



APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

(A State Government University)

B. Tech

Curriculum-2024

MBA Block, College of Engineering, Thiruvananthapuram Campus

Thiruvananthapuram- 695016

1. Grouping

APJ Abdul Kalam Technological University offers various engineering branches that can be grouped into four broad categories based on their specialization.

Group	Branches	
A Computer and Information Science	<ul style="list-style-type: none"> ▪ Computer Science and Engineering ▪ Artificial Intelligence ▪ Computer Science and Engineering (Artificial Intelligence) ▪ Computer Science and Engineering (Artificial Intelligence and Machine Learning) ▪ AI and Machine Learning ▪ Artificial Intelligence and Data Science ▪ CS and Business Systems ▪ CS and Design ▪ Cyber Security 	<ul style="list-style-type: none"> ▪ Information Technology ▪ Computer Science and Engineering and Business Systems ▪ Computer Science and Engineering (Data Science) ▪ CSE (Artificial Intelligence and Data Science) ▪ CSE (Internet of Things), CSE(IoT) ▪ CSE (Block Chain) ▪ CSE (Cyber Security) ▪ CSE (IoT and CS including Block Chain Technology)
B Electrical Science	<ul style="list-style-type: none"> ▪ Electronics & Communication Engineering ▪ Electrical and Electronics Engineering ▪ Electronics & Instrumentation Engineering ▪ Instrumentation and Control Engineering ▪ Applied Electronics & Instrumentation Engineering ▪ Electronics and Biomedical Engineering ▪ Cyber Physical System. 	<ul style="list-style-type: none"> ▪ Biomedical Engineering ▪ Electronics and Computer Engineering ▪ Electrical and Computer Engineering ▪ Robotics and Artificial Intelligence ▪ Robotics and Automation ▪ Electronics Engineering (VLSI Design and Technology) ▪ Electronics and Communication (Advanced Communication Technology).
C Physical Science	<ul style="list-style-type: none"> ▪ Civil Engineering ▪ Chemical Engineering ▪ Civil and Environmental Engineering ▪ Mechanical Engineering ▪ Mechanical Engineering (Auto) ▪ Mechanical Engineering (Automobile) ▪ Automobile Engineering ▪ Production Engineering 	<ul style="list-style-type: none"> ▪ Aeronautical Engineering ▪ Industrial Engineering ▪ Mechatronics Engineering ▪ Metallurgical & Materials Engineering ▪ Safety and Fire Engineering, ▪ Polymer Engineering. ▪ Naval Architecture & Ship Building Engineering
D Life Science and Agriculture Engineering	<ul style="list-style-type: none"> ▪ Biotechnology, ▪ Biotechnology and Biochemical Engineering, 	<ul style="list-style-type: none"> ▪ Agriculture Engineering, ▪ Food Technology.

2. Course Category

- **University Core (UC):** This is a compulsory set of courses for all B. Tech students which includes basic courses in Humanities and Computer Science.
- **University Elective (UE):** These are elective courses from a basket of courses in the Humanities and Social Sciences. Such a UE course cannot be either UC / PC specified in their curriculum.
- **Group Core (GC):** Courses listed under Group Core of a curriculum are group specific. Students have to complete all the courses listed under GC to become eligible for the degree

FIRST SEMESTER (July-December): Group A														
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	GAMAT101	BSC	GC	Group Specific Maths-I(Linear Algebra)	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GAPHT121	BSC	GC	Solid State and Quantum Physics	3	0	2	0	5.5	40	60	4	5
		GACYT122			Chemistry for Computer Engineers									
3	C	GYEST103	ESC	GC	Engineering Graphics and Computer Aided Drawing.	2	0	2	0	4	40	60	3	4
4	D	GAEST104	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	GAESL106	ESC	GC	Basic Electrical and Electronics Engineering Workshop	0	0	2	0	1	50	---	1	2
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	-	0	3	50	50		
8	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC				2			-	
Total									30/ 32			20	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: Engineering Physics, Engineering Chemistry, Health and Safety and Life skill and Universal Human Values 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 Engineering Physics/ Health and Wellness in S1 and Engineering Chemistry/ Life Skills and UHV in S2 & vice versa.

