

Mohan Lal Sukhadia University Udaipur



B. Tech. Program (Effective from session 2021-2022)

Mechanical Engineering

Semesters III - VIII

Course structure

**Teaching & Examination Scheme
Semester III**

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	BSC	BT3ME01-CT01	Advance Engineering Mathematics-I	3	0	0	3	30	120	150	3
2	HSMC	BT3ME02-CT02	Technical Communication	2	0	0	2	20	80	100	2
3	ESC	BT3ME03-CT03	Engineering Mechanics	2	0	0	2	20	80	100	2
4	PCC	BT3ME04-CT04	Engineering Thermodynamics	3	0	0	3	30	120	150	3
5		BT3ME05-CT06	Materials Science and Engineering	3	0	0	3	30	120	150	3
6		BT3ME06-CT06	Mechanics of Solids	3	1	0	3	40	160	200	4
			Sub Total	16	1	0		170	680	850	17
PRACTICAL & SESSIONAL											
7	PCC	BT3ME07-CP01	Machine drawing practice	0	0	4		40	60	100	2
8		BT3ME08-CP02	Materials Testing Lab	0	0	4		40	60	100	2
9		BT3ME09-CP03	Basic Mechanical Engineering Lab	0	0	2		20	30	50	1
10		BT3ME10-CP04	Programming using MATLAB	0	0	4		40	60	100	2
11	PSIT	BT3ME11-CP05	Industrial Training	0	0	1		0	0	50	1
			Sub- Total	0	0	15		140	210	400	8
			TOTAL OF III SEMESTER	16	1	15		310	890	1250	25

L: Lecture, T: Tutorial, P: Practical, Cr: Credits

ETE: End Term Exam, IA: Internal Assessment

**Teaching & Examination Scheme
Semester IV**

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	BSC	BT4ME01-CT01	Advance Engineering Mathematics-II	2	0	0	2	20	80	100	2
2	HSMC	BT4ME02-CT02	Managerial Economics and Financial Accounting	2	0	0	2	20	80	100	2
3	ESC	BT4ME03-CT03	Digital Electronics	2	0	0	2	20	80	100	2
4	PCC	BT4ME04-CT04	Fluid Mechanics and Fluid Machines	3	1	0	3	40	160	200	4
5		BT4ME05-CT05	Manufacturing Processes	3	0	0	3	30	120	150	3
6		BT4ME06-CT06	Theory of machines	3	1	0	3	40	160	200	4
Sub Total				15	2	0		170	680	850	17
PRACTICAL & SESSIONAL											
7	PCC	BT4ME07-CP01	Digital Electronics lab	0	0	2		20	30	50	1
8		BT4ME08-CP02	Fluid Mechanics lab	0	0	4		40	60	100	2
9		BT4ME09-CP03	Production practice lab	0	0	4		40	60	100	2
10		BT4ME10-CP04	Theory of machines Lab	0	0	4		40	60	100	2
Sub- Total				0	0	14		140	210	350	7
TOTAL OF IV SEMESTER				15	2	14		310	890	1200	24

L: Lecture, T: Tutorial, P: Practical, Cr: Credits

ETE: End Term Exam, IA: Internal Assessment

**Teaching & Examination Scheme
Semester V**

THEORY												
SN	Category	Course		Contact hrs/week			Marks				Cr	
		Code	Title	L	T	P	Exam Hrs	IA	ETE	Total		
1	ESC	BT5ME01-CT01	Mechatronic Systems	2	0	0	2	20	80	100	2	
2	PCC/ PEC	BT5ME02-CT02	Heat Transfer	3	0	0	3	30	120	150	3	
3		BT5ME03-CT03	Manufacturing Technology	3	0	0	3	30	120	150	3	
4		BT5ME04-CT04	Design of Machine Elements I	3	0	0	3	30	120	150	3	
5		BT5ME05-CT05	Principles of Management	2	0	0	2	20	80	100	2	
6		Professional Elective I (any one)		3	0	0	3	30	120	150	3	
		BT5ME06-CT06A	Steam Engineering									
		BT5ME06-CT06B	Automobile Engineering									
		BT5ME06-CT06C	Non Destructive Evaluation & Testing									
		Sub Total		16	0	0		160	640	800	16	
PRACTICAL & SESSIONAL												
7	ESC	BT5ME07-CP01	Mechatronic Lab	0	0	2		20	30	50	1	
8	PCC	BT5ME08-CP02	Heat Transfer lab	0	0	4		40	60	100	2	
9		BT5ME09-CP03	Production Engineering Lab	0	0	4		40	60	100	2	
10		BT5ME10-CP04	Machine Design Practice I	0	0	2		20	30	50	1	
11	PSIT	BT5ME11-CP05	Industrial Training	0	0	1		40	60	100	2	
		Sub- Total		0	0	13		160	240	400	8	
		TOTAL OF V SEMESTER		16	0	13		320	880	1200	24	

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**Teaching & Examination Scheme
Semester VI**

