



# Department of Computer Science & Engineering

## Curriculum Structure for Undergraduate Bachelor of Technology Programme In

### Computer Science and Engineering (Internet of Things)

School of Engineering & Technology  
DRIEMS University, Tangi, Cuttack.

#### Objective:

This model curriculum has been framed to meet the expectations of an academically challenging environment, develop problem solving skills by students align with current standards and to enrich the students learning to make them self-ready to match the industry standard job requirements on successful completion of their engineering degree. The curriculum framed as per guidelines of AICTE and national education policy (NEP) 2020.

#### Credit Break-up Semester- Wise:

The total credits of 160 are required for a student to be eligible to get Under Graduate degree in Engineering. A student can choose suitable online elective courses acquired through MOOCs/SWAYAM.

Category	Semester								Total
	I	II	III	IV	V	VI	VII	VIII	
HS/MS (Humanities and Social Sciences including Management Courses)	3	3	3	3	3	-	-	-	15
BS (Basic Science Courses)	7	7	3	3	-	-	-	-	20
ES (Engineering Science courses)	8	12	3	3	-	-	-	-	26
PC (Professional core courses)	-	-	12	13	18	15	-	-	58
PE (Professional Elective courses)	-	-	-	-	-	3	6	3	12
OE (Open Electives from other technical and /or emerging subjects)	-	-	-	-	-	3	6	3	12
PSI (Project/Seminar/Internship)	-	-	1	-	1	1	4	10	17
MC (Mandatory Courses)	0	0	0	0	0	0	-	-	0
<b>TOTAL</b>	<b>18</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>16</b>	<b>16</b>	<b>160</b>

#### Abbreviations Used

L= Lectures	T= Tutorial	P= Practical/Laboratory
IA= Internal Assessment	EA=End-Semester Assessment	PA= Practical Assessment

#### Definition of Credit

1 Hr. Lecture (L) per week: 1 credit	1 Hr. Tutorial (T) per week: 1 credit	2 Hr. Practical (P) per week: 1 credit
--------------------------------------	---------------------------------------	--

#### Mandatory Courses (MC)

Result will be reflected with Pass (P) /Fail (F) grade and the grade obtained will not be affected the grade point average. However it shall appear in the grade sheet as per AICTE rule.

#### Semester Wise Credit and Mark Distribution

Semester	I	II	III	IV	V	VI	VII	VIII
Credit	18	22	22	22	22	22	16	16
Mark	1150	1500	1400	1400	1400	1300	1000	1300
<b>Total Credit- 160</b>	<b>Total Marks-10450</b>							



# Department of Computer Science & Engineering

## Syllabus Structure for 1<sup>st</sup> Year

### Semester-I

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	BS	ETPHT126	Physics	3	0	0	3	50	100	-	150
		ETCYT126	Chemistry								
2	BS	ETMAT126	Mathematics-I	3	0	0	3	50	100	-	150
3	ES	ETEET126	Basic Electrical Engineering	3	0	0	3	50	100	-	150
		ETECT126	Basic Electronics Engineering								
4	ES	ETCET126	Engineering Graphics & Design	3	0	0	3	50	100	-	150
		ETMET126	Manufacturing Practices								
5	HS	ETHST126	Communicative Skills	2	0	0	2	50	100	-	150
6	MC	ETMCT126	Induction Training (21 Days)	-	-	-	0	-	-	-	-
Practical											
1	BS	ETPHS126	Physics Lab.	0	0	2	1	-	-	100	100
		ETCYS126	Chemistry Lab.								
2	ES	ETEES126	Basic Electrical Engineering lab.	0	0	2	1	-	-	100	100
		ETECS126	Design Thinking & Idea Lab.								
3	ES	ETMES126	Engineering Graphics & Design Lab.	0	0	2	1	-	-	100	100
		ETMES126	Manufacturing Practices Lab.								
4	HS	ETHSS126	Communicative Skills Lab.	0	0	2	1	-	-	100	100
<b>Total (Theory + Practical)</b>				14	0	8	18	250	500	400	1150



