

PE- Professional Elective, P/S-Project/Seminar, CR – Credit, AU – Audit, CIA – Continuous Internal Assessment

PROFESSIONAL ELECTIVE -VII			
S . N o	Course Code	Course Title	Group
1	21ME4802	Advanced AI for Robotics	ROBOTICS & AUTOMATION
2	21ME4803	Robot Simulation & offline Programming	
3	21ME4804	Additive Manufacturing for Medical Applications	ADDITIVE MANUFACTURING
4	21ME4805	Sustainable Manufacturing	
5	21ME4806	Advanced Propulsion Systems for Hybrid Electric Drive Vehicles	HYBRID & ELECTRIC VEHICLES
6	21ME4807	Automotive Electronics for EV's	

7	21ME4808	Tribology and Bearing Design	GENERAL
8	21ME4809	Principles of Fracture Mechanics	

Categories of Courses for Liberal Studies

1. Physical Education: Sports, Yoga, Marathon/Jogging, NCC, Dance
2. Psychology: Positive Psychology, Mindfulness,
3. Linguistic and communication: **Technical Communication(2)**,, Public Speaking, Group Discussions Japanese, German, **kannada (1)**, Modern Indian Languages
4. Life Skills: Aptitude, Interview skills, Research methodology
5. Management, **Economics (2)** and Entrepreneurship courses
6. Volunteering/Community activities: NSS, cYaag
7. Arts and Creativity: Creative writing, Music, Performing arts,
8. Design: **Design Thinking (1)**, Engineering Design, Ergonomics
9. Liberal STEM: **Environmental Studies (2)**
10. Humanities, Social Studies, History, **Indian Constitution (1)**,
11. Law Cyber Crimes, Security Policies and Law, **Law for Engineers (2)**,