



# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution)

(Affiliated to Anna University, Chennai & Approved by AICTE, New Delhi)

Established in 1956, A Unit of V.Rangasamy Naidu Educational Trust  
**CIVIL AERODROME POST, COIMBATORE-641 014, TAMILNADU, INDIA**

## NAAC DVV CLARIFICATION

### NAAC CRITERION 1– Curricular Aspects

#### 1.2 – Academic Flexibility

##### 1.2.1.2. Consolidated number of courses offered by the institution across all

Programmes (without repeat count) during the last five years:

HEI Input (Revised) :: 2019

S.No	Programme Name	No.of Courses offered in the last five years	List of Offered Courses
1.	B.E Civil Engineering	110	<a href="#">Open</a>
2.	B.E Mechanical Engineering	104	<a href="#">Open</a>
3.	B.E Electrical & Electronics Engineering	151	<a href="#">Open</a>
4.	B.E Electronics & Communication Engineering	116	<a href="#">Open</a>
5.	B.E Computer Science & Engineering	101	<a href="#">Open</a>
6.	B.Tech Chemical Engineering	112	<a href="#">Open</a>
7.	B.Tech Information Technology	90	<a href="#">Open</a>
8.	B.TECH AIDS	133	<a href="#">Open</a>
9.	M.Sc. Software Systems	86	<a href="#">Open</a>
10.	M.Sc. Data Science	95	<a href="#">Open</a>
11.	M.Sc. Decision & Computing Science	92	<a href="#">Open</a>
12.	M.Sc. Artificial Intelligence & Machine Learning	100	<a href="#">Open</a>
13.	Master of Computer Application (MCA)	85	<a href="#">Open</a>



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S.No	Programme Name	No.of Courses offered in the last five years	List of Offered Courses
14.	Master of Business Administration (MBA)	101	<a href="#">Open</a>
15.	M.E. Structural Engineering	40	<a href="#">Open</a>
16.	M.E. Environmental Engineering	39	<a href="#">Open</a>
17.	M.E. Construction Management	34	<a href="#">Open</a>
18.	M.E Advanced Manufacturing Technology	55	<a href="#">Open</a>
19.	M.E Heat Power Engineering	42	<a href="#">Open</a>
20.	M.E. Embedded and Real Time Systems	46	<a href="#">Open</a>
21.	M.E Applied Electronics	44	<a href="#">Open</a>
22.	M.E. Communication Engineering	74	<a href="#">Open</a>
23.	M.E. Computer Science and Engineering	70	<a href="#">Open</a>
24.	M.Tech Nano Science And Technology	33	<a href="#">Open</a>
25.	Open Electives	66	<a href="#">Open</a>
<b>Total</b>		<b>2019</b>	

# COIMBATORE INSTITUTE OF TECHNOLOGY

( Government Aided Autonomous Institution Affiliated to Anna University )

## DEPARTMENT OF CIVIL ENGINEERING

### B.E. CIVIL ENGINEERING-FULL TIME

#### (III TO VIII SEMESTER)

Curriculum from the Academic Year 2019 - 2020 and onwards

### SUBJECTS OF STUDY

#### Semester III

Course Code	Course Name	L	T	P	C	Category
19CEM31	Differential Equations and Boundary Value Problems	3	1	0	4	BSC
19CE31	Mechanics of Solids	3	1	0	4	ES
19CE32	Engineering Geology	3	0	0	3	PC
19CE33	Mechanics of Fluids	3	0	0	3	PC
19CE34	Surveying	3	0	0	3	PC
19CE35	Water Supply Engineering	3	0	0	3	PC
19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	HSC
19CEL36	Strength of Materials Laboratory	0	0	2	1	PC
19CEL37	Survey Laboratory	0	0	2	1	PC
	One Credit Course	1	0	0	1	EEC
<b>19HOC31</b>	<b>Communication Skills for Engineers I*</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>EEC</b>
	<b>TOTAL CREDITS</b>				<b>25</b>	

#### Semester IV

Course Code	Course Name	L	T	P	C	Category
19CE41	Construction Technology	3	0	0	3	PC
19CE42	Strength of Materials	3	1	0	4	PC
19CE43	Transportation Engineering	3	0	0	3	PC
19CE44	Applied Hydraulics and Hydraulic Machinery	3	0	0	3	PC
19CE45	Waste Water Engineering	3	0	0	3	PC
19CE46	Professional Practices and Ethics	3	0	0	3	BSC
19CEL47	Hydraulics Laboratory	0	0	2	1	PC
19CEL48	Environmental Engineering Laboratory	0	0	2	1	PC
	One Credit Course	1	0	0	1	EEC
<b>19HOC41</b>	<b>Communication Skills for Engineers II*</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>EEC</b>
	<b>TOTAL CREDITS</b>				<b>23</b>	
	* Not to be counted for GPA. Pass is required					

**Semester V**

Course Code	Course Name	L	T	P	C	Category
19CE51	Structural Analysis - I	3	0	0	3	PC
19CE52	Design of Reinforced Concrete Structural Elements	3	0	0	3	PC
19CE53	Mechanics of Soils	3	0	0	3	PC
19CE54	Concrete Technology	3	0	0	3	PC
	Elective- I	3	0	0	3	EC
	Elective - II	3	0	0	3	EC
19CEL55	Computer Aided Civil Engineering Drawing	0	0	2	1	ES
19CEL56	Highway Engineering Laboratory	0	0	2	1	PC
	One Credit Course	1	0	0	1	EEC
	Mini Project	-	-	-	-	EEC
19INT51	Internship*	0	0	2	1	EEC
<b>19HOC51</b>	<b>Employability and Personality Development Skills I #</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>EEC</b>
	<b>TOTAL CREDITS</b>				<b>23</b>	

