COEP Technological University

Department of Computer Science and Engineering

Curriculum Structure

B. Tech. Computer Engineering

(Effective from: A.Y. 2023-24)

List of Abbreviations

Abbreviation	Title	Credits	Percentage
BSC	Basic Science Course	14	8.75
ESC	Engineering Science Course	16	10.00
PCC	Programme Core Course (PCC)	55	34.37
PEC	Programme Elective Course (PEC)	17	10.62
OE	Open Elective - other than particular program	6	3.75
MDM	Multidisciplinary Minor (MDM)	14	8.75
VSEC	Vocational and Skill Enhancement Course (VSEC)	12	7.50
HSMC	Humanities Social Science and Management	5	3.13
AEC	Ability Enhancement Course	4	2.50
IKS	Indian Knowledge System (IKS)	2	1.25
VEC	Value Education Course (VEC)	2	1.25
RM	Research Methodology (RM)	2	1.25
OJT	Internship	7	4.38
CEA	Community Engagement Activity (CEA)/Field Project	2	1.25
CCA	Co-curricular & Extracurricular Activities (CCA)	2	1.25
	Total	**160**	**100**

F.Y. B. Tech.
Computer Science and Engineering
[Level 4.5, UG Certificate] Semester -I

Sr. No.	Course Type	Couse Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	BSC	PH-23001	Engineering Physics	2	0	2	1	3	30	20	50	100	--
02	BSC	MA-23002	Linear Algebra	2	1	0	1	3	30	10	60	--	--
03	BSC	AS-23001	Biology for Engineers	2	0	0	1	2	30	20	50	--	--
04	ESC	EE-23001	Basics of Electrical and Electronics Engineering	2	0	2	1	3	30	20	50	100	--
05	ESC	CTS-24002	Problem Solving using Procedural Programming	3	0	2	1	4	30	20	50	100	--
06	ESC	CTS-24001	Computer Lab	0	0	4	0	2	--	--	--	100	--
07	AEC	HS-23002	Indian Knowledge System	2	0	0	0	2	CIE: 100			--	--
08	CCA	As per course	Liberal Learning -1	0	0	2	0	1	--	--	--	100	--
			Total	**13**	**01**	**12**	**05**	**20**					

[Level 4.5, UG Certificate] Semester -II

Sr. No.	Course Type	Couse Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	BSC	MA-23005	Probability and Statistics	2	0	2	1	3	30	20	50	100	--
02	BSC	PH-23002	Quantum Physics	2	0	2	1	3	30	20	50	100	--
03	ESC	CTS-24003	Digital Logic Design	3	0	2	1	4	30	20	50	100	--
04	ESC	ME-23001	Engineering Drawing and Graphics	1	0	4	1	3	CIE: 100			100	--
05	PCC	CTS-24004	Discrete Structures	2	0	0	1	2	30	20	50	--	--
06	VSEC	CTS-24005	Web Design	1	0	2	1	2	CIE: 100			100	--
07	IKS	HS-23001	Communication Skills	2	0	0	0	2	CIE: 100			--	--
08	CCA	As per course	Liberal Learning -2	0	0	2	0	1	--	--	--	100	--
			Total	**13**	**00**	**12**	**06**	**20**					

Legends: **L**-Lecture, **T**-Tutorial, **P**-Practical, **S**-Self Study, **Cr**-Credits
ISE-In-Semester-Evaluation, **ESE**-End-Semester-Evaluation, **MSE**-Mid-Semester Evaluation, **TA**-Teachers' Assessment, **CIE**-Continuous-Internal-Evaluation

** **Exit option to qualify for Certification:** 2 Courses on Web Technologies

S.Y. B. Tech.
Computer Science and Engineering
[Level 5, UG Diploma] Semester -III

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PCC	CTS-24008	Microprocessors	3	0	2	1	4	30	20	50	50	50
02	PCC	CTS-24007	Principles of Programming Languages	3	0	0	1	3	30	20	50	--	--
03	PCC	CTS-24006	Data Structures and Algorithms	3	0	2	1	4	30	20	50	50	50
04	OE	As per course	Open Elective-1	2	0	0	1	2	30	20	50	--	--
05	AEC	As per course	Indian language	2	0	0	0	2	CIE: 100			--	--
06	VEC	AS-24002	Environment studies	1	0	0	2	1	CIE: 100			--	--
07	HSMC	HS-24001	Entrepreneurship	2	0	0	0	2	CIE: 100			--	--
08	CEA	AS-24004	Community Engagement Activity (CEA)/Field Project	0	0	0	0	2	--			100	--
			Total	**16**	**00**	**04**	**06**	**20**					

