APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

(A State Government University)

B. Tech

Curriculum (2024)- Semester I to VIII

Mechanical Engineering

Branch Code: ME

(Group C)

Ambady Nagar, Sreekaryam

Thiruvananthapuram- 695016

FIRST SEMESTER (July-December): Group C														
10 Days Compulsory Induction Program and UHV														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	GYMAT101	BSC	GC	Mathematics for Physical Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GZPHT121	BSC	GC	Physics for Physical Science	3	0	2	0	5.5	40	60	4	5
		GCCYT122			Chemistry for Physical Science									
3	C	GCEST103	ESC	GC	Engineering Mechanics	3	0	0	0	4.5	40	60	3	3
4	D	GCEST104	ESC	GC	Introduction to Mechanical Engineering & Civil Engineering (Part1: Mechanical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Civil Engineering)	2	0	0	0	3	20	30		
5	F	UCEST105	ESC	UC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	GCESL106	ESC	GC	Engineering Workshop	0	0	2	0	1	50	50	1	2
7	I* S1/ S2	UCHWT127	HWP	UC	Health and wellness	1	0	1	0	0	50	0	1	2/3
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	S_1/ S_2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC				2			-	
Total										**30/ 32**			**20**	**24/ 25**
Bridge Course (Mathematics or Introduction to Computer Science) *: Total 15 Hrs.														

Valuation for HMC courses will be done at college level, Question papers will be provided by the University.
No Grade Points will be awarded for the MOOC course and I slot course.

- L-T-P-R: Lecture-Tutorial-Practical-Project
- SS (Self Study) Hours= 1.5L+0.5 T+0.5P+R
- CIA: Continuous Internal Assessment, ESE: End Semester Examination

Digital 101 (NASSCOM)		
Sl. No:	**Technologies Covered**	**Hours**
1	Artificial intelligence and Big Data Analytics (AI/BDA)	11
2	Internet of Things (IoT)	2.5
3	Cyber Security	2.5
4	Block Chain	2.5
5	Robotic Process Automation	1.5
6	Augmented and Virtual Reality (AR and VR)	2.5
7	Cloud Computing	2.5
8	3 D Printing and Modelling	2
9	Web, Mobile Dev and Marketing	2
10	Responsible AI	1
	Total Hours	**30**

Note: *Physics, Chemistry, Health and Wellness & Life Skill and Professional Communication can be offered in both Semester 1 (S1) and Semester 2 (S2). Institutions are encouraged to guide approximately 50% of their branches to choose between Physics or Chemistry (Slot B) and Health and Wellness or Life Skill and Professional Communication (Slot I) in Semester 1.*

SECOND SEMESTER (January-June): Group C														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	GYMAT201	BSC	GC	Mathematics for Physical Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/S2	GZPHT121	BSC	GC	Physics for Physical Science	3	0	2	0	5.5	40	60	4	5
		GCCYT122			Chemistry for Physical Science									
3	C	GCEST203	ESC	GC	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	40	60	3	4
4	D	GZEST204	ESC	GC	Basic Electrical & Electronics Engineering (Part 1: Electrical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Electronics Engineering)	2	0	0	0	3	20	30		
5	E	PCMET205	PC	PC	Material Science and Engineering	3	1	0	0	5	40	60	4	4
6	F	UCEST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	60	40	3	3
7	I* S1/S2	UCHWT127	HWP	UC	Health and wellness	1	0	1	0	0	50	0	1	2/3
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	L	GZESL208	ESC	GC	Basic Electrical and Electronics Engineering workshop	0	0	2	0	1	50	50	1	2
9	S_1/S_2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC							1	
Total										**34**			**24**	**27/28**

No Grade Points will be awarded for the MOOC course and I slot course.

THIRD SEMESTER (July-December)														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./ Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	GYMAT301	BSC	GC	Mathematics for Physical Science-3	3	0	0	0	4.5	40	60	3	3
2	B	PCMET302	PC	PC	Mechanics of Solids	3	1	0	0	5	40	60	4	4
3	C	PCMET303	PC	PC	Fluid Mechanics and Machinery	3	1	0	0	5	40	60	4	4
4	D	PBMET304	PC-PBL	PB	Manufacturing Processes	3	0	0	1	5.5	60	40	4	4
5	F	GNEST305	ESC	GC	Introduction to Artificial Intelligence and Data Science	3	1	0	0	5	40	60	4	4
6	G S3/S4	UCHUT346	HMC	UC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		UCHUT347			Engineering Ethics and Sustainable Development									
7	L	PCMEL307	PCL	PC	Computer Aided Machine Drawing & Modelling	0	0	3	0	1.5	50	50	2	3
8	Q	PCMEL308	PCL	PC	Materials Testing lab	0	0	3	0	1.5	50	50	2	3
9	R/M		VAC		REMEDIAL/MINOR/COURSE	3	1	0	0	5			4*	4*
Total										**31/36**			**25/29***	**27/31***