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	GBMAT101	BSC	GC	Group Specific Mathematics-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GBPHT121	BSC	GC	Semiconductor Physics	3	0	2	0	5.5	40	60	4	5
		GBCYT122			Chemistry for Electronics Engineers									
3	C	GYEST103	ESC	GC	Engineering Graphics and Computer Aided Drawing.	2	0	2	0	4	40	60	3	4
4	D	GYEST104	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	GYESL106	ESC	GC	Basic Electrical and Electronics Engineering Workshop	0	0	2	0	1	50	---	1	2
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	-	0	3	50	50		
8	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC				2			-	
Total									30/ 32			20	25	
Bridge Course (Mathematics or Introduction to Computer Science) *:										Total 15 Hrs.				

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

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	GCMAT101	BSC	GC	Group Specific Mathematics -1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GCPHT121	BSC	GC	Physics for Engineers	3	0	2	0	5.5	40	60	4	5
		GCCYT122			Chemistry for Engineers									
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	---	1	2
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	-	0	3	50	50		
8	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC				2			-	
Total									30/ 32			20	24	
Bridge Course (Mathematics or Introduction to Computer Science) *:										Total 15 Hrs.				

FIRSTSEMESTER (July-December): Group D														
10 Days Compulsory Induction Program														
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	GDMAT101	BSC	GC	Group Specific Mathematics -1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GDPHT121	BSC	GC	Physics for Engineers	3	0	2	0	5.5	40	60	4	5
		GDCYT122			Chemistry for Engineers									
3	C	GDEST103	ESC	GC	Engineering Graphics and Computer Aided Drawing.	2	0	2	0	4	40	60	3	4
4	D	GDXXT104	ESC	GC	Introduction to Biotechnology/Food Technology/Agriculture Engineering	3	1	0	0	5	40	60	4	4
5	F	UCEST105	ESC	UC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	GDXXL106	ESC	GC	Foundations of Biotechnology/Food Technology/Agriculture Engineering Lab	0	0	2	0	1	50	---	1	2
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	-	0	3	50	50		
8	S1/ S2	UCSEM129	SE C	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC				2			-	
Total									29/ 31			20	25	
Bridge Course (Mathematics or Introduction to Computer Science) *:										Total 15 Hrs.				

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

SECOND SEMESTER (January-June): Group A														
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	GAMAT201	BSC	GC	Multivariate Calculus and Optimization	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GAPHT121	BSC	GC	Solid State and Quantum Physics	3	0	2	0	5.5	40	60	4	5
		GACYT122			Chemistry for Computer Engineers									
3	C	GAEST203	ESC	GC	Foundations of Computing: From Hardware Essentials to Web Design	3	0	0	0	4.5	40	60	3	3
4	D	GAEST204	ESC	GC	Programming in C	3	0	2	0	5.5	40	60	4	5
5	E	PCXXT205	PC	PC	Programme Core-1	3	1	0	0	5	40	60	4	4
6	F	UCEST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	40	60	3	3
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	-	0	3	50	50		
8	L	GAESL208	ESC	GC	IT Workshop	0	0	2	0	1	50	---	1	2
	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC							1	
Total										34			24	27

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	GBMAT201	BSC	GC	Group Specific Mathematics-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GBPHT121	BSC	GC	Physics for Engineers	3	0	2	0	5.5	40	60	4	5
		GBCYT122			Chemistry for Engineers									
3	C	GBEST203	ESC	GC	Foundations of Computing: From Hardware Essentials to Web Design	3	0	0	0	4.5	40	60	3	3
		GBEST213			Engineering Mechanics (EEE, CP, RA and RU)									
4	D	GBEST204	ESC	GC	Programming in C	3	0	2	0	5.5	40	60	4	5
5	E	PCXXT205	PC	PC	Programme Core-1	3	1	0	0	5	40	60	4	4
6	F	UCEST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	40	60	3	3
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication	2	0	-	0	3	50	50		
8	L	GBESL208	ESC	GC	IT Workshop	0	0	2	0	1	50	---	1	2
		GBESL218			IT Workshop (EEE, RA and RU)									
	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC							1	
Total										34			24	27

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	GCMAT201	BSC	GC	Group Specific Mathematics-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GCPHT121	BSC	GC	Physics for Engineers	3	0	2	0	5.5	40	60	4	5
		GCCYT122			Chemistry for Engineers									
3	C	GCEST203	ESC	GC	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	40	60	3	4
4	D	GCEST204	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)									
5	E	PCXXT205	PC	PC	Programme Core-1	3	1	0	0	5	40	60	4	4
6	F	UCEST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	40	60	3	3
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication									
8	L	GCESL208	ESC	GC	Basic Electrical and Electronics Engineering workshop	0	0	2	0	1	50	---	1	2
	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC							1	
Total										34			24	27

