APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

(A State Government University)

B. Tech

Curriculum (2024)- Semester I to VIII

Biomedical Engineering

Branch Code: BM

(Group B)

Ambady Nagar, Sreekaryam

Thiruvananthapuram- 695016

FIRST SEMESTER (July-December): Group B														
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 Electrical Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GBPHT121 / GXCYT122	BSC	GC	Physics for Electrical Science / Chemistry for Electrical Science	3	0	2	0	5.5	40	60	4	5
3	C	GMEST103	ESC	GC	Engineering Graphics and Computer Aided Drawing.	2	0	2	0	4	40	60	3	4
4	D	GXEST104	ESC	GC	Introduction to 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	F	UCEST105	ESC	UC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	GXESL106	ESC	GC	Basic Electrical and Electronics 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(NASSCOM)	MOOC				2			-	
Total										**30/ 32**			**20**	**25/ 26**
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 Reality 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 and Life skill and Professional Communication shall be offered in both S1 and S2. Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Physics/ Health and Wellness in SI and Chemistry/ Life Skills and Professional Communication in S2 & vice versa.*

SECOND SEMESTER (January-June): Group B														
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 Electrical Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GBPHT121 GXCYT122	BSC	GC	Physics for Electrical Science Chemistry for Electrical Science	3	0	2	0	5.5	40	60	4	5
3	C	GYEST203 GBEST213	ESC	GC	Foundations of Computing: From Hardware Essentials to Web Design Engineering Mechanics (EEE, CP, BR, RA & RU)	3	0	0	0	4.5	40	60	3	3
4	D	GXEST204	ESC	GC	Programming in C	3	0	2	0	5.5	40	60	4	5
5	E	PCBMT205	PC	PC	Anatomy and Physiology for Biomedical Engineers	4	0	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 UCHUT128	HWP HMC	UC	Health and Wellness Life Skills and Professional Communication	1 2	0 0	1 1	0 0	0 3.5	50 100	0 0	1	2/3
8	L	GXESL208	ESC	GC	IT Workshop	0	0	2	0	1	50	50	1	2
	S_1/ S_2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(NASSCOM)	MOOC							1	
Total										**34**			**24**	**27/ 28**

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

Skill Enhancement Course: *Digital 101 is an introductory Massive Open Online Course (MOOC) offered by NASSCOM. It is designed to provide students with foundational knowledge and skills in digital technologies, preparing them for further studies and careers in the digital domain. By incorporating the Digital 101 course into the curriculum, KTU ensures that all students gain valuable digital skills early in their academic journey, enhancing their readiness for advanced courses and future careers in technology.*

Course Registration and Completion*:*

- *Students have the flexibility to register and complete the Digital 101 course either in their first semester (S1) or second semester (S2).*
- *The credit for this course (1 credit) will be officially recorded in the second semester grade card.*

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 Electrical Science-3	3	0	0	0	4.5	40	60	3	3
2	B	PCBMT302	PC	PC	Analog Electronics	3	1	0	0	5	40	60	4	4
3	C	PCBMT303	PC	PC	Medical Physics	3	1	0	0	5	40	60	4	4
4	D	PBBMT304	PC-PBL	PB	Digital Electronics	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		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	PCBML307	PCL	PC	Analog Electronics Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCBML308	PCL	PC	Digital Electronics 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***
Bridge Course for Lateral Entry Students (Mathematics/ Programme Core): Total 15 Hrs.														

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	GYMAT401	BSC	GC	Mathematics for Electrical Science-4	3	0	0	0	4.5	40	60	3	3
2	B	PCBMT402	PC	PC	Microcontrollers and Interfacing	3	1	0	0	5	40	60	4	4
3	C	PCBMT403	PC	PC	Electrical and Electronic Instrumentation	4	0	0	0	5	40	60	4	4
4	D	PBBMT404	PC-PBL	PB	Biosensors and Transducers	3	0	0	1	5.5	60	40	4	4
5	E	PEBMT41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
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	PCBML407	PCL	PC	Microcontrollers and Interfacing Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCBML408	PCL	PC	Biomedical Electronics 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: PEBMT 41N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	PEBMT 411	Power Electronics & Applications	3-0-0-0	3	3
	PEBMT 412	IOT & Biomedical Applications	3-0-0-0		3
	PEBMT 413	Clinical Engineering	3-0-0-0		3
	PEBMT 414	Biostatistics	2-1-0-0		3
	PEBMT 416	Design of Logic Systems	2-1-0-0		3
	PEBMT 415	**Quantitative Physiology**	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	PCBMT501	PC	PC	Biomedical Signal Processing	3	1	0	0	5	40	60	4	4
2	B	PCBMT502	PC	PC	Therapeutic Equipment	4	0	0	0	5	40	60	4	4
3	C	PCBMT503	PC	PC	Medical Imaging Techniques	3	0	0	0	4.5	40	60	3	3
4	D	PBBMT504	PC-PBL	PB	Analytical and Diagnostic Equipment	3	0	0	1	5.5	60	40	4	4
5	E	PEBMT52N	PE	PE	PE-2	3	0	0	0	4.5	40	60	3	3
6	I*	UCHUM506	HMC	UC	Constitution Of India (MOOC)	-	-	-	-	2	-	-	1	-
7	L	PCBML507	PCL	PC	Biomedical Signal Processing Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCBML508	PCL	PC	Clinical Instrumentation 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.***

