



I - VIII Semester Scheme (2024) Department of MECHANICAL ENGINEERING

SCHEME



Department of
MECHANICAL ENGINEERING

GLOBAL ACADEMY OF TECHNOLOGY

(Autonomous institution affiliated to VTU,
Belagavi.)

Accredited by NAAC with 'A' grade,
NBA Accredited CS, E&C, E&E, MECH and IS
branches)

IDEAL HOMES TOWNSHIP,
RAJA RAJESHWARI NAGAR,
BENGALURU - 560098

Head of Department
Mechanical Engineering
Global Academy of Technology
Bangalore - 98

Global Academy of Technology – An Overview

(Autonomous Institution under Visvesvaraya Technological University, Belagavi)

Vision of the Institute:

Become a premier institution imparting quality education in engineering and management to meet the changing needs of society.

Mission of the Institute:

- ❖ Create environment conducive for continuous learning through quality teaching and learning processes supported by modern infrastructure.
- ❖ Promote Research and Innovation through collaboration with industries.
- ❖ Inculcate ethical values and environmental consciousness through holistic education programs.

Objectives:

With a very firm resolve, Global Academy of Technology is continuously investing untiring efforts to enable students to:

- ❖ Develop careers in Government and Private engineering organizations and other professionally related domains.
- ❖ Pursue higher studies and research to develop innovative solutions and technologies in engineering and other multi-disciplinary areas.
- ❖ Improve professional and personal traits oriented towards professional ethics and environmental compulsions.
- ❖ Inculcate professional leadership and successful entrepreneurship qualities.
- ❖ Help society in raising the quality of life.

Quality Policies:

- a. Providing Excellent Education Through High Quality, Experienced and Committed Faculty.
- b. Evolving creative processes for optimal Knowledge and Skill Transfer.
- c. Building up state-of-the-art infrastructure at par with international standards.
- d. Creating an environment for holistic personality development and develop research temperament.

HALLMARKS OF GLOBAL ACADEMY OF TECHNOLOGY:

- ❖ Proactive management determined to build the institute as a Centre of Excellence in engineering education.
- ❖ Qualified and dedicated faculty in all the departments.
- ❖ State of the art Infrastructure and up to date laboratory and Library facilities.
- ❖ Lush green campus with an environment of tranquillity and harmony.
- ❖ Student centric teaching-learning processes banking on Outcome Based Education; students friendly learning atmosphere.
- ❖ Emphasis on Project based learning throughout the course.

- ❖ Strong Industry-Institute interface with more than twenty Memorandum of Understanding (MOUs) signed with leading industries and institutions of repute.
- ❖ Indian Institute of Information Technology (IIIT), Allahabad, has signed a MOU for providing internships to students of GAT, research assistance to faculty, and conducting Faculty Development Programs in key areas of IT - Big Data, Cloud Computing, Artificial Intelligence, and Machine Learning.
- ❖ Mahatma Gandhi University, Kottayam, has signed a MOU to facilitate research in Nano Technology and provide research assistance to faculty of GAT.
- ❖ Industrial consultancy undertaken in many departments.
- ❖ Excellent Placement with more than 80% of the eligible students placed in leading IT companies, core industries and Start-up companies.
- ❖ Holistic and integrated training modules covering communication skills, leadership skills, soft skills and technical skills through professional trainers.
- ❖ On campus and off campus internship facilities.
- ❖ Robust parent connects and Student counselling system.
- ❖ In-house technical skill training programs/add on courses to enhance the employability of the students.
- ❖ Strong and growing alumni connect in place.
- ❖ Exclusive Research and Development, Industry–Institute Interaction Cell and Teaching and Learning Centre in place.
- ❖ Rainwater harvesting facility in the campus.

The following academic processes are implemented on a regular basis to sustain a meaningful and proactive teaching-learning environment:

- ❖ Emphasis on **continuous revision of the curriculum**, based on feedback from the students and input from industry, alumni, and other stakeholders.
- ❖ Conduction of regular **training programme** for faculty, technical & supporting staff.
- ❖ Conduction of Academic Audit of each department on an annual basis.
- ❖ Under **open electives** students have the options to study subjects offered by other departments to augment their interdisciplinary knowledge.
- ❖ Students have to do **value added courses**, mandatory courses, certificate courses, and become members of professional bodies, etc.
- ❖ Advanced and enrichment courses are offered as Electives during the final year UG and PG Degree Programmes.
- ❖ **Self-Learning** is encouraged in students through MOOCs, NPTEL/SWAYAM, Coursera, Edex etc. Credit shall be awarded to students for completion of such courses.