FOURTH SEMESTER (January-June)														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./ Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	GCMAT401	BSC	GC	Mathematics for Physical Science-4	3	0	0	0	4.5	40	60	3	3
2	B	PCMET402	PC	PC	Machine Tools and Metrology	3	1	0	0	5	40	60	4	4
3	C	PCMET403	PC	PC	Engineering Thermodynamics	3	1	0	0	5	40	60	4	4
4	D	PBMET404	PC-PBL	PB	Mechanics of Machinery	3	0	0	1	5.5	60	40	4	4
5	E	PEMET41N	PE	PE	Elective-1	3	0	0	0	4.5	40	60	3	3
6	G S3/S4	UCHUT346 / UCHUT347	HMC	UC	Economics for Engineers / Engineering Ethics and Sustainable Development	2	0	0	0	3	50	50	2	2
7	L	PCMEL407	PCL	PC	Fluid Mechanics and Hydraulic Machines Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCMEL408	PCL	PC	Manufacturing Technology Lab	0	0	3	0	1.5	50	50	2	3
9	R/M/ H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
Total										**31/ 36**			**24/ 28***	**26/ 30***

Note: *Economics for Engineers and Engineering Ethics and Sustainable Development shall be offered in both S3 and S4. Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Economics for Engineers in S3 and Engineering Ethics & Sustainable Development in S4 and vice versa.*

PROGRAM ELECTIVE I: PEMET41N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	PEMET411	Turbo Machinery	3-0-0-0	**3**	3
	PEMET412	Nuclear Energy	3-0-0-0		3
	PEMET413	Composite Materials	3-0-0-0		3
	PEMET414	Components of Intelligent Systems	3-0-0-0		3
	PEMET416	Advanced Metal Joining Techniques	3-0-0-0		3
	PEMET417	Technology Management	3-0-0-0		3
	PEMET418	Supply Chain and Logistics Management	3-0-0-0		3
	PEMET415	**Advanced Mechanics of Solids**	3-0-0-0		**5/3**

Note : *Level 5 courses in the B. Tech curriculum carry a total of 5 credits, consisting of 3 credits for the Programme Elective and 2 additional credits. The additional 2 credits shall be awarded only if the student meets the eligibility conditions specified in the B. Tech. -2024 regulations. If those conditions are not fulfilled, the student will receive only 3 credits for the course.*

FIFTH SEMESTER (July-December)														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./ Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	PCMET501	PC	PC	Dynamics of Machinery	3	1	0	0	5	40	60	4	4
2	B	PCMET502	PC	PC	Advanced Manufacturing Engineering	3	1	0	0	5	40	60	4	4
3	C	PCMET503	PC	PC	Heat and Mass Transfer	3	0	0	0	4.5	40	60	3	3
4	D	PBMET504	PC-PBL	PB	Management for Engineers	3	0	0	1	5.5	60	40	4	4
5	E	PEMET52N	PE	PE	Elective-2	3	0	0	0	4.5	40	60	3	3
6	I*	UCHUM506	HMC	UC	Constitution Of India (MOOC)	-	-	-	-	2	-	-	1	-
7	L	PCMEL507	PCL	PC	Thermal Engineering Lab-1	0	0	3	0	1.5	50	50	2	3
8	Q	PCMEL508	PCL	PC	Mechanical Engineering Lab	0	0	3	0	1.5	50	50	2	3
9	R/M/H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
	S_5/ S_6	Industrial Visit (Maximum 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
Total										**30/ 35**			**23/27***	**24/28***

No Grade Points will be awarded for the MOOC course and I slot course.