**\*2 weeks of Internship to be completed during 4<sup>th</sup> semester vacation**

**Semester VI**

Course Code	Course Name	L	T	P	C	Category
19CE61	Structural Analysis - II	3	0	0	3	PC
19CE62	Design of Steel Structures	3	0	0	3	PC
19CE63	Foundation Engineering	3	0	0	3	PC
	Elective- III	3	0	0	3	EC
	Elective- IV	3	0	0	3	EC
19CEL64	Soil Mechanics Laboratory	0	0	2	1	PC
19CEL65	Quantity Surveying and Project Planning Laboratory	0	0	2	1	PC
	One Credit Course	1	0	0	1	EEC
19CE66	Mini Project	0	0	6	3	EEC
19INT61	Internship*	0	0	2	1	EEC
<b>19HOC61</b>	<b>Employability and Personality Development Skills II #</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>EEC</b>
	<b>TOTAL CREDITS</b>				<b>23</b>	

**\*2 weeks of Internship to be completed during 5<sup>th</sup> semester vacation**

# Not to be counted for GPA. Pass is required

**Semester VII**

Course Code	Course Name	L	T	P	C	Category
19CE71	Irrigation Engineering	3	0	0	3	PC
19CE72	Earthquake Resistant Design of Structures	3	0	0	3	PC
19CE73	Construction Management	3	0	0	3	PC
	Elective- V	3	0	0	3	EC
	Elective- VI	3	0	0	3	EC
19CEL74	Computer Applications Laboratory	0	0	2	1	PC
19CEL75	Concrete Laboratory	0	0	2	1	PC
19CE76	Project Work Phase I	0	0	6	3	EEC
	<b>TOTAL CREDITS</b>				<b>20</b>	

**Semester VIII**

Course Code	Course Name	L	T	P	C	Category
	Elective- VII	3	0	0	3	EC
	Elective-VIII	3	0	0	3	EC
19CE81	Project Work Phase II	0	0	10	5	EEC
	<b>TOTAL CREDITS</b>				<b>11</b>	

\* Including first year credits

**TOTAL CREDITS = 164\***

BSC - Basic Sciences

HSC - Humanities and Social Sciences

ES - Engineering Sciences

PC - Professional Core

PE - Professional Elective

OE - Open Elective

EEC - Employability Enhancement Course

EC - Elective Course - PE / OE

## LIST OF ELECTIVES

### PROFESSIONAL ELECTIVES

#### 1. STRUCTURAL ENGINEERING

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CEE01	Design of Concrete Structures	3	0	0	3	PE
2	19CEE02	Advanced Concrete Structures	3	0	0	3	PE
3	19CEE03	Prestressed Concrete Structures	3	0	0	3	PE
4	19CEE04	Design of Bridges	3	0	0	3	PE
5	19CEE05	Advanced Steel Structures	3	0	0	3	PE
6	19CEE06	Advanced Structural Analysis	3	0	0	3	PE
7	19CEE07	Prefabricated Structures	3	0	0	3	PE
8	19CEE08	Advanced Surveying	3	0	0	3	PE
9	19CEE09	Numerical Methods for Civil Engineering	3	0	0	3	PE
10	19CEE10	Finite Element Method	3	0	0	3	PE
11	19CEE11	Industrial Structures	3	0	0	3	PE
12	19CEE12	Smart Materials and Structures	3	0	0	3	PE
13	19CEE13	Safety in Civil Engineering Practice	3	0	0	3	PE
14	19CEE14	Remote Sensing and GIS	3	0	0	3	PE
15	19CEE15	Ground Improvement Techniques	3	0	0	3	PE
16	19CEE16	Design of Deep Foundation	3	0	0	3	PE
17	19CEE17	Earthquake Resistant Design of Masonry and Timber Structures	3	0	0	3	PE
18	19CEE18	Building Services and Maintenance Engineering	3	0	0	3	PE
19	19CEE19	Optimization Techniques in Civil Engineering	3	0	0	3	PE
20	19CEE20	Theory of Architecture	3	0	0	3	PE
21	19CEE21	Green Building Concepts and Practices	3	0	0	3	PE

#### 2. ENVIRONMENTAL ENGINEERING

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CEE22	Design of Environmental Structures and Drawing	3	0	0	3	PE
2	19CEE23	Air Pollution and Control	3	0	0	3	PE
3	19CEE24	Solid and Hazardous Waste Management	3	0	0	3	PE
4	19CEE25	Environmental Impact Assessment	3	0	0	3	PE
5	19CEE26	Industrial Waste Water Management	3	0	0	3	PE
6	19CEE27	Geo Environmental Engineering	3	0	0	3	PE

### 3. TRANSPORTATION ENGINEERING

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CEE28	Pavement Engineering	3	0	0	3	PE
2	19CEE29	Airport and Harbour Engineering	3	0	0	3	PE
3	19CEE30	Traffic Engineering	3	0	0	3	PE
4	19CEE31	Urban Transportation Planning	3	0	0	3	PE
5	19CEE32	Intelligent Transport System	3	0	0	3	PE

### 4. HYDRAULICS

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CEE33	Hydraulic Structures	3	0	0	3	PE
2	19CEE34	Engineering Hydrology	3	0	0	3	PE

### 5. CONSTRUCTION ENGINEERING AND MANAGEMENT

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CEE35	Valuation of Immovable Properties	3	0	0	3	PE
2	19CEE36	Engineering Economics	3	0	0	3	PE
3	19CEE37	Maintenance and Rehabilitation of Structures	3	0	0	3	PE
4	19CEE38	Advanced Construction Technology	3	0	0	3	PE
5	19CEE39	Contract Management	3	0	0	3	PE
6	19CEE40	Construction Equipments and Techniques	3	0	0	3	PE
7	19CEE41	Formwork for Concrete Structures	3	0	0	3	PE
8	19CEE42	Entrepreneurship in Civil Engineering	3	0	0	3	PE

**ONE CREDIT COURSES\*****A) INDUSTRY BASED ONE CREDIT COURSES**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CEOC01	Building Construction Process- An Overview	1	0	0	1	OC
2	19CEOC02	Applications of IOT in Civil Engineering	1	0	0	1	OC
3	19CEOC03	Certification and Career Roadmap in Civil Engineering	1	0	0	1	OC
4	19CEOC04	Environmental Monitoring	1	0	0	1	OC
5	19CEOC05	Python for Civil Engineers	1	0	0	1	OC
6	19CEOC06	3D Printing of Civil Engineering Structures	1	0	0	1	OC