Department of Mechanical Engineering

(Accredited by National Board of Accreditation, New Delhi)

Vision of the Department:

Become one of the leading providers of education in mechanical engineering with emphasis on research, development, and innovation for the benefit of society.

Mission of the Department:

- Impart quality technical education in the field of mechanical engineering through excellent teaching-learning process, modern infrastructure and computing tools
- Prepare students for successful careers by providing placements and encouraging research, development and innovation through industry-institute interaction
- Instil professional ethics and environmental consciousness amongst students through inclusive development programs

About the Department:

Mechanical Engineering is one of the broadest and the most versatile engineering profession finding its application in all fields of technology. The boost in the manufacturing sector has raised the demand for Mechanical Engineers exponentially. The uniqueness of the discipline incorporates skills and expertise in the areas of Design, Manufacturing, Mechanics and Thermal sciences besides inter-disciplinary subjects that are essential to most sectors of industry.

The department is achieving its milestones at various stages of its growth by upgrading the course-curriculum for catering the needs of industry and research, by developing and maintaining state-of-art laboratories CNC Technology, 3D Printing and Automation.

The department conducts various training programs in collaboration with renowned industrial organizations such as Toyota, AMS-India, TATA Electronics Pvt. Ltd, EMI Product, Askar Microns, etc.

Our student teams have developed Formula Car, Go Kart and Solar Powered Vehicle and participated in racing competitions, won prizes, and have brought laurels to our department and to the college.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs) of the DEPARTMENT

PEO of Graduate students in Mechanical Engineering aims to have:

PEO1: Engineering competence, critical thinking, creativity, and ethical inclusivity in professional practice.

PEO2: Continuous intellectual growth through advanced education, professional development, independent inquiry, and experiential learning.

PEO3: Leadership and teamwork excellence throughout professional careers.

PROGRAM SPECIFIC OUTCOMES (PSOs) of the DEPARTMENT

After successful completion of Mechanical Engineering Program, the graduates will be able to:

PSO1: Specify, design, and analyze machine elements using CAD/CAE software.

PSO2: Evaluate thermal performance of Heating, Ventilation & Air-Conditioning systems, electronic systems, Solar Roof Top Photo-Voltaic systems using experimental approach or /and CFD tools and design these systems for better performance.

PSO3: Develop composite materials, manufacturing processes and products in an efficient, safe and cost-effective manner.

I - VIII SEMESTER SCHEME



Head of Department
Mechanical Engineering
Global Academy of Technology
Bangalore - 98

Global Academy of Technology, Bengaluru
Scheme of Teaching and Examinations (Effective from the academic year 2024- 25)

I Semester (Mechanical Engineering Stream)
(For Physics Group)

Sl. No	Course and Course Code		Course Title	TD/PSB	Teaching Hours/Week						Examination				Credits
	*ASC(IC)	#ASC(IC)			Theor	Tutorial	Practical/ Drawing	SDA	Duration	CIE	SEE	Total			
	L	T	P	S											
1		BMATM24101	Mathematics-I for Mechanical Engineering Stream (Integrated)	Maths	2	2	2	0	0	03	50	50	100	04	
2		BPHYM24102	Applied Physics for Mechanical Engineering Stream (Integrated)	PHY	2	2	2	0	0	03	50	50	100	04	
3	ESC	BEMEM24103	Elements of Mechanical Engineering	Mechanical	2	2	0	0	0	03	50	50	100	03	
4	ESC-I	BESCK24104x	Engineering Science Course-I	Respective Engg Dept.	3	0	0	0	0	03	50	50	100	03	
5	ETC-I	BETCK24105x	Emerging Technology Course-I	Any Dept	3	0	0	0	0	03	50	50	100	03	
	PLC-I	BPLCK24105x	Programming language Course-I		2	0	2	0	0	03					
6	AEC	BENGG24106	Communicative English	Humanities	1	0	0	0	0	01	50	50	100	01	
		BPWSK24106	Professional Writing Skills in English		1	0	0	0	0	01	50	50	100	01	
7	HSMC	BKSKK24107/ BKBK24107	Sanskritika Kannada/ Balake Kannada	Humanities	1	0	0	0	0	01	50	50	100	01	
		BICOK24107	Indian Constitution		1	0	0	0	0	01	50	50	100	01	
8	AEC/SDC	BIDTK24108	Innovation and Design Thinking	Any Dept	1	0	0	0	0	01	50	50	100	01	
		BSFHK24108	Scientific Foundations of Health		1	0	0	0	0	01	50	50	100	01	
				TOTAL							400	400	800	20	

