APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

(A State Government University)

B. Tech Curriculum-2024

Semester I to VIII

Artificial Intelligence & Machine Learning

Branch Code: AM

(Group A)

Ambady Nagar , Sreekaryam

Thiruvananthapuram- 695016

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	Mathematics for Information Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GAPHT121	BSC	GC	Physics for Information Science	3	0	2	0	5.5	40	60	4	5
		GXCYT122			Chemistry for Information Science									
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.														

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	Mathematics for Information Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	GAPHT121	BSC	GC	Physics for Information Science	3	0	2	0	5.5	40	60	4	5
		GXCYT122			Chemistry for Information Science									
3	C	GXEST203	ESC	GC	Foundations of Computing: From Hardware Essentials to Web Design	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	PCCST205	PC	PC	Discrete Mathematics	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	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**

** Internal evaluation by college*

***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 courses, I slot courses and bridge courses.*

- 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

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.*

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**

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	GAMAT301	BSC	GC	Mathematics for Information Science - 3	3	0	0	0	4.5	40	60	3	3
2	B	PCAMT302	PC	PC	Machine Learning - I	3	1	0	0	5	40	60	4	4
3	C	PCCST303	PC	PC	Data Structures and Algorithms	3	1	0	0	5	40	60	4	4
4	D	PBCST304	PC-PBL	PB	Object Oriented Programming	3	0	0	1	5.5	60	40	4	4
5	F	GAEST305	ESC	GC	Digital Electronics & Logic Design	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	PCCSL307	PCL	PC	Data Structures Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCCSL308	PCL	PC	Digital 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: 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	GAMAT401	BSC	GC	Mathematics for Information Science - 4	3	0	0	0	4.5	40	60	3	3
2	B	PCCMT402	PC	PC	Fundamentals of Artificial Intelligence	3	1	0	0	5	40	60	4	4
3	C	PCAMT403	PC	PC	Machine Learning - II	3	1	0	0	5	40	60	4	4
4	D	PBCMT404	PC-PBL	PB	Database Systems	3	0	0	1	5.5	60	40	4	4
5	E	PEAMT41N	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	PCAML407	PCL	PC	Machine Learning Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCCML408	PCL	PC	Artificial Intelligence 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: PEAMT41N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	PECST411	Software Engineering	3-0-0-0	3	3
	PECST412	Pattern Recognition	3-0-0-0		3
	PECST413	Functional Programming	3-0-0-0		3
	PECST414	Coding Theory	3-0-0-0		3
	PECST416	Signals And Systems	3-0-0-0		3
	PECST417	Soft Computing	3-0-0-0		3
	PEAIT419	Introduction to Theory of Computation	3-0-0-0		3
	PECST419	Cyber Ethics, Privacy and Legal Issues	3-0-0-0		3
	PECMT415	**Computer Organization**	**3-0-0-0**		**5/3**
	PECST495	**Advanced Data Structures**	**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	PCAMT501	PC	PC	Introduction to Internet of Things	3	1	0	0	5	40	60	4	4
2	B	PCCST502	PC	PC	Design and Analysis of Algorithms	3	1	0	0	5	40	60	4	4
3	C	PCCMT503	PC	PC	Deep Learning Concepts	3	0	0	0	4.5	40	60	3	3
4	D	PBCMT504	PC-PBL	PB	Introduction to Computer Vision	3	0	0	1	5.5	60	40	4	4
5	E	PEAMT52N	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	PCAML507	PCL	PC	Internet of Things Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCCML508	PCL	PC	Deep Learning 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: PEAMT52N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	PECST521	Software Project Management	3-0-0-0	3	3
	PECMT522	Expert Systems	3-0-0-0		3
	PECMT523	Fuzzy Systems	3-0-0-0		3
	PECST524	Data Compression	3-0-0-0		3
	PECST526	Digital Signal Processing	3-0-0-0		3
	PECMT527	Introduction to Compiler design	3-0-0-0		3
	PECMT528	Concepts in Social Network Analysis	3-0-0-0		3
	PECST525	**Data Mining**	**3-0-0-0**	**3**	**5/3**
	PEAMT595	**Operating System Concepts**	**3-0-0-0**	**3**	**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	PCCMT601	PC	PC	Introduction to Natural Language Processing	3	1	0	0	5	40	60	4	4
2	B	PCCMT602	PC	PC	Generative AI	3	0	0	0	4.5	40	60	3	3
3	C	PEAMT63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	PBCMT604	PC-PBL	PB	Concepts in Data Analytics	3	0	0	1	5.5	60	40	4	4
5	F	GAEST605	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2
6	O	OEAMT61N /IEAMT61N	OE/ILE	OE/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	PCCML607	PCL	PC	Natural Language Processing Lab	0	0	3	0	1.5	50	50	2	3
8	P	PCAMP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	0	3	50	50	2	3
9	R/M/H		VAC		Remedial/Minor/Honours Course	3	0	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: PEAMT63N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	PECST631	Software Testing	3-0-0-0	3	3
	PEAMT632	Basics of Computer Networks	3-0-0-0		3
	PECST633	Wireless & Mobile Computing	3-0-0-0		3
	PECST634	Advanced Database Systems	3-0-0-0		3
	PECST636	Digital Image Processing	3-0-0-0		3
	PECST637	Fundamentals of Cryptography	3-0-0-0		3
	PECST638	Quantum Computing	3-0-0-0		3
	PECST635	**Cloud Computing**	**3-0-0-0**		**5/3**
	PECMT695	**Data Handling and Visualization**	**3-0-0-0**		**5/3**