[Level 5, UG Diploma] Semester -IV

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PCC	CTS-24010	Object Oriented Programming and Design	3	0	2	1	4	30	20	50	50	50
02	PCC	CTS-24009	Computer Organization	3	0	0	1	3	30	20	50	--	--
03	PCC	CTS-24011	Theory of Computation	2	1	0	1	3	30	20	50	--	--
04	VEC	CTS-24012	Constitution of India and Universal Human Values	1	0	0	2	1	CIE: 100			--	--
05	HSMC	HS-25005	Economics	2	0	0	0	2	CIE: 100			--	--
06	OE	As per course	Open Elective-2	2	0	0	1	2	30	20	50	--	--
07	VSEC	CTS-25006	Development Tools Laboratory	0	0	2	0	1	--			100	--

08	MDM	As per course	Multidisciplinary Minor-1	3	0	0	1	3	30	20	50	--	--
09	HSMC	CTS-24013	Design Thinking	1	0	0	1	1	CIE: 100			--	--
			Total	**17**	**01**	**06**	**08**	**20**					

Legends: **L**-Lecture, **T**-Tutorial, **P**-Practical, **S**-Self Study, **Cr**-Credits, **ISE**-In-Semester-Evaluation, **ESE**-End-Semester-Evaluation, **MSE**-Mid-Semester-Evaluation, **TA**-Teachers' Assessment, **CIE**-Continuous-Internal Evaluation

** **Exit option to qualify for UG Diploma:** Two courses of 3 Credits each

S.Y. B. Tech. (Lateral Entry)
Computer Science and Engineering
[Level 5, UG Diploma] Semester -III

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PCC	CTS-24008	Microprocessors	3	0	2	1	4	30	20	50	50	50
02	PCC	CTS-24007	Principles of Programming Languages	3	0	0	1	3	30	20	50	--	--
03	PCC	CTS-24006	Data Structures and Algorithms	3	0	2	1	4	30	20	50	50	50
04	OE	As per course	Open Elective-1	2	0	0	1	2	30	20	50	--	--
05	AEC	As per course	Indian language	2	0	0	0	2	CIE: 100			--	--
06	VEC	AS-24002	Environment Studies	1	0	0	2	1	CIE: 100			--	--
07	HSMC	HS-24001	Entrepreneurship	2	0	0	0	2	CIE: 100			--	--
09	PCC	MA-24001	Matrices, Differential Calculus and Probability	3	0	0	1	3	30	20	50	--	--
			Total	**19**	**00**	**04**	**08**	**21**					

[Level 5, UG Diploma] Semester -IV

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PCC	CTS-24010	Object Oriented Programming and Design	3	0	2	1	4	30	20	50	50	50
02	PCC	CTS-24009	Computer Organization	3	0	0	1	3	30	20	50	--	--
03	PCC	CTS-24011	Theory of Computation	2	1	0	1	3	30	20	50	--	--
04	VEC	CTS-24012	Constitution of India and Universal Human Values	1	0	0	2	1	CIE: 100			--	--
05	HSMC	HS-25005	Economics	2	0	0	0	2	CIE: 100			--	--
06	OE	As per course	Open Elective-2	2	0	0	1	2	30	20	50	--	--
07	VSEC	CTS-25006	Development Tools Laboratory	0	0	2	0	1	--			100	--
08	MDM	As per course	Multidisciplinary Minor-1	3	0	0	1	3	30	20	50	--	--
09	HSMC	CTS-24013	Design Thinking	1	0	0	1	1	CIE: 100			--	--
10	IKS	HS-24007	Communication Skills	2	0	0	0	2	CIE: 100			--	--
11	PCC	CTS-24004	Discrete Structures	2	0	0	1	2	CIE: 100			--	--
			Total	**21**	**01**	**06**	**09**	**24**					

Legends: **L**-Lecture, **T**-Tutorial, **P**-Practical, **S**-Self Study, **Cr**-Credits, **ISE**-In-Semester-Evaluation, **ESE**-End-Semester-Evaluation, **MSE**-Mid-Semester-Evaluation, **TA**-Teachers' Assessment, **CIE**-Continuous-Internal Evaluation

** **Exit option to qualify for UG Diploma:** Two courses of 3 Credits each

T.Y. B. Tech.
Computer Science and Engineering
[Level 5.5, B. Voc.] Semester -V

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PCC	CT-25001	Software Engineering	3	0	2	1	4	30	20	50	50	50
02	PCC	CT-25002	Database Management Systems	3	0	2	1	4	30	20	50	50	50
03	PCC	CT-25003	Operating Systems	3	0	2	1	4	30	20	50	50	50
04	PEC	As per course	Programme Elective-1	2	0	2	1	3	30	20	50	50	50
05	OE	As per course	Open Elective-3	2	0	0	1	2	30	20	50	--	--
06	OJT	CT-25004	Internship	--	--	2	--	1	--	--	--	100	--
07	VSEC	CT-25005	Project Stage-1	--	--	4	--	2	--	--	--	100	--
08	MDM	As per course	Multidisciplinary Minor-2	3	0	2	1	4	30	20	50	50	50
			Total	**16**	**00**	**16**	**06**	**24**					