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Global Academy of Technology, Bengaluru
Scheme of Teaching and Examinations (Effective from the academic year 2024- 25)

(For the students who attend the 1st semester under Physics Group)

Sl. No	Course and Course Code	Course Title	TD/PSB	Teaching Hours/Week					Examination				Credits
				Theor	Tutorial	Practical/ Drawing	SDA	Duration in	CIE Marks	SEE Marks	Total Mark		
												L	
1	*ASC(IC) BMATM24201	Mathematics-II for Mechanical Engineering Stream (Integrated)	Maths	2	2	2	0	03	50	50	100	04	
2	#ASC(IC) BCHEM24202	Applied Chemistry for Mechanical Engineering Stream (Integrated)	Chemistry	2	2	2	0	03	50	50	100	04	
3	ESC BCEDK24203	Computer Aided Engineering Drawing	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	03	
4	ESC-II BESCK24204x	Engineering Science Course-II	Respective Engg Dept	3	0	0	0	03	50	50	100	03	
5	PLC-II BETCK24205x	Programming Language Course-II	Any Dept	3	0	0	0	03	50	50	100	03	
	ETC-II BETCK24205x	Emerging Technology Course-II											
6	AEC BPWSK24206	Professional Writing Skills in English	Humanities	1	0	0	0	01	50	50	100	01	
		OR											
		Communicative English											
7	HSMS BKSCK24207 BKBCK24207	Indian Constitution	Humanities	1	0	0	0	01	50	50	100	01	
		OR											
		Samskritika Kannada/ Balake Kannada											
		Scientific Foundations for Health											
8	AEC/SEC BIDTK24208	OR	Any Dept	1	0	0	0	01	50	50	100	01	
		Innovation and Design Thinking											
			TOTAL						400	400	800	20	

Rubicon Academic
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Global Academy of Technology, Bengaluru
Scheme of Teaching and Examinations (Effective from the academic year 2024- 25)

Sl. No		Course and Course Code		Course Title	TD/PSB	Teaching Hours/Week					Examination				Credits
						(For Chemistry Group)					Duration in	CIE Marks	SEE Marks	Total Mark	
						Theor	Tutorial	Practical/Drawing	SDA	S					
1	*ASC(IC)	BMATM24101	Mathematics-I for Mechanical Engineering Stream (Integrated)	Maths	2	2	2	0	0	03	50	50	100	04	
2	#ASC(IC)	BCHEM24102	Applied Chemistry for Mechanical Engineering Stream (Integrated)	Chemistry	2	2	2	0	0	03	50	50	100	04	
3	ESC	BCEDK24103	Computer-Aided Engineering Drawing	Civil/Mech Engg dept	2	0	2	0	0	03	50	50	100	03	
4	ESC-I	BESCK24104x	Engineering Science Course-I	Respective Engg Dept	3	0	0	0	0	03	50	50	100	03	
5	ETC-I	BETCK24105x	Emerging Technology Course-I/ OR	Any Dept	3	0	0	0	0	03	50	50	100	03	
	PLC-I	BPLCK24105x	Programming Language Course-I	Any Dept	2	0	2	0	0	03	50	50	100	03	
6	AEC	BPWSK24106	Professional Writing Skills in English OR	Humanities	1	0	0	0	0	01	50	50	100	01	
		BENGGK24106	Communicative English	Humanities	1	0	0	0	0	01	50	50	100	01	
7	HSMS	BICOK24107	Indian Constitution OR	Humanities	1	0	0	0	0	01	50	50	100	01	
		BKSK024107 BKBK24107	Samskrutika Kannada/ Balake Kannada	Humanities	1	0	0	0	0	01	50	50	100	01	
8	AEC/SEC	BSFHK24108	Scientific Foundations for Health OR	Any Dept	1	0	0	0	0	01	50	50	100	01	
		BIDTK24108	Innovation and Design Thinking	Any Dept	1	0	0	0	0	01	50	50	100	01	
TOTAL											400	400	800	20	

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Global Academy of Technology, Bengaluru
Scheme of Teaching and Examinations (Effective from the academic year 2024- 25)

II Semester (Mechanical Engineering Stream)

(For the students who have attended 1semester under Chemistry Group)