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	ESC	BT6ME01-CT01	Measurement and Metrology	2	0	0	2	20	80	100	2
2	PCC/ PEC	BT6ME02-CT02	CIMS	3	0	0	3	30	120	150	3
3		BT6ME03-CT03	Mechanical Vibrations	3	0	0	3	30	120	150	3
4		BT6ME04-CT04	Design of Machine Elements II	3	0	0	3	30	120	150	3
5		BT6ME05-CT05	Quality Management	3	0	0	3	30	120	150	3
6		Professional Elective II (any one)		3	0	0	3	30	120	150	3
		BT6ME06-CT06A	Refrigeration and Air Conditioning								
		BT6ME06-CT06B	NON Conventional Machining Methods								
	BT6ME06-CT06C	MEMS and Microsystems									
		Sub Total		17	0	0		170	680	850	17
PRACTICAL & SESSIONAL											
7	PCC	BT6ME07-CP01	CIMS Lab	0	0	3		40	60	100	2
8		BT6ME08-CP02	Vibration Lab	0	0	3		40	60	100	2
9		BT6ME09-CP03	Machine Design Practice II	0	0	3		40	60	100	2
10		BT6ME10-CP04	Thermal Engineering Lab I	0	0	3		40	60	100	2
		Sub- Total		0	0	12		160	240	400	8
		TOTAL OF VI SEMESTER		17	0	12		330	920	1250	25

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**Teaching & Examination Scheme
Semester VII**

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	PEC	BT7ME01-CT01A	I. C. Engines	3	0	0	3	30	120	150	3
2		BT7ME01-CT01B	Operations Research								
3		BT7ME01-CT01C	Turbomachines								
4	OE	BT7ME02-CEXX	Open Elective-I	3	0	0	3	30	120	150	3
			Sub Total	6	0	0		60	240	300	6
PRACTICAL & SESSIONAL											
5	PCC	BT7ME03-CP01	FEA Lab	0	0	2		20	30	50	1
6		BT7ME04-CP02	Thermal Engineering Lab II	0	0	3		40	60	100	2
7		BT7ME05-CP03	Quality Control Lab	0	0	2		20	30	50	1
8	PSIT	BT7ME06-CP04	Industrial Training *	1	0	0		60	90	150	3
9		BT7ME07-CP05	Seminar *	2	0	0		40	60	100	2
			Sub- Total	3	0	8		255	195	450	9
			TOTAL OF VII SEMEESTER	9	0	8		315	435	750	15

*for the purpose of counting teaching load

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**Teaching & Examination Scheme
Semester VIII**

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	PEC	BT8ME01-CT01A	Hybrid and Electric Vehicles	3	0	0	3	30	120	150	3
2		BT8ME01-CT01B	Supply and Operations Management								
3		BT8ME01-CT01C	Additive Manufacturing								
4	OE	BT8ME02-CEXX	Open Elective - II	3	0	0	3	30	120	150	3
			Sub Total	6	0	0		60	240	300	6
PRACTICAL & SESSIONAL											
5	PCC	BT8ME03-CP01	Industrial Engineering Lab	0	0	2		20	30	50	1
6		BT8ME04-CP02	Metrology Lab	0	0	2		20	30	50	1
7	PSIT	BT8ME05-CP03	Project *#	3	0	0		140	210 #	350	7
			Sub- Total	3	0	4		180	270	450	9
			TOTAL OF VIII SEMEESTER	9	0	4		240	510	750	15

*for the purpose of counting teaching load

#Evaluation by one internal and one external examiner (External examiner will preferably be from Industry)

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List of Open Electives

Elective-I

BT7ME02-CE01	Human Engineering and Safety
BT7ME02-CE02	Environmental Engineering and Disaster Management
BT7ME02-CE03	Aircraft Avionic System
BT7ME02-CE04	Non-Destructive Testing
BT7ME02-CE05	Optimization Techniques
BT7ME02-CE06	Sustainable Engineering
BT7ME02-CE07	Introduction to Ceramic Science & Technology
BT7ME02-CE08	Plant, Equipment and Furnace Design
BT7ME02-CE06	Environmental Impact Analysis
BT7ME02-CE07	Disaster Management
BT7ME02-CE09	Electrical Machines and Drives
BT7ME02-CE10	Power Generation Sources.
BT7ME02-CE11	Principle of Electronic communication
BT7ME02-CE12	Micro and Smart System Technology
BT7ME02-CE13	Finite Element Analysis
BT7ME02-CE14	Quality Management
BT7ME02-CE15	Rock Engineering
BT7ME02-CE16	Mineral Processing
BT7ME02-CE17	Pipeline Engineering
BT7ME02-CE18	Water Pollution control Engineering
BT7ME02-CE19	Technical Textiles
BT7ME02-CE20	Garment Manufacturing Technology

Elective-II

BT8ME02-CE01	Energy Management
BT8ME02-CE02	Waste and By-product Utilization
BT8ME02-CE03	Finite Element Methods
BT8ME02-CE04	Factor of Human Interactions
BT8ME02-CE05	Refinery Engineering Design
BT8ME02-CE06	Fertilizer Technology
BT8ME02-CE07	Electrical and Electronic Ceramics
BT8ME02-CE08	Biomaterials
BT8ME02-CE09	Composite Materials
BT8ME02-CE10	Fire and Safety Engineering
BT8ME02-CE11	Energy Audit and Demand side Management
BT8ME02-CE12	Soft Computing
BT8ME02-CE13	Industrial and Biomedical applications of RF Energy
BT8ME02-CE14	Robotics and control
BT8ME02-CE15	Operations Research
BT8ME02-CE16	Simulation Modeling and Analysis
BT8ME02-CE17	Experimental Stress Analysis
BT8ME02-CE18	Maintenance Management
BT8ME02-CE19	Unconventional Hydrocarbon Resources
BT8ME02-CE20	Energy Management & Policy
BT8ME02-CE21	Material and Human Resource Management
BT8ME02-CE22	Disaster Management