SECOND SEMESTER (January-June): Group D														
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	GDMAT201	BSC	GC	Group Specific Mathematics-2	3	0	0	0	4.5	40	60	3	3
2	B 1/2	GDPHT121	BSC	GC	Physics for Engineers	3	0	2	0	5.5	40	60	4	5
		GDCYT122			Chemistry for Engineers									
3	C	GDEST203	ESC	GC	Basic Mechanical & Civil Engineering	3	0	0	0	4.5	40	60	3	3
4	D	GDEST204	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)									
5	E	PCXXT205	PC	PC	Programme Core-1	3	1	0	0	5	40	60	4	4
6	F	UCEST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	40	60	3	3
7	I* S1/ S2	UCPST127	PS	UC	Health and wellness	1	0	1	0	0	0	0	1	2
		UCHUT128	HMC		Life Skills and Professional Communication									
8	L	GDESL208	ESC	GC	Basic Electrical and Electronics Engineering Workshop	0	0	2	0	1	50	---	1	2
	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC							1	
Total										34			24	26

*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	Group Specific Mathematics-3	3	0	0	0	4.5	40	60	3	3
2	B	PCXXT302	PC	PC	Programme Core-2	3	1	0	0	5	40	60	4	4
3	C	PCXXT303	PC	PC	Programme Core-3	3	1	0	0	5	40	60	4	4
4	D	PBXXT304	PC-PBL	PB	Programme Core-PBL-1	3	0	0	1	5.5	60	40	4	4
5	F	GYEST305	ESC	GC	Group A: Digital Electronics & Logic Design Group B, C and D: Introduction to Artificial Intelligence and Data Science	3	1	0		5	40	60	4	4
6	G S3/S4	UCHUT346	HMC	UC	Engineering Economics	2	0	0	0	3	50	50	2	2
		UCHUT347			Engineering Ethics and Sustainable Development									
7	L	PCXXL307	PCL	PC	LAB-1	0	0	3	0	1.5	50	50	2	3
8	Q	PCXXL308	PCL	PC	LAB-2	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	GYMAT401	BSC	GC	Group Specific Mathematics-4	3	0	0	0	4.5	40	60	3	3
2	B	PCXXT402	PC	PC	Programme Core-4	3	1	0	0	5	40	60	4	4
3	C	PCXXT403	PC	PC	Programme Core-5	3	1	0	0	5	40	60	4	4
4	D	PBXXT404	PC-PBL	PB	Programme Core-PBL-2	3	0	0	1	5.5	60	40	4	4
5	E	PEXXT41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
6	G S3/S4	UCHUT346	HMC	UC	Engineering Economics	2	0	0	0	3	50	50	2	2
		UCHUT347			Engineering Ethics and Sustainable Development									
7	L	PCXXL407	PCL	PC	LAB-3	0	0	3	0	1.5	50	50	2	3
8	Q	PCXXL408	PCL	PC	LAB-4	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: Engineering Economics 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 Engineering Economics in S3 and Engineering Ethics & Sustainable Development in S4 and vice versa.

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	PCXXT501	PC	PC	Programme Core-6	3	1	0	0	5	40	60	4	4
2	B	PCXXT502	PC	PC	Programme Core-7	3	1	0	0	5	40	60	4	4
3	C	PCXXT503	PC	PC	Programme Core-8	3	0	0	0	4.5	40	60	3	3
4	D	PBXXT504	PC-PBL	PB	Programme Core-PBL-3	3	0	0	1	5.5	60	40	4	4
5	E	PEXXT52N	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	PCXXL507	PCL	PC	LAB-5	0	0	3	0	1.5	50	50	2	3
8	Q	PCXXL508	PCL	PC	LAB-6	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 10 Days are permitted, Not Exceeding more than 5 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.