Sl. No	Course and Course Code		Course Title	TD/PSB	Teaching Hours/Week					Examination				Credits
	*ASC(IC)	#ASC(IC)			Theory	Tutorial	Practical/Drawing	SDA	Duration in	CIE Marks	SEE Marks	Total Mark		
1		BMATM24201	Mathematics-II for Mechanical Engineering Stream (Integrated)	Maths	3	0	2	0	0	03	50	50	100	04
2		BPHYM24202	Applied Physics for Mechanical Engineering Stream (Integrated)	PHY	2	2	2	0	0	03	50	50	100	04
3	ESC	BEMIE24203	Elements of Mechanical Engineering	Mechanical	2	2	0	0	0	03	50	50	100	03
4	ESC-II	BESCK24204x	Engineering Science Course-II	Respective Engg Dept	3	0	0	0	0	03	50	50	100	03
5	PLC-II	BPLCK24205x	Programming Language Course-II	Any Dept	2	0	2	0	0	03	50	50	100	03
			OR		3	0	0	0	0	03				
6	ETC-II	BETCK24205x	Emerging Technology Course-II	Humanities	0	2	0	0	0	01	50	50	100	01
		BENGGK24206	Communicative English											
			OR											
7	HSMC	BPWSK24206	Professional Writing Skills in English	Humanities	0	2	0	0	0	01	50	50	100	01
		BKSKK24207	Samskritika Kannada/ Balake Kannada											
		BKBBK24207	OR											
		BICOK24207	Indian Constitution											
8	AEC/SDC	BIDTK24208	Innovation and Design Thinking	Any Dept	0	0	2	0	0	02	50	50	100	01
			OR											
		BSFHK24208	Scientific Foundations of Health											
				TOTAL						400	400	800	20	

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(ESC-I/II) Engineering Science Courses-I/II				(ETC-I/II) Emerging Technology Courses-I/II					
Code	Title	L	T	P	Code	Title	L	T	P
BESCK24104/204A	INTRODUCTION TO CIVIL ENGINEERING	3	0	0	BETCK24105/205A	INTRODUCTION TO ARTIFICIAL INTELLIGENCE	3	0	0
BESCK24104/204B	INTRODUCTION TO ELECTRONICS AND COMMUNICATION	3	0	0	BETCK24105/205B	INTRODUCTION TO EMBEDDED SYSTEM	3	0	0
BESCK24104/204C	INTRODUCTION TO ELECTRICAL ENGINEERING	3	0	0	BETCK24105/205C	SENSOR SYSTEMS	3	0	0
BESCK24104/204D	INTRODUCTION TO C PROGRAMMING (INTEGRATED)	2	0	2	BETCK24105/205D	ELECTROMECHANICAL SYSTEMS & MEASUREMENTS	3	0	0
BESCK24104/204E	INTRODUCTION TO ENGINEERING MECHANICS	3	0	0	BETCK24105/205E	WASTE MANAGEMENT	3	0	0
BESCK24104/204F	ENGINEERING GEOLOGY (INTEGRATED)	2	0	2	BETCK24105/205F	GREEN BUILDINGS	3	0	0
BESCK24104/204G	INTRODUCTION TO AERONAUTICAL ENGINEERING(Integrated)	2	0	2	BETCK24105/205G	SMART MATERIALS AND SYSTEMS	3	0	0
BESCK104H/204H	INTRODUCTION TO MECHANICAL ENGINEERING	2	0	2	BETCK24105/205H	INTRODUCTION TO NANO TECHNOLOGY	3	0	0
					BETCK24105/205I	INTRODUCTION TO SUSTAINABLE ENGINEERING	3	0	0
					BETCK24105/205J	RENEWABLE ENERGY SOURCES	3	0	0
					BETCK24105/205K	EMERGING APPLICATIONS OF BIOSENSORS	3	0	0
					BETCK24105/205L	INTRODUCTION TO INTERNET OF THINGS (IOT)	3	0	0
					BETCK24105/205M	INTRODUCTION TO CYBER SECURITY	3	0	0
					BETCK24105/205N	INTRODUCTION TO EMBEDDED SYSTEMS	3	0	0
(PLC-I/II) Programming Language Courses-I/II									
Code	Title	L	T	P					
BPLCK24105/205A	PROGRAMMING IN C (INTEGRATED)	2	0	2					
BPLCK24105/205B	INTRODUCTION TO PYTHON PROGRAMMING(INTEGRATED)	2	0	2					
BPLCK24105/205C	BASICS OF JAVA PROGRAMMING(INTEGRATED)	2	0	2					
BPLCK24105/205D	ADVANCED PROGRAMMING IN C(INTEGRATED)	2	0	2					
BPLCK24105/205E	INTRODUCTION TO WEB PROGRAMMING	2	0	2					
BPLCK24105/205F	INTRODUCTION TO C++ PROGRAMMING	2	0	2					

