



**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

(A State Government University)

**B. Tech Curriculum-2024**

**Semester I to VIII**

**Computer Science and Engineering**

**Branch Code: CS**

**(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	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(NASSCOM)	MOOC***				2			-	
<b>Total</b>									<b>30/ 32</b>			<b>20</b>	<b>25/ 26</b>	
<b>Bridge Course (Mathematics or Introduction to Computer Science) *:</b>									<b>Total 15 Hrs.</b>					

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
	S1/ S2	UCSEM129	SEC	UC	Skill Enhancement Course: Digital 101(NASSCOM)	MOOC***							1	
<b>Total</b>									<b>34</b>			<b>24</b>	<b>27/ 28</b>	

\* Internal evaluation by college

\*\*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

**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
<b>Total Hours</b>		<b>30</b>

**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	PCCST302	PC	PC	Theory of Computation	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	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*
<b>Total</b>									<b>31/36</b>			<b>25/29*</b>	<b>27/31*</b>	
<b>Bridge Course for Lateral Entry Students: Total 15 Hrs.</b>														

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	PCCST402	PC	PC	Database Management Systems	3	1	0	0	5	40	60	4	4
3	C	PCCST403	PC	PC	Operating Systems	3	1	0	0	5	40	60	4	4
4	D	PBCST404	PC-PBL	PB	Computer Organization and Architecture	3	0	0	1	5.5	60	40	4	4
5	E	PECST41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
6	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	PCCSL407	PCL	PC	Operating Systems Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCCSL408	PCL	PC	DBMS 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*
<b>Total</b>									<b>31/36</b>			<b>24/28*</b>	<b>26/30*</b>	

\*Valuation for HMC courses will be done at college level, Question papers will be provided by the University.

**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: PECST41N					
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
	PECST418	Computational Geometry	3-0-0-0		3
	PECST419	Cyber Ethics, Privacy, And Legal Issues	3-0-0-0		3
	<b>PECST415</b>	<b>VLSI Design</b>	3-0-0-0		<b>5/3</b>
	<b>PECST495</b>	<b>Advanced Data Structures</b>	3-0-0-0		<b>5/3</b>

**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	PCCST501	PC	PC	Computer Networks	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	PCCST503	PC	PC	Machine Learning	3	0	0	0	4.5	40	60	3	3
4	D	PBCST504	PC-PBL	PB	Microcontrollers	3	0	0	1	5.5	60	40	4	4
5	E	PECST52N	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	PCCSL507	PCL	PC	Networks Lab	0	0	3	0	1.5	50	50	2	3
8	Q	PCCSL508	PCL	PC	Machine 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 <sub>5</sub> /S <sub>6</sub>	Industrial Visit (Maximum 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
<b>Total</b>										<b>30/35</b>			<b>23/27*</b>	<b>24/28*</b>

\*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: PECST52N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	PECST521	Software Project Management	3-0-0-0	3	3
	PECST522	Artificial Intelligence	3-0-0-0		3
	PECST523	Data Analytics	3-0-0-0		3
	PECST524	Data Compression	3-0-0-0		3
	PECST526	Digital Signal Processing	3-0-0-0		3
	PECST527	Computer Graphics & Multimedia	3-0-0-0		3
	PECST528	Advanced Computer Architectures	3-0-0-0		3
	PECST525	<b>Data Mining</b>	3-0-0-0		5/3
	PECST595	<b>Advanced Graph Algorithms</b>	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	PCCST601	PC	PC	Compiler Design	3	1	0	0	5	40	60	4	4
2	B	PCCST602	PC	PC	Advanced Computing Systems	3	0	0	0	4.5	40	60	3	3
3	C	PECST63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	PBCST604	PC-PBL	PB	Fundamentals of Cyber Security	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	OECST61N /IECST61N	OE/ILE	OE/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	PCCSL607	PCL	PC	Systems Lab	0	0	3	0	1.5	50	50	2	3
8	P	PCCSP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	3	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												
<b>Total</b>										<b>32/ 36</b>			<b>23/26*</b>	<b>25/28*</b>

