



**COEP Technological University [COEP Tech]
(A Unitary Public University of Government of Maharashtra)
(Formerly College of Engineering Pune [COEP])
Department of Mechanical Engineering**

B. Tech. Mechanical Engineering – Working Professionals

Effective from: A.Y. 2023-24

EXECUTED RESEARCH PROJECTS

- Design and Development of Co-Axial Series Rotor Wind Turbine - AICTE-RPS grant
- Cryogenic Air Separation Technology Simulation and Exergy Analysis of Air separation Plant - AICTE-RPS grant
- Virtual Laboratory on Micro Manufacturing - MHRD
- Development of Speed Controller with an emphasis on estimating Manifold Pressure - TCDE AICTE
- Development of Modular Parabolic Trough Collector - AICTE-RPS grant
- Micro-fabrication by Fused Deposition through Electrochemical Discharge - DST grant
- Boiler Tube Leakage Failure Analysis and Prediction, NTPS, Nashik
- Development and Simulation of Multi-Finger Robotic Gripper, R&DE, Dighi Pune
- Optimum Design of Composite Patches to arrest a crack in Thin Plates, ARDB, DRDO, New Delhi
- Investigation into Laser Hardening of cast iron cylinder liner and Process Assessment through Thermography - DST grant
- Investigations into the development of Graphene paper and its mechanical characterization- AICTE-RPS grant
- Fatigue growth characterization at cold and elevated temperatures of cracked thin Aluminium-alloy panel repaired with polymer Composite patches, DRDO
- ABB 6 DOF 1520 ID Industrial robot with training cell, DRDO
- Design and development of battery thermal management system for electric vehicles, AICTE-RPS NDF
- Investigations of Laser-induced Combustion of Gaseous Fuels - AICTE-RPS Grant

ONGOING RESEARCH PROJECTS

- IoT-based prognostics and health monitoring of a machining centre incorporating digital twin technology, SERB Grant
- Development of Bulging Rate of tube testing system & Predicting remaining life of tube placed in high-temperature Zone
- Enhancement of heat transfer efficiency of lithium-ion battery packs using the design of wavy fins
- Development of Plug-in hybrid electric engine (PHEE) by extending the existing facility of computerized CRDI Diesel Engine for power generation
- Performance improvement of rotary rake machine for sugarcane trash collection
- Study of the combustion control system of bagasse fired boiler for a sugar and cogeneration plant

contd.

- Development and manufacturing of tarpaulin (torps) material & development of an adequate ventilation system to preserve onions
- Comparative study of various configurations of linear Electrical Machines and design and analysis of linear permanent magnet synchronous motor (LPMSM) for Electromagnetic Launch Systems
- Effective use and transmission efficiency of roller chain
- Enhancement of bagasse-fired boiler performance & Fuel saving by energy saving (ES) coating in sugar mill boilers, Prediction and residual life assessment about boiler
- Fatigue testing of composite materials


MOU WITH INDUSTRIES/ORGANIZATIONS

- TATA Motors Ltd, Pune
- Danfoss India Ltd, Chennai
- 3DPLM Software Solutions Ltd, Pune
- Schindler India Private Limited, Pune
- Kirloskar Oil Engines, Pune
- Forbes Marshall, Pune
- Eaton India, Pune
- Alfair Engineering India Pvt Ltd, Bengaluru
- Hella India Automotive Private Limited, Pune
- Dassault Aviation, Pune
- Gamma CAE Technologies Private Ltd, Pune
- Fluid Controls Pvt. Ltd, Pune
- The Automotive Research Association of India (ARAI), Pune
- iRobotics & Rookie Ventures, Pune
- Bharat Electronics Ltd, Pune
- Infosys Ltd, Pune

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CONTACT

INFORMATION BROCHURE



Mechanical Engineering Department
COEP Technological University (COEP Tech.)
A Unitary Public University of the Government of Maharashtra
(Formerly College of Engineering Pune)
Wellesley Road, Shivajinagar, Pune - 411005, MH, India
website: www.coep.org.in

The Department of Mechanical Engineering was established in the year 1912. At present, the department offers Graduate, Post Graduate and Doctoral degree programs. The Institute is acclaimed for producing eminent engineers as professionals, researchers and entrepreneurs. Many of its alumni hold key positions in industries and institutions in India and abroad. The department is proud to have collaborated with well-known industries in niche areas.