OPEN ELECTIVE 1: OEAMT61N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OECST611	Data Structures	3-0-0-0	3	3
	OECST612	Data Communication	3-0-0-0		3
	OECST613	Foundations of Cryptography	3-0-0-0		3
	OECST614	Machine Learning for Engineers	3-0-0-0		3
	OECMT615	Artificial Intelligence	3-0-0-0		3

SEVENTH SEMESTER (July-December)														
Sl. No:	**Slot**	**Course Code**	**Course Tvne**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs/ Week**
						L	**T**	**P**	**R**		**CIA**	**ESE**		
1	A	PEAMT74N/ PEAMM74N	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	PEAMT75N/ PEAMM75N	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	OEAMT72N /IEAMT72N/ OEAMM72N	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	HM C	UE	Elective (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	PCAMS705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P	PCAMP706/ PCAMI706	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**			**17**	**22**

**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: PEAMT74N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	PECST741	Formal Methods in Software Engineering	3-0-0-0	3	3
	PECST742	Web Programming	3-0-0-0		3
	PECST743	Bioinformatics	3-0-0-0		3
	PECST744	Information Security	3-0-0-0		3
	PECST746	Embedded Systems	3-0-0-0		3
	PECST747	Blockchain And Cryptocurrencies	3-0-0-0		3
	PECST748	Real Time Systems	3-0-0-0		3
	PECST749	Approximation Algorithms	3-0-0-0		3
	PECMT745	**Reinforcement Learning**	**3-0-0-0**		**5/3**

PROGRAM ELECTIVE 5: PEAMT75N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	PECST751	Advanced Computer Networks	3-0-0-0	3	3
	PECST752	Responsible Artificial Intelligence	3-0-0-0		3
	PECMT753	Computational Linguistics	3-0-0-0		3
	PECST754	Digital Forensics	3-0-0-0		3
	PECST756	Game Theory and Mechanism Design	3-0-0-0		3
	PECST757	High Performance Computing	3-0-0-0		3
	PECST758	Programming Languages	3-0-0-0		3
	PECST759	Parallel Algorithms	3-0-0-0		3
	PEADT755	**Time Series Modeling**	**3-0-0-0**		**5/3**
	PECST795	**Algorithms for Data Science**	**3-0-0-0**		**5/3**

OPEN ELECTIVE 2: OEAMT72N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OECST721	Cyber Security	3-0-0-0	3	3
	OECST722	Cloud Computing	3-0-0-0		3
	OECST723	Software Engineering	3-0-0-0		3
	OECST724	Computer Networks	3-0-0-0		3
	OECST725	Mobile Application Development	3-0-0-0		3

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)

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	PEAMT86N/ PEAMM86N	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	OEAMT83N /IEAMT83N/ OEAMM83N	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	PCAMP806/ PCAMI806/ PCAMJ806	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: PEAMT86N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	PECST861	Software Architectures	3-0-0-0	3	3
	PECMT862	Large Language Models	3-0-0-0		3
	PECST863	Topics in Security	3-0-0-0		3
	PECST864	Computational Complexity	3-0-0-0		3
	PECST866	Speech and Audio Processing	3-0-0-0		3
	PECST867	Storage Systems	3-0-0-0		3
	PECST868	Prompt Engineering	3-0-0-0		3
	PECST869	Computational Number Theory	3-0-0-0		3
	PECST865	**Next Generation Interaction Design**	3-0-0-0		**5/3**

OPEN ELECTIVE 3: OEAMT83N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	OECST831	Introduction to Algorithms	3-0-0-0	3	3
	OECST832	Web Programming	3-0-0-0		3
	OECST833	Software Testing	3-0-0-0		3
	OECST834	Internet of Things	3-0-0-0		3
	OECST835	Computer Graphics	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**	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 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**	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		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**