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: PECST63N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	PECST631	Software Testing	3-0-0-0	3	3
	PECST632	Deep Learning	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
	PECST639	Randomized Algorithms	3-0-0-0		3
	<b>PECST635</b>	<b>Cloud Computing</b>	3-0-0-0		<b>5/3</b>
	<b>PECST695</b>	<b>Mobile Application Development</b>	3-0-0-0		<b>5/3</b>

OPEN ELECTIVE 1: OECST61N					
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
	OECST615	Object Oriented Programming	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	PECST74N/ PECSM74N	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	PECST75N/ PECSM75N	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	OECST72N/ IECST72N/ OECSM72N	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	PCCSS705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P**	PCCSP706/ PCCSI706	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*
<b>Total</b>										<b>26/ 31</b>			<b>17/20*</b>	<b>22/25*</b>

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

Valuation for HMC courses will be done at college level, Question papers will be provided by the University.

**\*\*Students can opt for the internship either in the 7<sup>th</sup> or 8<sup>th</sup> 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 (7<sup>th</sup> or 8<sup>th</sup> semester)*

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

PROGRAM ELECTIVE 4: PECST74N					
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	Realtime Systems	3-0-0-0		3
	PECST749	Approximation Algorithms	3-0-0-0		5
	PECST745	<b>Computer Vision</b>	3-0-0-0		5/3
	PECST795	<b>Topics in Theoretical Computer Science</b>	3-0-0-0		5/3

PROGRAM ELECTIVE 5: PECST75N					
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
	PECST753	Fuzzy Systems	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
	PECST755	<b>Internet of Things</b>	3-0-0-0		5/3
	PECST785	<b>Algorithms For Data Science</b>	3-0-0-0		5/3

OPEN ELECTIVE 2: OECST72N					
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	PECST86N/ PECSM86N	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	OECST83N /IECST83N/ OECSM83N	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**	PCCSP806/ PCCSI806/ PCCSJ806	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
<b>Total</b>									<b>20</b>			<b>11</b>	<b>16</b>	

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

Valuation for HMC courses will be done at college level, Question papers will be provided by the University.

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

PROGRAM ELECTIVE 6: PECST86N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	PECST861	Software Architectures	3-0-0-0	3	3
	PECST862	Natural Language Processing	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: OECST83N					
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
<b>Total Credits</b>			<b>9</b>

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

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 / 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
<b>Total Credits</b>			<b>29</b>

Programme Core Courses (PC)			
Sl. No:	Semester	Course Area	Credits
1	S2	Discrete Mathematics	4
2	S3	Theory of Computation	4
3		Data Structures and Algorithms	4
4		Data Structures Lab	2
5		Digital Lab	2
6	S4	Database Management Systems	4
7		Operating Systems	4
8		Operating Systems Lab	2
9		DBMS Lab	2
10	S5	Computer Networks	4
11		Design and Analysis of Algorithms	4
12		Machine Learning	3

13		Networks Lab	2
14		Machine Learning Lab	2
15	S6	Compiler Design	4
16		Advanced Computing Systems	3
17		Systems Lab	2
<b>Total Credits (Theory -10, Lab-7)</b>			<b>52</b>

<b>Programme Core-Project Based Learning (PBL)</b>			
Sl. No:	Semester	Course Area	Credits
1	S3	Object Oriented Programming	4
2	S4	Computer Organization and Architecture	4
3	S5	Microcontrollers	4
4	S6	Fundamentals of Cyber Security	4
<b>Total Credits</b>			<b>16</b>

<b>Programme Elective Courses (PE)</b>			
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
<b>Total Credits</b>			<b>18</b>

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

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

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
<b>Total Credits</b>			<b>170</b>