**B) DEPARTMENT BASED ONE CREDIT COURSES**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CEOC07	Alternative Building Materials from Waste	1	0	0	1	OC
2	19CEOC08	Structural Drawing	0	0	2	1	OC
3	19CEOC09	Sustainability in Construction	1	0	0	1	OC
4	19CEOC10	Introduction to Image Processing and GIS	0	0	2	1	OC

**C) NPTEL ONLINE COURSES**

\* One credit courses could be opted from Department / Industry / NPTEL

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## DEPARTMENT OF MECHANICAL ENGINEERING

### BACHELOR OF MECHANICAL ENGINEERING

#### CHOICE BASED CREDIT SYSTEM

Curriculum from the Academic Year 2019 - 2020 and onwards

#### SUBJECTS OF STUDY

##### Semester III

Course Code	Course Name	L	T	P	C	Category
19MEM31	Ordinary and Partial Differential Equations	3	1	0	4	BSC
19ME31	Engineering Thermodynamics	3	1	0	4	PCC
19ME32	Engineering Mechanics for Mechanical Engineers	3	1	0	4	PCC
19ME33	Fluid Mechanics and Machinery	3	0	0	3	PCC
19ME34	Embedded Processor Architecture and Programming	3	0	0	3	ESC
19HSS01	Science of Creativity and Professional Ethics	1	1	0	1	HS
19MEL35	Computer Aided Machine Drawing - I	0	0	2	1	PCC
19MEL36A / 19MEL36B	Fluid Mechanics & Machinery Laboratory / Electrical Machines & Drives and Embedded Systems Laboratory	0	0	2	0.5	PCC
	One Credit Course - Elective I	1	0	0	1	EEC
19HOC31	Communication Skills for Engineers - I*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22.5</b>	

##### Semester IV

Course Code	Course Name	L	T	P	C	Category
19ME41	Applied Thermodynamics	3	1	0	4	PCC
19ME42	Strength of Materials	3	1	0	4	PCC
19ME43	Mechanics of Machines	3	1	0	4	PCC
19ME44	Materials Engineering	3	0	0	3	PCC
19ME45	Manufacturing Processes - I	3	0	0	3	PCC
19MEL46	Computer Aided Machine Drawing - II	0	0	2	1	PCC
19MEL36A / 19MEL36B	Fluid Mechanics & Machinery Laboratory / Electrical Machines & Drives and Embedded Systems Laboratory	0	0	2	0.5	PCC

19MEL47A / 19MEL47B	Material Characterization and Testing Laboratory / Manufacturing Processes Laboratory	0	0	2	0.5	PCC
	One Credit Course - Elective II	1	0	0	1	EEC
19HOC41	Communication Skills for Engineers - II*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

\* Not to be counted for GPA. Pass is required.

### Semester V

Course Code	Course Name	L	T	P	C	Category
19ME51	Heat and Mass Transfer	3	1	0	4	PCC
19ME52	Design of Machine Elements	3	1	0	4	PCC
19ME53	Manufacturing Processes - II	3	0	0	3	PCC
19ME54	Metrology and Quality Control	3	0	0	3	PCC
19ME55	Operations Research	3	1	0	4	HS
	Elective 1	3	0	0	3	PEC
19MEL47A / 19MEL47B	Material Characterization and Testing Laboratory / Manufacturing Processes Laboratory	0	0	2	0.5	PCC
19MEL56A / 19MEL56B	Applied Thermal Sciences Laboratory / Dynamics and Metrology Laboratory	0	0	2	0.5	PCC
	One Credit Course - Elective III	1	0	0	1	EEC
19INT51	Internship - I	0	0	0	1	EEC
19ME67	Mini Project	0	0	3	0	EEC
19HOC51	Employability and Personality Development Skills - I*	0	0	2	1	
	<b>TOTAL CREDITS</b>				<b>25</b>	

### Semester VI

Course Code	Course Name	L	T	P	C	Category
19ME61	Refrigeration and Air-conditioning	3	0	0	3	PCC
19ME62	Finite Element Analysis	3	1	0	4	PCC
19ME63	Design of Transmission Systems	3	1	0	4	PCC
19ME64	Computer Aided Engineering	3	1	0	4	PCC
	Elective 2	3	0	0	3	PEC
19MEL56A / 19MEL56B	Applied Thermal Sciences Laboratory / Dynamics and Metrology Laboratory	0	0	2	0.5	PCC
19MEL65	CAD / CAM Laboratory	0	0	2	1	PCC
	One Credit Course - Elective IV	1	0	0	1	PCC
19INT61	Internship - II	0	0	0	1	EEC
19ME67	Mini Project	0	0	3	3	EEC
19HOC61	Employability and Personality Development Skills - II*	0	0	2	1	
	<b>TOTAL CREDITS</b>				<b>25.5</b>	

\* Not to be counted for GPA. Pass is required.