PROGRAM ELECTIVE 2: PEMET 52N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	PEMET521	Computational Fluid Dynamics	3-0-0-0	**3**	3
	PEMET522	Design for Manufacture and Assembly	3-0-0-0		3
	PEMET523	Computer Aided Design and Analysis	3-0-0-0		3
	PEMET524	Additive Manufacturing	3-0-0-0		3
	PEMET526	Energy Economics and Policy	3-0-0-0		3
	PEMET527	Human Resources Management	3-0-0-0		3
	PEMET528	Operations Research	3-0-0-0		3
	PEMET525	**Instrumentation and Control Systems**	3-0-0-0		**5/3**

SIXTH SEMESTER (January-June)														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs/ Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	PCMET601	PC	PC	Industrial and Systems Engineering	3	0	0	0	4.5	40	60	3	3
2	B	PCMET602	PC	PC	Machine Design	3	0	0	0	4.5	40	60	3	3
3	C	PEMET63N	PE	PE	Elective-3	3	0	0	0	4.5	40	60	3	3
4	D	PBMET604	PC-PBL	PB	Thermal Engineering	3	0	0	1	5.5	60	40	4	4
5	F	GZEST605	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2
6	O	OEMET61N /IEMET61N	OE/ILE	OE/IE	Open Elective/Industry Linked Elective-1	3	0	0	0	4.5	40	60	3	3
7	L	PCMEL607	PCL	PC	Computer Aided Design and Analysis Lab	0	0	3	0	1.5	50	50	2	3
8	P	PCMEP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	3	3	50	50	2	3
9	Q	PCMEL609	PCL	PC	Thermal engineering Lab-2	0	0	2	0	1	50	50	1	2
10	R/ M/ H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
	S5/ S6	Industrial Visit (Maximum of 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
Total										**32/ 37**			**23/26***	**26/29***

Note: Open Electives are such courses which will be offered by other departments. Like CSE department students have to opt open electives from ECE/ME/EEE etc. departments.

PROGRAM ELECTIVE 3: PEMET 63N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	PEMET 631	Power Plant Engineering	3-0-0-0	**3**	3
	PEMET 632	Compressible Fluid Flow	3-0-0-0		3
	PEMET 633	Industrial Tribology	3-0-0-0		3
	PEMET 634	Finite Element Methods	3-0-0-0		3
	PEMET 636	Nondestructive Testing	3-0-0-0		3
	PEMET 637	Industrial Safety Engineering	3-0-0-0		3
	PEMET 638	Marketing Management	3-0-0-0		3
	PEMET 635	**Advanced Materials**	3-0-0-0		**5/3**

OPEN ELECTIVE 1: OEMET 61N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OEMET 611	Introduction to Business Analytics	3-0-0-0	3	3
	OEMET 612	Quantitative Techniques for Engineers	3-0-0-0		3
	OEMET 613	Automotive Technology	3-0-0-0		3
	OEMET 614	Renewable Energy Engineering	3-0-0-0		3
	OEMET 615	Quality Engineering and Management	3-0-0-0		3
	OEMET 616	Additive Manufacturing	3-0-0-0		3
	OEMET 617	Solar Energy Conservation Systems	3-0-0-0		3

SEVENTH SEMESTER (July-December)														
Sl. No:	**Slot**	**Course Code**	**Course Tyne**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs/ Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	PEMET74N / PEMEM74N	PE	PE	Elective-4 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	PEMET75N/ PEMEM75N	PE	PE	Elective-5 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	O	OEMET72N /IEMET72N/ OEMEM72N	OE/ ILE	OE/IE	Open Elective/Industry Linked Elective-2 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
4	I*	UEHUT704 / UEHUM70N	HM C	UE	University Elective (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	PCMES705	PS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P	PCMEP706/ PCMEI706	PS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	0	0	0	12	12	100	0	4	8
7	R/H		VAC		Remedial/Honours Course	3	0	0	0	4.5			3*	3*
Total										**26/ 31**			**17/20***	**22/25***

**No Grade Points will be awarded for the I slot courses*
**The students can take the internship option either in 7th or in 8th semester.*
** Option 1: Work on a Project in the institute/department under the mentorship of faculty members.*
*Option 2: Full semester Internship in Industry/organization (**7th or 8th semester**)*

Note: Open Electives are such courses which will be offered by other departments.

PROGRAM ELECTIVE 4: PEMET 74N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	PEMET741	Gas Turbine and Jet Propulsion	3-0-0-0	**3**	3
	PEMET742	Automobile Engineering	3-0-0-0		3
	PEMET743	Design of Machine Elements	3-0-0-0		3
	PEMET744	Failure Analysis and Design	3-0-0-0		3
	PEMET746	Lean Manufacturing	3-0-0-0		3
	PEMET747	Reliability Engineering	3-0-0-0		3
	PEMET748	Robotics	3-0-0-0		3
	PEMET745	**Mechatronics**	3-0-0-0		**5/3**