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	PCXXT601	PC	PC	Programme Core-9	3	1	0	0	5	40	60	4	4
2	B	PCXXT602	PC	PC	Programme Core-10	3	0	0	0	4.5	40	60	3	3
3	C	PEXXT63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	PBXXT604	PC-PBL	PB	Core-PBL-4	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	OEXXT61N / IEXXT61N	OE/ILE	OE/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	PCXXL607	PCL	PC	LAB-7	0	0	3	0	1.5	50	50	2	3
8	P	PCXXP608	PS	PC	Lab-8/ Mini Project: Socially Relevant Project	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 10 Days are permitted, Not Exceeding more than 5 Working Days) /Industrial Training												
Total										30/35		23/27*	25/29*	

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.

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	PEXXT74N / PEXXM74N	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	PEXXT75N/ PEXXM75N	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	OEXXT72N / IEXXT72N/ OEXXM72N	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	PCXXS705	PS	PC	Seminar	0	0	3	0	1.5		50	0	2	3
6	P	PCXXP706/ PCXXI706	PS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	0	0	0	12	12		100	0	4	8
7	R/M/H		VAC		Remedial/Minor/Honours Course	0	0	0	4	4				4*	4*
Total										27/31				17/21*	22/26*

*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.

Slot I: HMC Elective	
1	Project Management: Planning, Execution, Evaluation and Control
2	Proficiency course in French. (MOOC) (B1 level)
3	Proficiency Course in German(B1 Level). (MOOC)
4	Proficiency Course in Spanish (B1 Level) (MOOC)
5	Introduction to Japanese Language and Culture (N5 level). (MOOC)

EIGHT 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	PEXXT86N / PEXXM86N	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	OEXXT82N /IEXXT82N / OEXXM82N	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	PCXXP806/ PCXXI806/ PCXXJ806	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)

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Director (Academic)
APJ Abdul Kalam Technological University

Dr. Vinu Thomas
Dean (Academic)
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HMC Courses

Sl. No:	Semester	Course Code	Course Area	Credits
1	S1/S2		Life Skills and Professional Communication	1
2	S3		Engineering Economics	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 Code	Course Area	Credits
1	S1		Group Specific Mathematics-1	3
2	S1/S2		Physics for Engineers	4
3			Chemistry for Engineers	4
4	S2		Group Specific Mathematics-2	3
5	S3		Group Specific Mathematics-3	3
6	S4		Group Specific Mathematics-4	3
Total Credits				20

ESC Courses (Group A)				
Sl. No:	Semester	Course Code	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	3
6			Programming in C	4
7			Engineering Entrepreneurship and IPR	3
8			IT Workshop	1
9	S3		Digital Electronics & Logic Design	4
10	S6		Design Thinking and Creativity	2
Total Credits				29

ESC Courses (Group B)				
Sl. No:	Semester	Course Code	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, 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

ESC Courses (Group C)				
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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

ESC Courses (Group D)			
Sl. No:	Semester	Course Area	Credits
1	S1	Engineering Graphics and Computer Aided Drawing	3
2		Introduction to Biotechnology/Food Technology/Agriculture Engineering	4
3		Algorithmic Thinking with Python	4
4		Foundations of Biotechnology/Food Technology/Agriculture Engineering Lab	1
5	S2	Basic Mechanical Engineering and Civil Engineering	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)			
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	S6	Lab-6	2
15		Core 9	4
16		Core 10	3
17		Lab-7	2
18		Lab-8/Mini Project	2
Total Credits (Theory -10, Lab-8)			54

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/Seminar			
Sl. No:	Semester	Course Type	Credits
1	S7	SEMINAR	2
2		MAJOR PROJECT/Internship	4
3	S8	MAJOR PROJECT/Internship/Research Project	4
Total Credits			10

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 4 weeks), Clinical Exposure/Training (Minimum 4 weeks), Conferences/Paper Presentation/ Workshop Activities/ Professional Body Activities.		
7	III	Journal Publication, Patents, Start-Up,	1 (40 Points)	
8		Skilling Certificates (Approved by the University)		

***30 Points/group for B. Tech Lateral Entry Students**

- **A minimum of 120 Activity points are to be acquired for obtaining the 3 Activity Credits required in the curriculum.**

▪ **Table : 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	54
5	Programme (Professional) Core Courses-Project Based Learning	PBL	16
6	Program Elective Courses	PEC	18
7	Open Elective Courses/Industry Linked Elective	OEC/ILE	9
8	Project Work and Seminar	PWS	10
9	Health and Wellness	PS	1
10	Skill Enhancement Courses (Digital 101)	SEC	1
11	Mandatory Student Activities.	MSA	3
	Total Mandatory Credits		170