**Semester VII**

Course Code	Course Name	L	T	P	C	Category
19ME71	Control Theory and Mechatronics	2	0	2	3	PCC
19ME72	Quality Engineering and Management	3	0	0	3	PCC
	Elective 3	3	0	0	3	PEC
	Elective 4	3	0	0	3	PEC
	Elective 5	3	0	0	3	OEC
	Elective 6	3	0	0	3	OEC
19ME73	Project Work Phase - I	0	0	6	3	EEC
	<b>TOTAL CREDITS</b>				<b>21</b>	

**Semester VIII**

Course Code	Course Name	L	T	P	C	Category
	Elective 7	3	0	0	3	PEC
	Elective 8	3	0	0	3	PEC
19ME81	Project Work Phase - II	0	0	10	5	EEC
	<b>TOTAL CREDITS</b>				<b>11</b>	

Semester 1	20
Semester 2	19
Semester 3	22.5
Semester 4	22
Semester 5	25
Semester 6	25.5
Semester 7	21
Semester 8	11
<b>Total Credits</b>	<b>166</b>

**List of Professional Elective Courses (PEC)****STREAM : MATERIALS AND DESIGN**

Course Code	Course Name	L	T	P	C
19MEE01	Composite Materials	3	0	0	3
19MEE02	Design for Manufacturing and Assembly	3	0	0	3
19MEE03	Design of Jigs and Fixtures	3	0	0	3
19MEE04	Mechanical Behaviour of Materials	3	0	0	3
19MEE05	Machine Tool Design	3	0	0	3
19MEE06	Mechanical Vibrations and Control	3	0	0	3
19MEE07	Tribology	3	0	0	3
19MEE08	Experimental Stress Analysis	3	0	0	3
19MEE09	Fluid Power Control Systems	3	0	0	3
19MEE10	Sensor Technology	3	0	0	3
19MEE11	Smart Materials	3	0	0	3
19MEE12	Non-Destructive Evaluation and Imaging	3	0	0	3
19MEE13	Automotive Electronics and Power Train Systems	3	0	0	3
19MEE14	Bio-materials	3	0	0	3
19MEE15	Micro and Nano Electro-mechanical Systems	3	0	0	3

**STREAM : THERMAL SCIENCES**

Course Code	Course Name	L	T	P	C
19MEE16	Solar Energy Technology	3	0	0	3
19MEE17	Gas Dynamics and Space Propulsion	3	0	0	3
19MEE18	Computational Fluid Dynamics	3	0	0	3
19MEE19	Alternative Energy Conversion Techniques	3	0	0	3
19MEE20	Advanced Fluid Mechanics	3	0	0	3
19MEE21	Advanced Thermodynamics	3	0	0	3
19MEE22	Cryogenics	3	0	0	3
19MEE23	Combustion and Internal Combustion Engines	3	0	0	3
19MEE24	Energy Conservation and Waste Heat Recovery	3	0	0	3
19MEE25	Design of Heat Exchangers	3	0	0	3
19MEE26	Turbo machines	3	0	0	3
19MEE27	Power Plant Engineering	3	0	0	3

**STREAM : MANUFACTURING AND MANAGEMENT**

Course Code	Course Name	L	T	P	C
19MEE28	Industrial Psychology	3	0	0	3
19MEE29	Work System Design	3	0	0	3
19MEE30	Total Productivity Management	3	0	0	3
19MEE31	Plant Layout and Material Handling	3	0	0	3
19MEE32	Project Management	3	0	0	3
19MEE33	Rapid Prototyping	3	0	0	3
19MEE34	Advanced Welding Technology	3	0	0	3
19MEE35	Advanced Foundry Technology	3	0	0	3
19MEE36	Supply Chain Management	3	0	0	3
19MEE37	Quantity Production Methods	3	0	0	3
19MEE38	Production Planning and Control	3	0	0	3
19MEE39	Lean and Agile Manufacturing	3	0	0	3
19MEE40	Production and Operations Management	3	0	0	3
19MEE41	Smart Manufacturing	3	0	0	3
19MEE42	Manufacturing Planning and Cost Estimation	3	0	0	3
19MEE43	Manufacturing Systems Management	3	0	0	3

**ONE CREDIT COURSES (ELECTIVES) OFFERED**

Course Code	Course Name	Category	L	T	P	C
19MEOC01	MATLAB Programming*	OC	1	0	0	1
19MEOC02	Non-Destructive Evaluation	OC	1	0	0	1
19MEOC03	Advanced Industrial Automation Systems*	OC	1	0	0	1
19MEOC04	Recent Trends in Quality	OC	1	0	0	1
19MEOC05	Foundry Practice and Procedures	OC	1	0	0	1
19MEOC06	Basics of Automotive Electrical Systems*	OC	1	0	0	1
19MEOC07	Design Thinking - A Primer	OC	1	0	0	1
19MEOC08	Aircraft Maintenance*	OC	1	0	0	1
19MEOC09	Inspection and Quality Control in Manufacturing*	OC	1	0	0	1
19MEOC10	Constitution of India	OC	1	0	0	1
19MEOC11	Biology for Engineers	OC	1	0	0	1
19MEOC12	Human Values	OC	1	0	0	1
19MEOC13	E-Commerce Security*	OC	1	0	0	1
19MEOC14	Innovation and Entrepreneurship	OC	1	0	0	1
19MEOC15	3-D Scanning Technology	OC	1	0	0	1

\* Employability enhancement courses

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## B.E. ELECTRICAL AND ELECTRONICS ENGINEERING (FULL TIME)

### CHOICE BASED CREDIT SYSTEM

Curriculum from the Academic Year 2019 - 2020 and onwards

### SUBJECTS OF STUDY

#### Semester III

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EEM31	Transforms, Probability and Random Variables	3	0	0	3	BS
2	19EE31	Electric Circuit Analysis	2	1	0	3	PCC
3	19EE32	Electromagnetic Fields	2	1	0	3	PCC
4	19EE33	DC Machines and Transformers	3	0	0	3	PCC
5	19EE34	Analog Electronics	3	0	0	3	PCC
6	19EE35	Digital Electronics	3	0	0	3	PCC
7	19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	HS
8	19EEL36	DC Machines and Transformers Laboratory	0	0	2	1	PCC
9	19EEL37	Analog and Digital Electronics Laboratory	0	0	2	1	PCC
10		One Credit Course 1				1	OCC
11	19HOC31	Communication Skills For Engineers I*	0	0	2	1	EEC
<b>(BS - 3, HS - 1, PCC - 17, OCC - 1, EEC - 1) TOTAL CREDITS</b>						<b>23</b>	
* Not to be counted for GPA. Pass is required							