PROGRAM ELECTIVE 5: PEMET 75N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	PEMET 751	Refrigeration and Air Conditioning	3-0-0-0	**3**	3
	PEMET 752	Acoustics and noise Control	3-0-0-0		3
	PEMET 753	Aerospace Engineering	3-0-0-0		3
	PEMET 754	Renewable Energy Engineering	3-0-0-0		3
	PEMET 756	Mobile Robotics	3-0-0-0		3
	PEMET 757	Flexible Manufacturing Systems	3-0-0-0		3
	PEMET 758	Quality Engineering and Management	3-0-0-0		3
	PEMET 755	**Optimization Techniques**	3-0-0-0		**5/3**

OPEN ELECTIVE 2: OEMET 72N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OEMET 721	Engineering Materials	3-0-0-0	3	3
	OEMET 722	Robotics	3-0-0-0		3
	OEMET 723	Finite Element Methods	3-0-0-0		3
	OEMET 724	Nondestructive Testing	3-0-0-0		3
	OEMET 725	Engineering Instruments and Measurements	3-0-0-0		3
	OEMET 726	Computational Heat Transfer	3-0-0-0		3
	OEMET 727	Power Plant Engineering	3-0-0-0		3

SL. No	Course Code	Slot I: HMC Elective
1	UEHUT704	Project Management: Planning, Execution, Evaluation and Control
2	UEHU**M**701	Proficiency course in French. (MOOC) (B1 level)
3	UEHUM702	Proficiency Course in German (B1 Level). (MOOC)
4	UEHUM703	Proficiency Course in Spanish (B1 Level) (MOOC)
5	UEHUM704	Introduction to Japanese Language and Culture (N5 level). (MOOC)

EIGHTH SEMESTER (January-June)														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs/ Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	PEMET86N / PEMEM86N	PE	PE	Elective-6 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	O	OEMET83N /IEMET83N / OEMEM83N	OE/ILE	OE/IE	Open Elective/Industry Linked Elective-3 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	I*	UEHUT803 / UEHUM803	HMC	UC	Organizational Behavior and Business Communication (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	1	2
4	P	PCMEP806/ PCMEI806/ PCMEJ806	PS	PC	Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project Phase -II (For the students who have not opted for internship in S7/S8)	0	0	0	12	12	100	0	4	8
5	R/H		VAC		Project: Honours Course	0	0	0	4	4			4*	4
Total										**24/ 28**			**11/15***	**16/20**

****No Grade Points will be awarded for the I slot courses***

** Option 2: Full semester Internship in Industry/organization (**7th or 8th semester**)*

PROGRAM ELECTIVE 6: PEMET 86N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	PEMET 861	Cryogenic Engineering	3-0-0-0	**3**	3
	PEMET 862	Pressure Vessel and Piping Design	3-0-0-0		3
	PEMET 863	Hybrid and Electric Vehicles	3-0-0-0		3
	PEMET 864	Micro and Nano Manufacturing	3-0-0-0		3
	PEMET 866	Advanced Numerical Control in Manufacturing	3-0-0-0		3
	PEMET 867	Metal Additive Manufacturing	3-0-0-0		3
	PEMET 868	Nanotechnology	3-0-0-0		3
	PEMET 865	**Aircraft Design**	3-0-0-0		**5/3**

OPEN ELECTIVE 3:OEMET 83N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OEMET 831	Industrial Hydraulics and Automation	3-0-0-0	3	3
	OEMET 832	3D Printing and Tooling	3-0-0-0		3
	OEMET 833	Numerical Techniques Engineering	3-0-0-0		3
	OEMET 834	Business Organization and Development	3-0-0-0		3
	OEMET 835	World Class Manufacturing	3-0-0-0		3
	OEMET 836	Micro Electro Mechanical Systems	3-0-0-0		3
	OEMET 837	Product Design and Innovation	3-0-0-0		3

HMC Courses			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1/S2**	Life Skills and Professional Communication	1
2	**S3 /S4**	Economics for Engineers	2
3		Engineering Ethics and Sustainable Development	2
4	**S5**	Constitution Of India. (MOOC)	1
5	**S7**	Elective (Project Management/Foreign Languages)	2
6	**S8**	Organizational Behavior and Business Communication	1
Total Credits			**9**

BSC Courses			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1**	Mathematics for Physical Science-1	**3**
2	**S1/S2**	Physics for Physical Science	4
3		Chemistry for Physical Science	4
4	**S2**	Mathematics for Physical Science-2	3
5	**S3**	Mathematics for Physical Science-3	3
6	**S4**	Mathematics for Physical Science-4	3
Total Credits			**20**