COURSES OFFERED

Program	Branch / Specialization	Inception	Sanctioned Intake
B.Tech.	Mechanical Engineering	1912	150
B.Tech.*	Robotics and Automation	2023	60
M.Tech.	Thermal Engineering	1957	18
M.Tech.	Design Engineering	1957	18
M.Tech.	Automotive Technology	2010	36
PGD	Electric Mobility	2019	30

Ph.D. Program in Mechanical Engineering
- To commence from Academic Year 2023-24

Eligibility for Admission for B. Tech. Mechanical Engineering- Working Professionals:

Program	Duration	Eligibility	
Engineering and Technology (Lateral Entry to Second year-for working professionals)	VIII Semesters	<p>a. Passed Minimum THREE years / TWO years (Lateral Entry) Diploma examination with at least 45% marks (40% marks in case of candidates belonging to reserved category) in ANY branch of Engineering or Technology.</p> <p>b. Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks (40% marks in case of candidates belonging to reserved category) and passed 10+2 examination with Mathematics as a subject.</p> <p>c. Provided that the students belonging to B.Sc. Stream, shall clear the subjects Engineering Graphics/Engineering Drawing/Engineering Mechanics of the first Year Engineering Programme along with the Second year subjects.</p> <p>d. Provided that the students belonging to B.Sc. Stream shall be considered only after filling the supernumerary seats in this category belonging to the diploma stream.</p> <p>e. Passed B.Voc. / 3-year D.Voc. Stream in the same or allied sector.</p> <p>f. In the above cases, suitable bridge Course, if required such as in Mathematics or basic Engineering foundation course may be suitably designed and implemented.</p> <p>(The Universities may offer suitable bridge courses such as Mathematics, Physics, Engineering drawing, etc., for the students coming from diverse backgrounds to achieve desired learning outcomes of the programme)</p>	
		Mandatory Requirements:	
		<ol style="list-style-type: none"> Professionals working in Registered Industry / Organization (Central / State) / Private/ Public Limited Company / MSMEs located within 50 KM radial distance from the Institute. Minimum of ONE Year Full time / Regular working Experience At the time of admission candidate must produce certificate of currently working and No objection certificate from the current employer. 	
Mode of Conduct	Online/ Offline/ Hybrid	<p>Timings for conduct of Offline/Online classes normally shall be in the evening hours / weekend days / any flexible convenient timings in alignment with timings of Industry / Organization.</p> <p>Dept. reserves the right to decide the courses offered through Online/Offline mode depending on the situation.</p>	

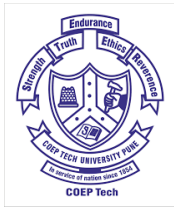
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Department of Mechanical Engineering

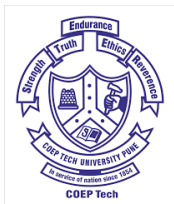
**NEP Compliant Curriculum Structure -UG Program
(Regular/**Working Professionals**)
B. Tech. (Mechanical Engineering)
(Effective from: A.Y. 2023-24)**



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School of Mechanical and Materials Engineering
Wellesley Road, Shivajinagar, Pune - 411005

List of Abbreviations

Abbreviation	Title
PCC	Programme Core Course (PCC)
PEC	Programme Elective Course (PEC)
VSEC	Vocational and Skill Enhancement Course (VSEC)
HSMC	Humanities Social Science and Management
IKS	Indian Knowledge System (IKS)
VEC	Value Education Course (VEC)
RM	Research Methodology (RM)
--	Internship
--	Project
CEA	Community Engagement Activity (CEA)/Field Project
CCA	Co-curricular & Extracurricular Activities (CCA)
OE/SE	Open/School Elective (OE/SE) other than program
MD M	Multidisciplinary Minor (MD M)
AEC	Ability Enhancement course