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B.E. in MECHANICAL ENGINEERING

Scheme of Teaching and Examinations (AY 2024-25)

III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	BSC	BMATM24301	Transform calculus, Complex Analysis, Statistics and PDE	TD: Maths PSB: Maths	2	2	0		03	50	50	100	3
2	IPCC	BME24302	Manufacturing Technology	TD: ME PSB: ME	3	0	2		03	50	50	100	4
3	IPCC	BME24303	Computer-Aided Modelling	TD: ME PSB: ME	2	0	4		03	50	50	100	4
4	PCC	BME24304	Mechanics of Materials	TD: ME PSB: ME	2	2	0		03	50	50	100	3
5	PCCL	BMEL24305	Material Testing Laboratory	TD: ME PSB: ME	0	0	2		03	50	50	100	1
6	ETC/PLC	BME24306x	ETC/PLC	TD: ME PSB: ME	3	0	0		03	50	50	100	3
7	UHV	BSCK24307	Social Connect and Responsibility	Any Department	0	0	2		01	100	---	100	1
8	AEC/ SEC	BME24358x	Ability Enhancement Course/Skill Enhancement Course - III	TD & PSB: Concerned Department	If the course is a Theory				01	50	50	100	1
					1	0	0						
					If a course is a laboratory				02				
		0	0	2									
9	MC	BNSK24359	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		BPEK24359	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24359	Yoga	Yoga Teacher									
		BLAK24359	Liberal Arts	Prominent NGO									
Total									550	350	900	20	

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **K:** This letter in the course code indicates common to all the stream of engineering. **ESC:** Engineering Science Course, **ETC:** Emerging Technology Course, **PLC:** Programming Language Course.

Emerging Technology Course/Programming Language Course (ETC/PLC)			
BME24306A	Material Science and Smart Materials	BME24306C	Automobile Engines and Combustion
BME24306B	Foundations of EV & Hybrid Vehicles	BME24306D	Introduction to AI in Manufacturing
Ability Enhancement Course/Skill Enhancement Course – III			
BME24358A	Introduction to 3D Printing	BME24358C	Spreadsheet for Engineers
BME24358B	Energy Audit and Management	BME24358D	Tools in Scientific Computing



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B.E. in MECHANICAL ENGINEERING

Scheme of Teaching and Examinations (AY 2024-25)

IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	BSC	BMATM24401	Transform calculus, Probability distributions and Sampling Techniques	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
2	IPCC	BME24402	Mechanical Measurements & Metrology	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
3	PCC	BME24403	Theory of Machines	TD: ME, PSB: ME	2	2	0		03	50	50	100	3
4	PCC	BME24404	Thermodynamics	TD: ME, PSB: ME	2	2	0		03	50	50	100	3
5	PCCL	BMEL24405	Machine Shop	TD: ME, PSB: ME	0	0	2		03	50	50	100	1
6	ETC/PLC	BME24406x	ETC/PLC	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
7	AEC/ SEC	BME24457x	Ability Enhancement Course/Skill Enhancement Course- IV	TD and PSB: Concerned department	If the course is Theory				01	50	50	100	1
					1	0	0						
					If the course is a lab				02				
0	0	2											
8	BSC	BBOK24407	Biology For Engineers	TD / PSB: BT, CHE,	1	0	0		01	50	50	100	1
9	UHV	BUHK24408	Universal human values course	Any Department	1	0	0		01	50	50	100	1
10	MC	BNSK24459	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		BPEK24459	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24459	Yoga	Yoga Teacher									
		BLAK24459	Liberal Arts	Prominent NGO									
									Total	550	450	1000	20

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **K :**This letter in the course code indicates common to all the stream of engineering.