# Department of Computer Science & Engineering

## Semester-II

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	BS	ETCYT126	Chemistry	3	0	0	3	50	100	-	150
		ETPHT126	Physics								
2	BS	ETMAT127	Mathematics-II	3	0	0	3	50	100	-	150
3	ES	ETECT126	Basic Electronics Engineering	3	0	0	3	50	100	-	150
		ETEET126	Basic Electrical Engineering								
4	ES	ETMET126	Manufacturing Practices	3	0	0	3	50	100	-	150
		ETCET126	Engineering Graphics & Design								
5	ES	ETCST126	Programming for Problem Solving	3	0	0	3	50	100	-	150
6	HS	ETHST127	Universal Human Values	2	0	0	2	50	100	-	150
7	Audit	ETMCT127	Sports and Yoga or NSS/NCC	2	0	0	0	100	-	-	100
Practical											
1	BS	ETCYS126	Chemistry Lab.	0	0	2	1	-	-	100	100
		ETPHT126	Physics Lab.								
2	ES	ETCSS126	Programming for Problem Solving Lab.	0	0	2	1	-	-	100	100
3	ES	ETECS126/ ETEES126	Design Thinking & Idea Lab./Basic Electrical Engineering Lab.	0	0	2	1	-	-	100	100
4	ES	ETMES126/ ETMES126	Manufacturing Practices/ Engineering Graphics & Design Lab.	0	0	2	1	-	-	100	100
5	HS	ETHSS127	Professional Communication Lab.	0	0	2	1	-	-	100	100
<b>Total (Theory + Practical)</b>				<b>17</b>	<b>0</b>	<b>10</b>	<b>22</b>	<b>300</b>	<b>600</b>	<b>500</b>	<b>1500</b>



# Department of Computer Science & Engineering

## Syllabus Structure for 2<sup>nd</sup> Year

### Semester-III

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	PC	ETCST226	Data structure and Algorithms	3	0	0	3	50	100	-	150
2	PC	ETCST227	Object Oriented Programming Concepts using Core JAVA	3	0	0	3	50	100	-	150
3	PC	ETCST228	Computer Architecture & Organization	3	0	0	3	50	100	-	150
4	HS	ETHST226	Engineering Economics & Costing	3	0	0	3	50	100	-	150
		ETHST227	Organizational Behaviour								
5	BS	ETMAT226	Mathematics– III	3	0	0	3	50	100	-	150
6	ES	ETECT232	Digital Electronics Circuits	3	0	0	3	50	100	-	150
7	MC	ETMCT226	Environmental Sciences	3	0	0	0	100	-	-	100
Practical											
1	PC	ETCSS226	Data Structure Lab.	0	0	2	1	-	-	100	100
2	PC	ETCSS227	Object Oriented Programming Concepts Lab	0	0	2	1	-	-	100	100
3	PC	ETECS234	Digital Electronics Circuit Lab.	0	0	2	1	-	-	100	100
4	PSI	ETCSS228	Evaluation of Summer Internship-I	-	-	-	1	-	-	100	100
<b>Total (Theory + Practical)</b>				21	0	6	22	400	600	400	1400



# Department of Computer Science & Engineering

## Semester-IV

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	PC	ETCST229	Advanced Programming using Python	3	0	0	3	50	100	-	150
2	PC	ETCST230	Design and Analysis of Algorithms	3	0	0	3	50	100	-	150
3	PC	ETCST231	Discrete Mathematics	3	0	0	3	50	100	-	150
4	BS	ETECT231	Microprocessor and Microcontroller	3	0	0	3	50	100	-	150
5	HS	ETHST226	Engineering Economics & Costing	3	0	0	3	50	100	-	150
		ETHST227	Organizational Behaviour								
6	ES	ETECT227	Signal System	3	0	0	3	50	100	-	150
7	MC	ETMCT227	Indian Constitution	3	0	0	0	100	-	-	100
Practical											
1	PC	ETCSS229	Advanced Programming using Python Lab.	0	0	2	1	-	-	100	100
2	PC	ETCSS230	Design and Analysis of Algorithm Lab.	0	0	2	1	-	-	100	100
3	PC	ETCSS231	IT Workshop (MATLAB)	1	0	2	1	-	-	100	100
4	PC	ETCSS232	Skill Project	0	0	2	1	-	-	100	100
<b>Total (Theory + Practical)</b>				<b>22</b>	<b>0</b>	<b>8</b>	<b>22</b>	<b>400</b>	<b>600</b>	<b>400</b>	<b>1400</b>