ESC Courses (Group C)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1**	Engineering Mechanics	**3**
2		Introduction to Mechanical Engineering/ Civil Engineering	4
3		Algorithmic Thinking with Python	4
4		Engineering Workshop	1
5	**S2**	Engineering Graphics and Computer Aided Drawing	3
6		Basic Electrical and Electronics Engineering	4
7		Engineering Entrepreneurship and IPR	3
8		Basic Electrical and Electronics Engineering Workshop	1
9	**S3**	Introduction to Artificial Intelligence and Data Science	4
10	**S6**	Design Thinking and Creativity	2
Total Credits			**29**

Programme Core Courses (PC) (ME)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S2**	Material Science and Engineering	4
2	**S3**	Mechanics of Solids	4
3		Fluid Mechanics and Machinery	4
4		Computer Aided Machine Drawing & Modelling	2
5		Materials Testing lab	2
6	**S4**	Machine Tools and Metrology	4
7		Engineering Thermodynamics	4
8		Fluid Mechanics and Hydraulic Machines Lab	2
9		Manufacturing Technology Lab	2
10	**S5**	Dynamics of Machinery	4
11		Advanced Manufacturing Engineering	4
12		Industrial and Systems Engineering	3
13		Thermal Engineering Lab-1	2
14		Mechanical Engineering Lab	2
15	**S6**	Heat and Mass Transfer	3
16		Machine Design	3
17		Computer Aided Design and Analysis Lab	2
18		Thermal engineering Lab-2	1
Total Credits (Theory -10, Lab-8)			**52**

Programme Core-Project Based Learning (PBL)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S3**	PBMET304 Manufacturing Processes	4
2	**S4**	PBMET404 Mechanics of Machinery	4
3	**S5**	PBMET504 Thermal Engineering	4
4	**S6**	PBMET604 Management for Engineers	4
Total Credits			**16**

Programme Elective Courses (PE)			
Sl. No:	**Semester**	**Course Type**	**Credits**
1	S4	PE-1	3
2	**S5**	PE-2	3
3	**S6**	PE-3	3
4	**S7**	PE-4	3
5		PE-5	3
6	**S8**	PE-6	3
Total Credits			**18**

Open Elective Courses/Industry Elective(OE/IEL)			
Sl. No:	**Semester**	**Course Type**	**Credits**
1	**S6**	OE/ILE-1	3
2	**S7**	OE/ILE-2	3
3	**S8**	OE/ILE-3	3
Total Credits			**9**

Project/ Internship and Seminar			
Sl. No:	**Semester**	**Course Type**	**Credits**
1	**S6**	Mini Project	2
2	**S7**	Seminar	2
3		Major Project/Internship	4
4	**S8**	Major Project/Internship/Research Project	4
Total Credits			**12**

Activity Points				
Sl. No.	**Group**	**Courses**	**Credits**	**Minimum Credit Requirements**
1	I	NSS, NCC, NSO (National Sports Organization)	1 (40 Points)	3 Credits (One credit from each Group)
2		Arts/Sports/Games		
3		Union/Club Activities		
4	II	English Proficiency Certification (TOFEL, IELTS, BEC etc.)	1 (40 Points)	
5		Aptitude Proficiency Certification (GRE, CAT, GMAT etc.)/ Valid Gate Score.		
6		Short Term Internship (Minimum 2 weeks), Clinical Exposure/Training (Minimum 2 weeks), Conferences/Paper Presentation/ Workshop Activities/ Professional Body Activities, Participation in University level/State Level/ National Level Hackathons		
7	III	Journal Publication, Patents, Start-Up, Innovation, Winners of National/ International Level Hackathons	1 (40 Points)	
8		**Skilling Certificates** (Approved by the University)		

- ***Students are required to acquire a minimum of 120 activity points, with at least 40 points per group, to fulfill the curriculum requirement of 3 activity credits.***
- ***For B. Tech Lateral Entry students, 30 points per group are required. A minimum of 90 activity points must be acquired to obtain the 3 activity credits mandated by the curriculum.***

Course classifications of the B. Tech Programmes and Overall Credit Structure			
Sl. No	**Category**	**Code**	**Credits**
1	Humanities and Social Sciences including Management Courses	HMC	9
2	Basic Science Courses	BSC	20
3	Engineering Science Courses	ESC	29
4	Programme (Professional) Core Courses	PCC	52
5	Programme (Professional) Core Courses-Project Based Learning	PBL	16
6	Programme Elective Courses	PEC	18
7	Open Elective Courses/Industry Linked Elective	OEC/ILE	9
8	Mini Project,Project Work/Internship and Seminar	PWS	12
9	Health and Wellness	PW	1
10	Skill Enhancement Courses (Digital 101)	SEC	1
11	Mandatory Student Activities	MSA	3
Total Credits			**170**