[Level 5.5, B. Voc.] Semester -VI

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PCC	CT-25006	Computer Networks	3	0	2	1	4	30	20	50	50	50
02	PCC	CT-25007	Design and Analysis of Algorithms	3	0	2	1	4	30	20	50	50	50
03	PCC	CT-25008	Artificial Intelligence	3	0	2	1	4	30	20	50	50	50
04	PEC	As per course	Programme Elective-2	3	0	2	1	4	30	20	50	50	50
05	RM	CT-25009	Research Methodology	2	0	0	1	2	--	--	--	--	--
06	VSEC	CT-25010	Project Stage-2	0	0	4	--	2	--	--	--	100	--
07	MDM	As per course	Multidisciplinary Minor-3	3	0	2	1	4	30	20	50	50	50
			Total	**17**	**00**	**14**	**06**	**24**					

** **Exit option to qualify for B.Voc.:** Mini Project / Internship (8 weeks)

Final Year B. Tech.
Computer Science and Engineering
[Level 6, UG Degree] Semester -VII

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PCC	<TBD>	Compiler Construction	3	0	2	1	4	30	20	50	100	--
02	PCC	<TBD>	Cryptography and Network Security	3	0	2	1	4	30	20	50	100	--
03	PEC	<TBD>	Programme Elective-3	3	0	2	1	4	30	20	50	100	--
04	OJT	<TBD>	Internship	0	0	0	0	1	--	--	--	100	--
05	VSEC	<TBD>	Project Stage-3	0	0	10	0	5	--	--	--	60	40
06	MDM	<TBD>	Multidisciplinary Minor-4	3	0	0	1	3	30	20	50	--	--
			Total	**12**	**00**	**16**	**04**	**21**					

[Level 6, UG Degree] Semester -VIII

Scheme A

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PEC	<TBD>	Programme Elective-4	2	0	2	0	3	30	20	50	100	--
02	PEC	<TBD>	Programme Elective-5	3	0	0	0	3	30	20	50	--	--
03	OJT	<TBD>	In-house Internship	0	0	0	0	5	--	--	--	60	40
			Total	**05**	**00**	**02**	**00**	**11**					

Scheme B

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	CIE	ESE
01	PEC	<TBD>	MOOC-1	3	0	0	0	3	--	25	75	--	--
02	PEC	<TBD>	MOOC-2	3	0	0	0	3	--	25	75	--	--
03	OJT	<TBD>	Industry Internship	0	0	0	0	5	--	--	--	60	40
			Total	**06**	**00**	**00**	**00**	**11**					

DEPARTMENT ELECTIVES

	PEC-1	PEC-2	PEC-3	PEC-4	PEC-5
Tracks	**Sem-5**	**Sem-6**	**Sem-7**	**Sem-8**	**Sem-8**
System Software/ Hardware	Cloud Computing Parallel Computer Architecture and Programming	Advanced System Programming	System Administration GPU Computing	Multicore Technology	Embedded Systems Storage and Virtualization
Networking and Security	Mobile and Ad-hoc Networks Remote Sensing	Block Chain Technologies Geographical Information Systems	Internet of Things	Distributed Systems Cyber Security	Computer Forensics and Data Recovery
Artificial Intelligence	Data Visualization	Machine Learning	Deep Learning	Natural Language Processing	Generative AI
Algorithms and Programming	Advanced Data Structures	Functional Programming Advanced Database Management Systems	Parallel Algorithms	Graphics and Multimedia	Software Design Patterns

MULTIDISCIPLINARY MINORS

Semester	Course Code	Course Title	L	T	P	S	Cr
IV	MDM-01	Data Structures, Files and Algorithms	3	0	0	1	3
V	MDM-02	Artificial Intelligence (Machine Learning and Deep Learning Mastery)	3	0	2	1	4
V	MDM-02	Quantum Computing	3	0	2	1	4
V	MDM-02	Object oriented Programming	3	0	2	1	4
VI	MDM-03	Artificial Intelligence (Natural Language Processing (NLP) and Computer Vision (CV) Mastery, Capstone Project)	3	0	2	1	4
VI	MDM-03	Quantum Computing (Quantum Algorithms and Applications)	3	0	2	1	4
VI	MDM-03	Fundamentals of Database Management Systems	3	0	2	1	4
VII	MDM-04	Large Language Models Theory and Deployment	3	0	0	1	3
VII	MDM-04	Quantum Programming and Project	3	0	0	1	3
VII	MDM-04	Advanced Database Management Systems	3	0	0	1	3

OPEN ELECTIVES LIST

Semester	Course Code	Course Title	L	T	P	S	Cr
III	OE-01	Data Analytics	2	0	0	1	2
IV	OE-02	Fundamentals of Operating Systems/ Fundamentals of Algorithms	2	0	0	1	2
V	OE-03	Fundamentals of Machine Learning	2	0	0	1	2