# Department of Computer Science & Engineering

## Syllabus Structure for 3<sup>rd</sup> Year

### Semester-V

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	PC	ETCST326	Database Engineering	3	0	0	3	50	100	-	150
2	PC	ETCST331	Data Communication and Computer Network	3	0	0	3	50	100	-	150
3	PC	ETCST328	Operating System	3	0	0	3	50	100	-	150
4	PC	ETCST345	Sensors and Devices	3	0	0	3	50	100	-	150
5	PC	ETCST330	Advance Computer Architecture	3	0	0	3	50	100	-	150
6	MS	ETHST326	Entrepreneurship Development	3	0	0	3	50	100	-	150
7	MC	ETMCT326	Essence of Indian Knowledge Tradition	3	0	0	0	100	-	-	100
Practical											
1	PC	ETCSS326	Database Engineering Lab.	0	0	2	1	-	-	100	100
2	PC	ETCSS337	Sensors and Devices Lab	0	0	2	1	-	-	100	100
3	PC	ETCSS328	Operating System Lab.	0	0	2	1	-	-	100	100
4	PSI	ETCSS329	Evaluation of Summer Internship-II	-	-	-	1	-	-	100	100
<b>Total (Theory + Practical)</b>				21		6	22	400	600	400	1400
					0						



# Department of Computer Science & Engineering

## Semester-VI

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	PC	ETCST329	Machine Learning	3	0	0	3	50	100	-	150
2	PC	ETCST332	Software Engineering	3	0	0	3	50	100	-	150
3	PC	ETCST333	Advanced JAVA Programming	3	0	0	3	50	100	-	150
4	PC	ETCST346	IoT System Architectures and IoT Communication Protocols	3	0	0	3	50	100	-	150
5	PE	ETCST335	Cyber Law and Ethics	2	1	0	3	50	100	-	150
		ETCST336	Artificial Intelligence								
		ETCST338	Real Time System								
6	OE	ETMAT326	Numerical Methods	2	1	0	3	50	100	-	150
		ETECT429	Wireless Sensor Networks								
		ETMAT327	Operation Research								
Practical											
1	PC	ETCSS330	Seminar-I	0	0	2	1	-	-	100	100
2	PC	ETCSS338	IoT Communication Protocols Lab	0	0	2	1	-	-	100	100
3	PC	ETCSS332	Software Engineering Lab.	0	0	2	1	-	-	100	100
4	PSI	ETCSS333	JAVA Programming	0	0	2	1	-	-	100	100
<b>Total (Theory + Practical)</b>				<b>21</b>	<b>0</b>	<b>8</b>	<b>22</b>	<b>300</b>	<b>600</b>	<b>400</b>	<b>1300</b>



# Department of Computer Science & Engineering

## Syllabus Structure for 4<sup>th</sup> Year

### Semester-VII

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	PE	ETCST426	Computer Graphics	3	0	0	3	50	100	-	150
		ETCST427	Computer Vision								
		ETCST428	Internet and Web Technology								
2	PE	ETCST429	Soft Computing	3	0	0	3	50	100	-	150
		ETCST430	Advanced Operating System								
		ETCST452	IoT Cloud Processing and Analytics								
3	OE	ETCST432	Cryptography & Network Security	3	0	0	3	50	100	-	150
		ETCST453	Industrial IoT and IoT Automation								
		ETPHT426	Nano science & Biotechnology								
4	OE	ETCST456	5G & IoT Technology	2	1	0	3	50	100	-	150
		ETHST426	Management Information System								
		ETCET429	Metro System and Engineering								
Practical											
1	PSI	ETCSS426	Minor Project	0	0	4	2	-	-	200	200
2	PSI	ETCSS427	Seminar-2	0	0	2	1	-	-	100	100
3	PSI	ETCSS428	Evaluation of Summer Internship-III	-	-	-	1	-	-	100	100
<b>Total (Theory + Practical)</b>				<b>12</b>	<b>0</b>	<b>6</b>	<b>16</b>	<b>200</b>	<b>400</b>	<b>400</b>	<b>1000</b>





# Department of Computer Science & Engineering

## Semester-VIII

Theory											
Sl. No.	Category	Course Code	Course Title	Teaching Hours			Credit	Maximum Marks			
				L	T	P		IA	EA	PA	Total
1	PE	ETCST440	Human Computer Interaction (HCI)	3	0	0	3	50	100	-	150
		ETCST441	Advanced Mobile Communications								
		ETCST442	5G Micro Specialization								
2	OE	ETHST427	Research Methodology	2	1	0	3	50	100	-	150
		ETCYT426	Green Technology								
		ETCST443	E-Commerce								
Practical											
1	PSI	ETCSS429	Major Project / Internship	0	0	20	10	-	-	1000	1000
<b>Total (Theory + Practical)</b>				<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>	<b>100</b>	<b>200</b>	<b>1000</b>	<b>1300</b>