Emerging Technology Course/Programming Language Course (ETC/PLC)			
BME24406A	Composite Materials	BME24406C	Integrated Mechatronics and Autotronics
BME24406B	EV Battery Technology & Thermal Management	BME24406D	Introduction to ML & its Applications in Mechanical Engineering
Ability Enhancement Course / Skill Enhancement Course – IV			
BME24457A	Geometric Dimensioning & Tolerancing	BME24457C	Smart Manufacturing and Industry 4.0
BME24457B	Digital Marketing	BME24457D	Basics of Financial Management for Engineers



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B.E. in MECHANICAL ENGINEERING Scheme of Teaching and Examinations (AY 2024-25)

V SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	HSMC	BME24501	Engineering Economics and Management	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
2	IPCC	BME24502	Fluid Machinery	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
3	PCC	BME24503	Machine Design	TD: ME, PSB: ME	2	2	0		03	50	50	100	3
4	PCCL	BMEL24504	CNC Programming and Simulation Laboratory	TD: ME, PSB: ME	0	0	2		03	50	50	100	1
5	PEC	BME24505x	Professional Elective Course I	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
6	AEC/ SEC	BME24556x	Ability Enhancement Course/Skill Enhancement Course- V	TD: ME, PSB: ME	If the course is Theory				01	50	50	100	1
					1	0	0						
					If the course is Lab				02	50	50	100	1
0	0	2											
7	PROJ	BMEP24507	Mini Project	TD: ME, PSB: ME	0	0	4		03	100	-	100	2
8	AEC	BRMK24557	Research Methodology and IPR	Any Department	2	2	0		03	50	50	100	3
9	MC	BESK24508	Environmental Studies	Civil	1	0	0		01	100	--	100	0
10	MC	BNSK24559	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	--	100	0
		BPEK24559	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24559	Yoga	Yoga Teacher									
		BLAK24559	Liberal Arts	Prominent NGO									
Total									650	350	1000	20	

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:**

Semester End Evaluation.K :This letter in the course code indicates common to all the stream of engineering. **ESC:** Engineering Science Course, **ETC:** Emerging Technology Course, **PLC:** Programming Language Course.

Professional Elective Course I

BME24505A	Non-Traditional Machining	BME24505C	Design for Manufacturing
BME24505B	Green Energy Technology	BME24505D	Statistical Quality Control

Ability Enhancement Course / Skill Enhancement Course – V

BME24556A	Introduction to MATLAB	BME24556C	Data Analytics
BME24556B	Alternate Fuels	BME24556D	Introduction to Biomechanics



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VI SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	IPCC	BME24601	Mechanical Vibrations	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
2	PCC	BME24602	Heat Transfer	TD: ME, PSB: ME	2	2	0		03	50	50	100	3
3	PCC	BME24603	Project and Operations Management	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
4	PEC	BME24604x	Professional Elective Course II	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
5	OEC	BME24605x	Open Elective Course I	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
6	PROJ	BMEP24606	Project Phase I	TD: ME, PSB: ME	0	0	4		03	100	--	100	2
7	PCCL	BMEL24607	Heat Transfer Laboratory	TD: ME, PSB: ME	0	0	2		03	50	50	100	1
8	AEC/SEC	BME24657x	Ability Enhancement Course/Skill Enhancement Course- VI	TD: ME, PSB: ME	If the course is offered as a Theory				01	50	50	100	1
					1	0	0						
					If course is offered as a practical				02				
					0	0	2						
9	IKS	BIKS24608	Indian Knowledge System	Any Dept.	1	0	0		01	100	---	100	0
10	NCMC	BNSK24659	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		BPEK24659	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24659	Yoga	Yoga Teacher									
		BLAK24659	Liberal Arts	Prominent NGO									
Total									650	350	1000	20	

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **K:** This letter in the course code indicates common to all the stream of engineering. **ESC:** Engineering Science Course, **ETC:** Emerging Technology Course, **PLC:** Programming Language Course.

Professional Elective Course II			
BME24604A	Computer-Integrated Manufacturing	BME24604C	Design of Transmission Elements
BME24604B	Building Air Conditioning and Ventilation	BME24604D	Operations Research
Open Elective Course I			
BME24605A	Introduction to Additive Manufacturing	BME24605C	Total Quality Management
BME24605B	Green Energy	BME24605D	Introduction to Industrial Robotics
Ability Enhancement Course / Skill Enhancement Course-VI			
BME24657A	CATIA for Mechanical Engineers	BME24657C	Sustainable Product Design
BME24657B	Introduction to Condition Monitoring	BME24657D	Augmented and Virtual Reality in Design



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VII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	IPCC	BME24701	Finite Element Methods	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
2	IPCC	BME24702	Fluid Drives & Control	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
3	PCC	BME24703	Automation & Robotics	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
4	PEC	BME24704x	Professional Elective Course III	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
5	OEC	BME24705x	Open Elective Course II	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
6	PROJ	BMEP24706	Major Project Phase-II	TD: ME, PSB: ME	0	0	14		03	100	100	200	7
									Total	350	350	700	24