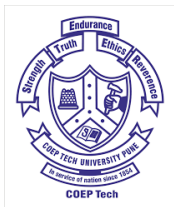


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CourseGroup	Course type		Sem	Sem	Sem	Sem	Sem	Sem	Sem	Sem	Tot al	% Credits
			1	2	3	4	5	6	7	8		
BSC/ESE Programcourses	Basic science	BSC	3								3	2.5
	Programme Core Course	PCC	11	11	14	12	13	12			73	60.88
	Programme Elective Course	PEC				1	1		6	6	14	11.66
Skill Courses	Vocational and Skill Courses	VSEC		2		2		3			7	5.83
Humanitis Social Science and Management (HSSM)	Entrepreneship / Economics /Managemnt Courses	HSSM/ HSMC	1	2							3	2.5
Experimental Learning Courses	Research Methodology	RM					1				1	0.08
	Comm. Eng. Project/ Field Project	CEA			1						1	0.08
	Project	PROJECT							9	9	18	15.00
Total			15	15	15	15	15	15	15	15	120	100

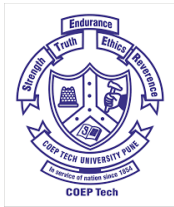


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Mechanical Engineering: DSY-WP
Semester -I
[Lateral Entry for direct second year- Working Professional]

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PCC	<tbd>	Engineering Thermodynamics	3	0	0	0	3	30	10	60	--	--	
02	PCC	<tbd>	Solid Mechanics	2	0	0	1	2	30	10	60	--	--	
03	PCC	<tbd>	Machine Drawing & Geometric Modeling	2	0	2	1	3	30	10	60	50	50	
04	PCC	<tbd>	Manufacturing Technology	2	0	2	1	3	30	10	60	50	50	
05	BSC	<tbd>	Mathematics	3	0	0	1	3	30	10	60	--	--	
06	HSMC	<tbd>	Engineering Economics	0	0	0	2	1	CIE			--		Self Study/ MOOC
Total				11	1	4	6	15						

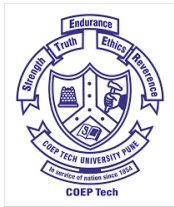
Legends: **L**-Lecture, **T**-Tutorial, **P**-Practical, **S**-Self Study, **Cr**-Credits
ISE-In-Semester-Evaluation, **ESE**-End-Semester-Evaluation, **MSE**-Mid-Semester-Evaluation, **TA**-Teachers' Assessment, **CIE**-Continuous-Internal-Evaluation, **MOOC**- massive open online course



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Mechanical Engineering: DSY- WP
Semester –II
[Lateral Entry for direct second year- Working Professional]

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PCC	<td>	Fluid Mechanics	3	0	2	1	4	30	10	60	50	50	
02	PCC	<td>	Design of Machine Elements	3	1	0	1	4	30	10	60			
03	PCC	<td>	Kinematics of Machines	3	0	2	1	3	30	10	60	50	50	
04	VSEC	<td>	Numerical Methods and Programming Language	2	0	0	1	2	30	10	60			
05	HSMC	<td>	Communication Skills	0	0	0	2	2	CIE			--	--	Self Study/ MOOC
Total				11	1	4	6	15						



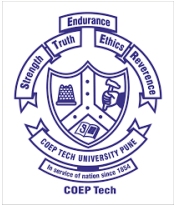
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Mechanical Engineering-DSY- WP

Semester -III

[Lateral Entry for direct second year- Working Professional]

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PCC	<tbd>	Heat Transfer	3	0	2	1	4	30	10	60	50	50	
02	PCC	<tbd>	Dynamics of Machine	3	0	2	0	4	30	10	60	50	50	
03	PCC	<tbd>	Metrology & Measurement	3	0	0	1	3	30	10	60			
04	PEC	<tbd>	Industrial Engineering & Operation Research	3	0	0	1	3	30	10	60			
05	ELC	<tbd>	Principles of Entrepreneurship	0	0	0	2	1	CIE:100					Self Study/ MOOC
Total				12	0	4	5	15						



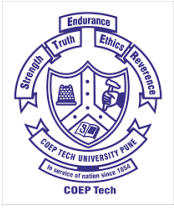
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Mechanical Engineering-DSY- WP