#### Semester IV

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EE41	AC Rotating Machines	3	0	0	3	PCC
2	19EE42	Networks and Systems	3	0	0	3	PCC
3	19EE43	Measurements and Instrumentation	3	0	0	3	PCC
4	19EE44	Linear Integrated Circuits	3	0	0	3	PCC
5	19EE45	Transmission and Distribution	3	0	0	3	PCC
6	19EE46	OOPS and C++ for Electrical Engineers	3	0	0	3	PCC
7	19EEL47	AC Rotating Machines Laboratory	0	0	2	1	PCC
8	19EEL48	Linear Integrated Circuits Laboratory	0	0	2	1	PCC
9		One Credit Course 2				1	OCC
10	19HOC41	Communication Skills For Engineers II*	0	0	2	1	EEC
<b>( PCC - 20, OCC - 1, EEC - 1) TOTAL CREDITS</b>						<b>22</b>	
* Not to be counted for GPA. Pass is required							

**Semester V**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EE51	Control Systems	3	0	0	3	PCC
2	19EE52	Power System Analysis	3	0	0	3	PCC
3	19EE53	Data Structures and Algorithms	3	0	0	3	PCC
4	19EE54	Embedded System Design	3	0	0	3	PCC
5		Elective Course 1	3	0	0	3	EC
6		Elective Course 2	3	0	0	3	EC
7	19EEL55	Control systems Laboratory	0	0	2	1	PCC
8	19EEL56	Embedded System Design Laboratory	0	0	2	1	PCC
9		One Credit Course 3				1	OCC
10	19EEL66	Mini Project	-	-	2	-	EEC
11	19INT51	Internship - I	-	-	-	1	EEC
12	19HOC51	Employability and Personality Development Skills - I *	0	0	2	1	EEC
<b>( PCC - 14, EC - 6, OCC - 1, EEC - 2 )</b>			<b>TOTAL CREDITS</b>			<b>23</b>	
* Not to be counted for GPA. Pass is required							

**Semester VI**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EE61	Power Electronics	3	0	0	3	PCC
2	19EE62	Digital Protection of Power Systems	3	0	0	3	PCC
3	19EE63	Digital Signal Processing	3	1	0	4	PCC
4		Elective Course 3	3	0	0	3	EC
5		Elective Course 4	3	0	0	3	EC
6	19EEL64	Power Electronics Laboratory	0	0	2	1	PCC
7	19EEL65	Power Systems Laboratory	0	0	2	1	PCC
8		One Credit Course 4				1	OCC
9	19EEL66	Mini Project	0	0	6	3	EEC
10	19INT61	Internship - II	-	-	-	1	EEC
11	19HOC61	Employability and Personality Development Skills - II*	0	0	2	1	EEC
<b>( PCC - 12, EC - 6, OCC - 1, EEC - 5 )</b>			<b>TOTAL CREDITS</b>			<b>24</b>	
* Not to be counted for GPA. Pass is required							

**Semester VII**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EE71	Solid State Drives and Control	3	0	0	3	PCC
2	19EE72	Generation of Electrical Energy	3	1	0	4	PCC
3	19EE73	Smart Grid	3	0	0	3	PCC
4		Elective Course 5	3	0	0	3	EC
5		Elective Course 6	3	0	0	3	EC
6	19EEL74	Electrical Drives Laboratory	0	0	2	1	PCC
7	19EEL75	Professional Competency	0	0	4	2	PCC
8	19EE76	Project Work Phase - I	0	0	6	3	EEC
<b>( PCC - 13, EC - 6, EEC - 3)</b>			<b>TOTAL CREDITS</b>			<b>22</b>	

**Semester VIII**

S. No.	Course Code	Course Name	L	T	P	C	Category
1		Elective Course 7	3	0	0	3	EC
2		Elective Course 8	3	0	0	3	EC
3	19EE81	Project Work Phase - II	0	0	10	5	EEC
<b>( EC - 6, EEC - 5)</b>			<b>TOTAL CREDITS</b>			<b>11</b>	

**TOTAL CREDITS : 164 \***

\* Including First Year Credits

Category : **BS** - Basic Sciences, **HS** - Humanities and Social Sciences, **ES** - Engineering Sciences, **PCC** - Professional Core Course, **EC** - Elective Course, **EEC** - Employability Enhancement Course, **OCC** - One Credit Course.

**ELECTIVE COURSES****PROFESSIONAL ELECTIVE COURSE : STREAM****I. ELECTRICAL MACHINES AND CONTROL (EMC)**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EEEE01	Design of Electrical Machines	3	0	0	3	EC
2	19EEEE02	Special Electrical Machines	3	0	0	3	EC
3	19EEEE03	Modeling and Analysis of Electrical Machines	3	0	0	3	EC
4	19EEEE04	Digital Control Systems	3	0	0	3	EC
5	19EEEE05	Systems Theory	3	0	0	3	EC
6	19EEEE06	Embedded control of electric drives	3	0	0	3	EC
7	19EEEE07	Robust Control	3	0	0	3	EC

**II. POWER AND ENERGY (PE)**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EEEE08	Power Quality	3	0	0	3	EC
2	19EEEE09	Advanced Power Electronics	3	0	0	3	EC
3	19EEEE10	Power and Energy Management	3	0	0	3	EC
4	19EEEE11	Energy Storage Technology	3	0	0	3	EC
5	19EEEE12	Utilization and Conservation of Electrical Energy	3	0	0	3	EC
6	19EEEE13	Electrical Safety	3	0	0	3	EC
7	19EEEE14	Energy Efficient Lighting Systems	3	0	0	3	EC
8	19EEEE15	Power System Design	3	0	0	3	EC
9	19EEEE16	High Voltage Transmission Systems	3	0	0	3	EC
10	19EEEE17	Deregulated Power System	3	0	0	3	EC
11	19EEEE18	Electric Vehicles	3	0	0	3	EC
12	19EEEE19	Energy Audit in Thermal & Electrical Utilities	3	0	0	3	EC
13	19EEEE41	Switched Mode Power Conversion	3	0	0	3	EC
14	19EEEE42	Utilization of Solar Energy	3	0	0	3	EC