Professional Elective Course III

BME24704A	Additive Manufacturing	BME24704C	Digital Twin Technology
BME24704B	Thermal Management of Electronic Equipment	BME24704D	Total Quality Management

Open Elective Course II

BME24705A	Supply Chain Management	BME24705C	Introduction to Operations Research
BME24705B	Project and Operations Management	BME24705D	Modern Mobility

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **PEC:** Professional Elective Course, **OEC:** Open Elective Course **PR:** Project Work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **TD-** Teaching Department, **PSB:** Paper Setting department, **OEC:** Open Elective Course, **PEC:** Professional Elective Course. **PROJ:** Project work

Note: VII and VIII semesters of IV years of the program

- (1) Institutions can swap the VII and VIII Semester Schemes of Teaching and Examinations to accommodate research internships/ industry internships after the VI semester.
- (2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether the VII or VIII semesters is completed during the beginning of the IV year or the later part of IV years of the program.



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VIII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	PEC	BME24801x	Professional Elective (Online Courses) IV	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
2	PEC	BME24802x	Professional Elective (Online Courses) V	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
3	INT	BME24803	Internship (Industry/Research) (14 - 20 weeks)	TD: ME, PSB: ME	0	0	12		03	100	100	200	10
Total									200	200	400	16	

Professional Elective Course (Online courses) IV

BME24801A	Quality Design & Control (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc21_mg24/preview	BME24801C	Machinery Fault Diagnosis and Signal Processing (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc22_me60/preview
BME24801B	Product Design and Manufacturing (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc21_me66/preview	BME24801D	Materials Design for Electronic, Electromechanical and Optical Functions https://onlinecourses.nptel.ac.in/noc25_mm63/preview

Professional Elective Course (Online courses) V

BME24802A	Noise Control in Mechanical Systems https://onlinecourses.nptel.ac.in/noc25_me55/preview	BME24802C	Strategies for Sustainable Design (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc21_de07/preview
BME24802B	Industrial Safety Engineering (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc20_mg43/preview	BME24802D	Business Planning & Project Management (Available in NPTEL) https://onlinecourses.swayam2.ac.in/cec21_ge06/preview

L: Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **TD-** Teaching Department, **PSB:** Paper Setting department, **OEC:** Open Elective Course, **PEC:** Professional Elective Course. **PROJ:** Project work, **INT:** Industry Internship / Research Internship / Rural Internship

Note: VII and VIII semesters of IV years of the program

Swapping Facility

- Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate **research internships/ industry internships/Rural Internship** after the VI semester.

- Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

Elucidation:

At the beginning of IV years of the program i.e., after VI semester, VII semester classwork and VIII semester **Research Internship /Industrial Internship / Rural Internship** shall be permitted to be operated simultaneously by the University so that students have ample opportunity for an internship. In other words, a good percentage of the class shall attend VII semester classwork, and a similar percentage of others shall attend to Research Internship or Industrial Internship or Rural Internship.

Research/Industrial /Rural Internship shall be carried out at an Industry, NGO, MSME, Innovation centre, Incubation centre, Start-up, centre of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations/institutes.

The mandatory Research internship /Industry internship / Rural Internships for 14 to 20 weeks. The internship shall be considered as a head of passing and shall be considered for the award of a degree. Those, who do not take up/complete the internship shall be declared to fail and shall have to complete it during the subsequent University examination after satisfying the internship requirements.

Research internship: A research internship is intended to offer the flavour of current research going on in the research field. It helps students get familiarized with the field and imparts the skill required for carrying out research.

Industry internship: Is an extended period of work experience undertaken by students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate organizations, perspectives, and cultures. Dealing with contingencies helps students recognize, appreciate, and adapt to organizational realities by tempering their knowledge with practical constraints.

Rural Internship: Rural development internship is an initiative of Unnat Bharat Abhiyan Cell, RGIT in association with AICTE to involve students of all departments studying in different academic years for exploring various opportunities in techno-social fields, to connect and work with Rural India for their upliftment.

The faculty coordinator or mentor has to monitor the student's internship progress and interact with them to guide for the successful completion of the internship.

The students are permitted to carry out the internship anywhere in India or abroad. University shall not bear any expenses incurred in respect of the internship.

With the consent of the internal guide and Principal of the Institution, students shall be allowed to carry out the internship at their hometown (**within or outside the state or abroad**), provided favorable facilities are available for the internship and the student remains regularly in contact with the internal guide. **University shall not bear any cost involved in carrying out the internship by students.** However, students can receive any financial assistance extended by the organization.