Industrial Training:
Students who are not participating in the industrial visit must attend industrial training during that period.

PROGRAM ELECTIVE 2: PEBMT 52N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	PEBMT 521	Control Systems Engineering	2-1-0-0	3	3
	PEBMT 522	Biomedical Optics & Biophotonics	3-0-0-0		3
	PEBMT 523	Radiological Equipments	3-0-0-0		3
	PEBMT524	Implants & Prosthetic Engineering	3-0-0-0		3
	PEBMT 526	Fundamentals of BioMEMS and Microfluidics	3-0-0-0		3
	PEBMT 525	**Artificial Neural Networks**	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	PCBMT601	PC	PC	Biomechanics	4	0	0	0	5	40	60	4	4
2	B	PCBMT602	PC	PC	Biomaterials	3	0	0	0	4.5	40	60	3	3
3	C	PEBMT63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	PBBMT604	PC-PBL	PB	Principles of Medical Image Processing	3	0	0	1	5.5	60	40	4	4
5	F	GYEST605	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2
6	O	OEBMT61N /IEBMT61N	OE/ILE	OE/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	PCBML607	PCL	PC	Medical Device Testing and Dissection Lab	0	0	3	0	1.5	50	50	2	3
8	P	PCBMP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	3	3	50	50	2	3
9	R/ M/ H		VAC		Remedial/Minor/Honors Course	3	1	0	0	4.5			3*	3*
	S5/ S6	Industrial Visit (Maximum of 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
Total										**32/ 36**			**23/26***	**25/28***

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.

Industrial Training:
Students who are not participating in the industrial visit must attend industrial training during that period.

PROGRAM ELECTIVE 3: PEBMT 63N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	PEBMT 631	Embedded System Design	3-0-0-0	3	3
	PEBMT 632	Medical Robotics	3-0-0-0		3
	PEBMT 633	Bio Fluid Mechanics	3-0-0-0		3
	PEBMT 634	Computational Methods in Biomedical Engineering	2-1-0-0		3
	PEBMT 636	Introduction To Bionanotechnology	3-0-0-0		3
	PEBMT 635	**Advanced Biomedical Signal Processing & Applications**	3-0-0-0		5/3

OPEN ELECTIVE 1: OEBMT 61N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OEBMT 611	Biosensors & Transducers	3-0-0-0	3	3
	OEBMT 612	Biomechanics	3-0-0-0		3
	OEBMT 613	Bio signals & Signal Processing	3-0-0-0		3
	OEBMT 614	Biomaterials	3-0-0-0		3

SEVENTH 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	PEBMT74N / PEBMM74N	PE	PE	PE-4 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	PEBMT75N/ PEBMM75N	PE	PE	PE-5 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	O	OEBMT72N /IEBMT72N/ OEBMM72N	OE/ ILE	OE/IE	OE/ILE-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	HMC	UE	Elective (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	PCBMS705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P	PCBMP706/ PCBMI706	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	0	0	0	8	8	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*
**Students can opt for the internship either in the 7th or 8th semester.*
** Option 1: Work on a Project in the institute/department under the mentorship of faculty members.*
Option 2: Full semester Internship in an Industry/organization (7th or 8th semester)

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

PROGRAM ELECTIVE 4: PEBMT 74N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	PEBMT 741	Advanced Microprocessors & Microcontrollers	2-1-0-0	3	3
	PEBMT 742	Human Factors in Engineering and Design	3-0-0-0		3
	PEBMT 743	Neural Prosthesis & Implants	3-0-0-0		3
	PEBMT 744	Assistive Medical Devices	3-0-0-0		3
	PEBMT 746	Advanced Computer Programming Techniques	3-0-0-0		3
	PEBMT 745	**Deep Learning Techniques**	3-0-0-0		5/3