**III. ELECTRONIC DESIGN (ED)**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EEEE20	Real Time Embedded Systems	3	0	0	3	EC
2	19EEEE21	VLSI Design	3	0	0	3	EC
3	19EEEE22	FPGA based System Design	3	0	0	3	EC
4	19EEEE23	Robotics and Control	3	0	0	3	EC
5	19EEEE24	Digital Consumer technology	3	0	0	3	EC
6	19EEEE25	Electronic Product Design	3	0	0	3	EC
7	19EEEE26	Medical Electronics	3	0	0	3	EC
8	19EEEE27	Analog and Digital Communication	3	0	0	3	EC
9	19EEEE28	Multimedia system	3	0	0	3	EC
10	19EEEE29	Automation, Renewable Energy & FPGA Laboratory	0	0	6	3	EC
11	19EEEE43	Wearable Sensors	3	0	0	3	EC

**IV. COMPUTER AND COMMUNICATION (CC)**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EEE30	Computer Architecture and Parallel Processing	3	0	0	3	EC
2	19EEE31	Multi Core Architecture	3	0	0	3	EC
3	19EEE32	Data Communication Networks	3	0	0	3	EC
4	19EEE33	Fog Computing	3	0	0	3	EC
5	19EEE34	Internet of Things	3	0	0	3	EC
6	19EEE35	Data Analytics	3	0	0	3	EC
7	19EEE36	Virtual Instrumentation	3	0	0	3	EC
8	19EEE37	Cyber Physical Systems	3	0	0	3	EC
9	19EEE38	Intelligent Techniques for Electrical Engineers	3	0	0	3	EC
10	19EEE39	Industrial Automation	3	0	0	3	EC
11	19EEE40	Deep Learning	3	0	0	3	EC

**BS - BASIC SCIENCES**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19FYM12	Calculus and Numerical Methods	3	1	0	4	BS
2	19FYP13	Engineering Physics	3	0	0	3	BS
3	19FYC11	Engineering Chemistry	3	0	0	3	BS
4	19PL11	Physics Laboratory-I	0	0	1	0.5	BS
5	19CL11	Chemistry Laboratory-I	0	0	1	0.5	BS
6	19FYM22	Vector Calculus, Linear Algebra and Partial Differential Equations	3	1	0	4	BS
7	19PL21	Physics Laboratory-II	0	0	1	0.5	BS
8	19CL21	Chemistry Laboratory-II	0	0	1	0.5	BS
9	19MEL12	Engineering Practices Laboratory	0	0	2	1	BS
10	19EEM31	Transforms, Probability and Random Variables	3	0	0	3	BS
<b>TOTAL CREDITS</b>						<b>20</b>	

**HS - HUMANITIES AND SOCIAL SCIENCES**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19FYE11	Technical English	1	0	2	2	HS
2	19FYE21	Language Elective	1	0	2	2	HS
3	19FYC21	Environmental Science and Engineering	1	0	0	1	HS
4	19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	HS
<b>TOTAL CREDITS</b>						<b>6</b>	

**ES - ENGINEERING SCIENCES**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19CM11	Basic Civil and Mechanical Engineering	3	0	0	3	ES
2	19MEL11	Engineering Graphics	1	0	4	3	ES
3	19FYP23	Electron Devices	3	0	0	3	ES
4	19EE22	Electric and Magnetic Circuits	3	0	0	3	ES
5	19CSL21	C Programming and Data Bases	0	0	4	2	ES
<b>TOTAL CREDITS</b>						<b>14</b>	

**PCC - PROFESSIONAL CORE COURSE**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19EE31	Electric Circuit Analysis	2	1	0	3	PCC
2	19EE32	Electromagnetic Fields	2	1	0	3	PCC
3	19EE33	DC Machines and Transformers	3	0	0	3	PCC
4	19EE34	Analog Electronics	3	0	0	3	PCC
5	19EE35	Digital Electronics	3	0	0	3	PCC
6	19EEL36	DC Machines and Transformers Laboratory	0	0	2	1	PCC
7	19EEL37	Analog and Digital Electronics Laboratory	0	0	2	1	PCC
8	19EE41	AC Rotating Machines	3	0	0	3	PCC
9	19EE42	Networks and Systems	3	0	0	3	PCC
10	19EE43	Measurements and Instrumentation	3	0	0	3	PCC
11	19EE44	Linear Integrated Circuits	3	0	0	3	PCC
12	19EE45	Transmission and Distribution	3	0	0	3	PCC
13	19EE46	OOPS and C++ for Electrical Engineers	3	0	0	3	PCC
14	19EEL47	AC Rotating Machines Laboratory	0	0	2	1	PCC
15	19EEL48	Linear Integrated Circuits Laboratory	0	0	2	1	PCC
16	19EE51	Control Systems	3	0	0	3	PCC
17	19EE52	Power System Analysis	3	0	0	3	PCC
18	19EE53	Data Structures and Algorithms	3	0	0	3	PCC
19	19EE54	Embedded System Design	3	0	0	3	PCC
20	19EEL55	Control systems Laboratory	0	0	2	1	PCC
21	19EEL56	Embedded System Design Laboratory	0	0	2	1	PCC
22	19EE61	Power Electronics	3	0	0	3	PCC
23	19EE62	Digital Protection of Power Systems	3	0	0	3	PCC
24	19EE63	Digital Signal Processing	3	1	0	4	PCC
25	19EEL64	Power Electronics Laboratory	0	0	2	1	PCC
26	19EEL65	Power Systems Laboratory	0	0	2	1	PCC
27	19EE71	Solid State Drives and Control	3	0	0	3	PCC
28	19EE72	Generation of Electrical Energy	3	1	0	4	PCC
29	19EE73	Smart Grid	3	0	0	3	PCC
30	19EEL74	Electrical Drives Laboratory	0	0	2	1	PCC
31	19EEL75	Professional Competency	0	0	4	2	PCC
<b>TOTAL CREDITS</b>						<b>76</b>	