Semester -IV

[Lateral Entry for direct second year Working Professional]

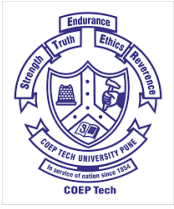
Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PCC	<tbd>	Mechanical System Design	3	0	0	1	3	30	10	60			
02	PCC	<tbd>	Computer Aided Design and Manufacturing	2	0	2	1	3	30	10	60	50	50	
03	PCC	<tbd>	Fluid Machinery	3	0	2	0	4	30	10	60	50	50	
04	PEC	<tbd>	Automotive Technology	3	0	0	0	3	30	10	60			
05	VSEC	<tbd>	Industrial case study	0	0	0	4	2				CIE:100	Self-Study	
Total				11	0	4	6	15						



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Mechanical Engineering-DSY- WP
Semester -V
[Lateral Entry for direct second year Working Professional]

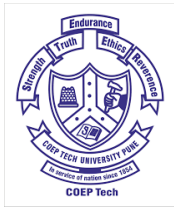
Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PCC	<td>	Energy Conversion	3	0	2	1	4	30	10	60	50	50	
02	PCC	<td>	Refrigeration and Air conditioning	3	0	2	1	4	30	10	60	50	50	
03	PCC	<td>	Vibration and Acoustics	3	0	0	1	3	30	10	60			
04	PEC	<td>	Product design and development	3	0	0	0	3	30	10	60			
05	RM	<td>	Research Methodology and IPR	0	0	0	2	1				CIE: 100		Self Study/ MOOC
Total				12	0	4	5	15						



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Mechanical Engineering-DSY- WP
Semester -VI
[Lateral Entry for direct second year Working Professional]

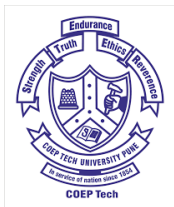
Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PCC	<tbd>	Design for Manufacturing and Assembly	3	0	0	0	3	30	10	60	50	50	
02	PCC	<tbd>	Automatic control	3	0	0	0	3	30	10	60	50	50	
03	PCC	<tbd>	Advanced Manufacturing Technology	3	0	0	1	3	30	10	60	--	--	
04	PCC	<tbd>	Renewable Energy	3	0	0	0	3	30	10	60	--	--	
05	VEC	<tbd>	Mini Project	0	0	0	4	3				CIE: 100		
Total				12	0	4	5	15						



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Mechanical Engineering-DSY- WP
Semester-VII
[Lateral Entry for direct second year Working Professional]

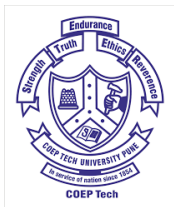
Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PEC	<td>	Programme Elective Course-I	3	0	0	0	3	30	10	60	50	50	
02	PEC	<td>	Programme Elective Course-II	3	0	0	0	3	30	10	60	50	50	
03	ELC	<td>	Industry based Project	0	0	12	0	9				CIE:100		
Total				6	0	12	0	15						



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Mechanical Engineering-DSY- WP
Semester-VIII
[Lateral Entry for direct second year Working Professional]

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightage in %)					Remark
									Theory			Laboratory		
									MSE	TA	ESE	ISE	ESE	
01	PEC	<td>	Programme Elective Course-III	3	0	0	0	3	30	10	60	50	50	
02	PEC	<td>	Programme Elective Course-IV	3	0	0	0	3	30	10	60	50	50	
03	ELC	<td>	Industry based Project	0	0	12	0	9				CIE:100		
Total				6	0	12	0	15						



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Semester Wise Credit Distribution	Teaching Scheme					Credits
	L	T	P	S	Hrs	
I	11	1	4	6	22	15
II	11	1	4	6	22	15
III	12	0	4	5	21	15
IV	11	0	4	6	21	15
V	11	0	4	6	21	15
VI	12	0	4	5	21	15
VII	6	0	12	0	18	15
VIII	6	0	12	0	18	15
Total Academic Engagement and Credits	80	2	48	34	164	120

Note for Working Professionals:

Timings for conduct of classes normally shall be in the evening hours / weekend days / any flexible convenient timings in alignment with timings of Industry / Organization.