PROGRAM ELECTIVE 5: PEBMT 75N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	PEBMT 751	Communication Techniques	3-0-0-0	3	3
	PEBMT 752	Design of Biomedical Devices	3-0-0-0		3
	PEBMT 753	Rehabilitation Engineering	3-0-0-0		3
	PEBMT 754	Medical Informatics	3-0-0-0		3
	PEBMT 756	Tissue Engineering and Bio Fabrication Technology	3-0-0-0		3
	PEBMT 755	**Advanced Medical Imaging and Image Processing Techniques**	3-0-0-0		5/3

OPEN ELECTIVE 2: OEBMT 72N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OEBMT 721	Biomedical Instrumentation	3-0-0-0	3	3
	OEBMT 722	Assistive Devices	3-0-0-0		3
	OEBMT 723	Medical Imaging Techniques	3-0-0-0		3
	OEBMT 724	Artificial Organs & Implants	3-0-0-0		3

SL. No	Course Code	Slot I: HMC Elective
1	UEHUT704	Project Management: Planning, Execution, Evaluation and Control
2	UEHUM701	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	PEBMT86N / PEBMM86N	PE	PE	PE-6 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	O	OEBMT83N /IEBMT83N / OEBMM83N	OE/ILE	OE/IE	OE/ILE-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	PCBMP806/ PCBMI806/ PCBMJ806	PWS	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	8	8	100	0	4	8
Total										**20**			**11**	**16**

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

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

PROGRAM ELECTIVE 6: PEBMT 86N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	PEBMT 861	Medical Device Regulations & Standards	3-0-0-0	**3**	**3**
	PEBMT 862	Telemedicine	3-0-0-0		**3**
	PEBMT 863	Biomedical Transport Phenomena	3-0-0-0		**3**
	PEBMT 864	Modelling of Physiological Systems	3-0-0-0		**3**
	PEBMT 866	Artificial Organs & Implants	3-0-0-0		**3**
	PEBMT 865	**AI for Medical Image Analysis**	3-0-0-0		5/3

OPEN ELECTIVE 3: OEBMT 83N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OEBMT 831	IoT & Biomedical Applications	3-0-0-0	**3**	**3**
	OEBMT 832	Human Factors in Engineering and Design	3-0-0-0		**3**
	OEBMT 833	Medical Image Processing	3-0-0-0		**3**
	OEBMT 834	Rehabilitation Engineering	3-0-0-0		**3**

HMC Courses			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1/S2**	Life Skills and Professional Communication	1
2	**S3**	Economics for Engineers	2
3	**/S4**	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 Electrical Science-1	**3**
2	**S1/S2**	Physics for Electrical Science	4
3		Chemistry for Electrical Science	4
4	**S2**	Mathematics for Electrical Science-2	3
5	**S3**	Mathematics for Electrical Science-3	3
6	**S4**	Mathematics for Electrical Science-4	3
Total Credits			**20**

ESC Courses			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1**	Engineering Graphics and Computer Aided Drawing	3
2		Introduction to Electrical and Electronics Engineering	4
3		Algorithmic Thinking with Python	4
4		Basic Electrical and Electronics Engineering Workshop	1
5	**S2**	Foundations of Computing: From Hardware Essentials to Web Design / Engineering Mechanics (EEE, CP,BR, RA and RU)	3
6		Programming in C	4
7		Engineering Entrepreneurship and IPR	3
8		IT Workshop	1
9	**S3**	Introduction to Artificial Intelligence and Data Science	4
10	**S6**	Design Thinking and Creativity	2
Total Credits			**29**

Programme CoreCourses (PC)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S2**	Core 1	4
2	**S3**	Core 2	4
3		Core 3	4
4		Lab-1	2
5		Lab-2	2
6	**S4**	Core 4	4
7		Core 5	4
8		Lab-3	2
9		Lab-4	2
10	**S5**	Core 6	4
11		Core 7	4
12		Core 8	3
13		Lab-5	2
14		Lab-6	2
15	**S6**	Core 9	4
16		Core 10	3
17		Lab-7	2
Total Credits (Theory -10, Lab-7)			**52**

Programme Core-Project Based Learning (PBL)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S3**	Core PBL-1	4
2	**S4**	Core PBL-2	4
3	**S5**	Core PBL-3	4
4	**S6**	Core PBL-4	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	HWP	1
10	Skill Enhancement Courses (Digital 101)	SEC	1
11	Mandatory Student Activities	MSA	3
Total Credits			**170**