**EEC - EMPLOYABILITY ENHANCEMENT COURSE**

S. No.	Course Code	Course Name	L	T	P	C	Category
1	19FYEL11	Employability Skills	0	0	2	1	EEC
2	19FYEL21	English for Employability	0	0	2	1	EEC
3	19HOC31	Communication Skills For Engineers I*	0	0	2	1	EEC
4	19HOC41	Communication Skills For Engineers II*	0	0	2	1	EEC
5	19HOC51	Employability and Personality Development Skills - I *	0	0	2	1	EEC
6	19HOC61	Employability and Personality Development Skills - II *	0	0	2	1	EEC
7	19INT51	Internship - I	-	-	-	1	EEC
8	19EEL66	Mini Project	0	0	6	3	EEC
9	19INT61	Internship - II	-	-	-	1	EEC
10	19EE76	Project Work Phase - I	0	0	6	3	EEC
11	19EE81	Project Work Phase - II	0	0	10	5	EEC
<b>TOTAL CREDITS</b>						<b>19</b>	

**LIST OF ONE CREDIT COURSES \*****1. DEPARTMENT BASED ONE CREDIT COURSES**

S. No.	Course Code	Course Name	Credit	Category
1	19EEOC06	Electrical Safety Standards and Practices	1	OCC
2	19EEOC07	Scilab Programming	1	OCC

**2. INDUSTRY BASED ONE CREDIT COURSES**

S. No.	Course Code	Course Name	Credit	Category
1	19EEOC08	Machine Vision	1	OCC
2	19EEOC09	Cyber Security in Manufacturing and Smart Grid	1	OCC
3	19EEOC10	Robotics and Automation	1	OCC
4	19EEOC12	AWS Cloud Practitioner Essentials	1	OCC
5	19EEOC13	Introduction to IoT	1	OCC
6	19EEOC14	TCS ION Career Edge Young Professional	1	OCC

\* One credit courses could be opted from Department/Industry/NPTEL

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## B.E. ELECTRONICS AND COMMUNICATION ENGINEERING

### CHOICE BASED CREDIT SYSTEM

Curriculum from the academic year 2019-2020 onwards

### SUBJECTS OF STUDY

#### Semester III

Course Code	Course Name	L	T	P	C	Category
19ECM31	Matrices, Linear Algebra and Numerical Methods	3	1	0	4	BSC
19EC31	Digital Electronics	3	1	0	4	PCC
19EC32	Analog Electronics	3	0	0	3	PCC
19EC33	Signals and Systems	3	1	0	4	PCC
19EC34	Computer Architecture and Organization	3	0	0	3	PCC
19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	HSC
19ECL35	Digital Electronics Laboratory	0	0	2	1	PCC
19ECL36	Analog Electronics Laboratory	0	0	2	1	PCC
	One Credit Course - Elective I				1	EEC
19HOC31	Communication Skills for Engineers - I*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>23</b>	

\*Pass is required not accounted for GPA

#### Semester IV

Course Code	Course Name	L	T	P	C	Category
19EC41	Probability and Stochastic Process	3	1	0	4	PCC
19EC42	Principles of Communication	3	1	0	4	PCC
19EC43	Microcontroller Based Systems	3	1	0	4	PCC
19EC44	Linear Integrated Circuits	3	0	0	3	PCC
19EC45	Electromagnetic Fields and Waveguides	3	0	0	3	PCC
19ECL46	Microcontrollers Laboratory	0	0	2	1	PCC
19ECL47	Linear Integrated Circuits Laboratory	0	0	2	1	PCC
	One Credit Course - Elective II				1	EEC
19HOC41	Communication Skills for Engineers -II*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

\*Pass is required not accounted for GPA

### Semester V

Course Code	Course Name	L	T	P	C	Category
19EC51	Control Systems	3	0	0	3	PCC
19EC52	Digital Signal Processing	3	0	0	3	PCC
19EC53	Embedded Systems and IoT	3	0	0	3	PCC
19EC54	Antennas and Wave Propagation	3	0	0	3	PCC
	Elective - I	3	0	0	3	PEC
	Elective - II	3	0	0	3	PEC/OEC
19ECL55	Signal Processing Laboratory	0	0	2	1	PCC
19ECL56	Embedded Systems and IoT Laboratory	0	0	2	1	PCC
	One Credit Course - Elective III	0	0	2	1	EEC
19EC66	Mini Project				-	EEC
19INT51	Internship - I*				1	EEC
19HOC51	Employability and Personality Development Skills- I**	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>23</b>	

\* Internship / Project to be completed during 4th semester vacation

\*\* Pass is required not accounted for GPA

### Semester VI

Course Code	Course Name	L	T	P	C	Category
19EC61	VLSI Design	4	0	0	4	PCC
19EC62	Digital Communication	3	0	0	3	PCC
19EC63	Data Communication Networks	3	0	0	3	PCC
	Elective - III	3	0	0	3	PEC
	Elective - IV	3	0	0	3	PEC/OEC
19ECL64	VLSI Design Laboratory	0	0	2	1	PCC
19ECL65	Analog and Digital Communication Laboratory	0	0	2	1	PCC
	One Credit Course - Elective IV	1	0	0	1	EEC
19EC66	Mini Project	0	0	6	3	EEC
19INT61	Internship - II*				1	EEC
19HOC61	Employability And Personality Development Skills - II**	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>24</b>	

\* Internship to be completed during 5th semester vacation

\*\* Pass is required not accounted for GPA

**Semester VII**

Course Code	Course Name	L	T	P	C	Category
19EC71	Digital Image Processing	4	0	0	4	PCC
19EC72	Microwave Engineering and Optical Communication	4	0	0	4	PCC
19EC73	Wireless Communication and Networks	3	0	0	3	PCC
	Elective - V	3	0	0	3	PEC
	Elective - VI	3	0	0	3	PEC
19ECL74	Wireless Communication and Networking Laboratory	0	0	2	1	PCC
19ECL75	High Frequency Laboratory	0	0	2	1	PCC
19EC76	Project Phase I	0	0	6	3	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