Professional Elective /Open Elective Course: These are ONLINE courses suggested by the respective Board of Studies. Details of these courses shall be made available for students on the Institute web portal.



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VI SEMESTER(A)

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	IPCC	BME24601	Mechanical Vibrations	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
2	PCC	BME24602	Heat Transfer	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
3	PCC	BME24603	Project and Operations Management	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
4	PEC	BME24604x	Professional Elective Course II	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
5	OEC	BME24605x	Open Elective Course I	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
6	PROJ	BMEP24606	Project Phase I	TD: ME, PSB: ME	0	0	4		03	100	--	100	2
7	PCCL	BMEL24607	Heat Transfer Laboratory	TD: ME, PSB: ME	0	0	2		03	50	50	100	1
8	AEC/SDC	BME24657x	Ability Enhancement Course/Skill Development Course VI	TD: ME, PSB: ME	If the course is offered as a Theory				01	50	50	100	1
					1	0	0						
					If course is offered as a practical				02				
					0	0	2						
9	IKS	BIKS24608	Indian Knowledge System	Any Department	1	0	0		01	100	--	100	0
10	MC	BNSK24659	National Service Scheme (NSS)	NSS coordinator	0	0	2	--	---	100	---	100	0
		BPEK24659	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK24659	Yoga	Yoga Teacher									
		BLAK24659	Liberal Arts	Prominent NGO									
Total									650	350	1000	20	

Professional Elective Course II			
BME24604A	Computer-Integrated Manufacturing	BME24604C	Design of Transmission Elements
BME24604B	Building Air Conditioning and Ventilation	BME24604D	Operations Research
Open Elective Course I			
BME24605A	Introduction to Additive Manufacturing	BME24605C	Total Quality Management
BME24605B	Green Energy	BME24605D	Introduction to Industrial Robotics
Ability Enhancement Course / Skill Enhancement Course-VI			
BME24657A	CATIA for Mechanical Engineers	BME24657C	Sustainable Product Design
BME24657B	Introduction to Condition Monitoring	BME24657D	Augmented and Virtual Reality in Design



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VII and VIII semesters for the candidate those who seek an internship with project work (A)

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	IPCC	BME24701	Finite Element Methods To be completed in 5 th /6 th semester	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
2	IPCC	BME24702	Fluid Drives & Control To be completed in 5 th /6 th semester	TD: ME, PSB: ME	3	0	2		03	50	50	100	4
3	PCC	BME24703	Automation & Robotics To be completed in the 6 th semester	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
4	PEC	BME24704x	Professional Elective Course/Online III	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
5	OEC	BME24705x	Open Elective Courses/Online II	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
1	PEC	BME24801x	Professional Elective (MOOC Courses) IV	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
2	PEC	BME24802x	Professional Elective (MOOC Courses) V	TD: ME, PSB: ME	3	0	0		03	50	50	100	3
3	INT	BME24803	Internship (Industry/Research) (02 semesters)	TD: ME, PSB: ME	0	0	12		03	100	100	200	10
4	PROJ	BMEP24804	Major Project II - outcome of training	TD: ME, PSB: ME	0	0	14		03	100	100	200	7
										550	550	1100	40

Professional Elective Course III

BME24704A	Additive Manufacturing	BME24704C	Digital Twin Technology
BME24704B	Thermal Management of Electronic Equipment	BME24704D	Total Quality Management

Open Elective Course II

BME24705A	Supply Chain Management	BME24705C	Introduction to Operations Research
BME24705B	Project and Operations Management	BME24705D	Modern Mobility

Professional Elective Course (MOOC courses) IV			
BME24801A	Quality Design & Control (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc21_mg24/preview	BME24801C	Machinery Fault Diagnosis and Signal Processing (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc22_me60/preview
BME24801B	Product Design and Manufacturing (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc21_me66/preview	BME24801D	Materials Design for Electronic, Electromechanical and Optical Functions https://onlinecourses.nptel.ac.in/noc25_mm63/preview
Professional Elective Course (MOOC courses) V			
BME24802A	Noise Control in Mechanical Systems https://onlinecourses.nptel.ac.in/noc25_me55/preview	BME24802C	Strategies for Sustainable Design (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc21_de07/preview
BME24802B	Industrial Safety Engineering (Available in NPTEL) https://onlinecourses.nptel.ac.in/noc20_mg43/preview	BME24802D	Business Planning & Project Management (Available in NPTEL) https://onlinecourses.swayam2.ac.in/cec21_ge06/preview