**SEMESTER VIII**

Course Code	Course Name	L	T	P	C	Category
	Elective -VII	3	0	0	3	PEC
	Elective -VIII	3	0	0	3	PEC
19EC81	Project Phase II	0	0	10	5	EEC
	<b>TOTAL CREDITS</b>				<b>11</b>	

TOTAL CREDITS : 165 (4 year B.E ECE)

TOTAL CREDITS : 129\* (Lateral-B.E ECE)

\*125 credits-from 3rd to 8th semester,

4 credits-Bridge Courses (Engineering Mathematics-2 Credits & Physical Sciences -2 Credits)

Category; BSC - Basic Sciences Course, HSC- Humanities and Social Sciences Course, ESC-Engineering Sciences Course, PCC -Professional Core Course, PEC- Professional Elective Course, OEC-Open Elective Course, EEC -Employability Enhancement Course

**LIST OF PROFESSIONAL ELECTIVES****COMMUNICATION & SIGNAL PROCESSING**

S. No.	Course Code	Course Name	L	T	P	C
1	19ECE01	Multimedia Compression and Communication	3	0	0	3
2	19ECE02	Digital Switching and Transmission	3	0	0	3
3	19ECE03	Introduction to Machine Learning	3	0	0	3
4	19ECE04	Signal Processing Using Python	3	0	0	3
5	19ECE05	Advanced Digital Signal Processing	3	0	0	3
6	19ECE06	Speech Signal Processing	3	0	0	3
7	19ECE07	Wearable Systems	3	0	0	3
8	19ECE08	Adaptive Signal Processing	3	0	0	3
9	19ECE09	Information Theory and Coding	3	0	0	3
10	19ECE10	Communication System Design	3	0	0	3
11	19ECE11	Overview of Industry 4.0	3	0	0	3
12	19ECE12	Cryptography and Network Security	3	0	0	3
13	19ECE13	Parallel and Distributed Processing	3	0	0	3
14	19ECE14	Optical Communication Networks	3	0	0	3
15	19ECE15	Soft Computing and Applications	3	0	0	3
16	19ECE16	Cognitive Radio Communication Systems	3	0	0	3
17	19ECE17	Next Generation Networks	3	0	0	3
18	19ECE18	Wireless Adhoc and Sensor Networks	3	0	0	3
19	19ECE19	Wireless Networks and Standards	3	0	0	3
20	19ECE20	5G Networks	3	0	0	3
21	19ECE21	Network Routing and Infrastructure Management	3	0	0	3
22	19ECE22	Radar and Navigational Aids	3	0	0	3
23	19ECE23	Satellite Communication	3	0	0	3

**EMBEDDED SYSTEMS**

S. No.	Course Code	Course Name	L	T	P	C
1	19ECE24	Data Structures and Algorithms	3	0	0	3
2	19ECE25	Operating Systems	3	0	0	3
3	19ECE26	Real Time Applications Using Python	3	0	0	3
4	19ECE27	Design Fundamentals of Electric and Hybrid Vehicles	3	0	0	3
5	19ECE28	Automotive Electronics	3	0	0	3
6	19ECE29	Advanced Processor Architectures	3	0	0	3
7	19ECE30	IoT Based System Design	3	0	0	3
8	19ECE31	Real Time Operating Systems	3	0	0	3
9	19ECE32	Robotics	3	0	0	3
10	19ECE33	Real Time Controllers	3	0	0	3
11	19ECE34	Real Time Microcomputer Systems	3	0	0	3

**ELECTRONICS & VLSI**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1	19ECE35	Biomedical Instrumentation	3	0	0	3
2	19ECE36	Power Electronics	3	0	0	3
3	19ECE37	Sensors and Transducers	3	0	0	3
4	19ECE38	Biomedical Transducers and Biosensors	3	0	0	3
5	19ECE39	Nano Electronics	3	0	0	3
6	19ECE40	Nano Sensors and Devices	3	0	0	3
7	19ECE41	Verilog HDL	3	0	0	3
8	19ECE42	HDL Based System Design	3	0	0	3
9	19ECE43	Introduction to Miniaturization Technologies	3	0	0	3
10	19ECE44	Mems	3	0	0	3
11	19ECE45	VLSI Process Technology	3	0	0	3
12	19ECE46	Low Power VLSI Design	3	0	0	3
13	19ECE47	IC Fabrication Technology	3	0	0	3
14	19ECE48	CMOS Analog IC Design	3	0	0	3

**MICROWAVE & RF**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1	19ECE49	Electromagnetic Radiation Hazards and Safety	3	0	0	3
2	19ECE50	Modern Antennas	3	0	0	3
3	19ECE51	Advanced Antenna Technology	3	0	0	3
4	19ECE52	Electromagnetic Interference and Compatibility	3	0	0	3
5	19ECE53	RF Microelectronics	3	0	0	3

## LIST OF ONE CREDIT COURSES

S. No.	Course Code	Title of the Course	Group
1	19ECOC01	Basics of Python	I
2	19ECOC02	Quantitative Aptitude for Engineers/ Verbal Aptitude for Engineers	III
3	19ECOC03	Problem Solving with Algorithms and Data Structures	I
4	19ECOC04	Programming in C: A Practical Approach	I
5	19ECOC05	Programming in C++	I
6	19ECOC06	Web Designing and Java	I
7	19ECOC07	Virtual Instrumentation	I
8	19ECOC08	Internet of Things : A Hands-on Approach	I
9	19ECOC09	Machine Learning Algorithms Using Python	I
10	19ECOC10	Programming in Scilab	I
11	19ECOC11	PCB Design and Fabrication	II
12	19ECOC12	Drone - Design & Development	II
13	19ECOC13	Lora Technology	II
14	19ECOC14	Application Design Using Raspberry PI & Python	II
15	19ECOC15	Internet of Things (IoT) Communication Protocols	II
16	19ECOC16	Communication Skills for Engineers	III
17	19ECOC17	Entrepreneurship and Management	III
18	19ECOC18	Professional Skills for Engineers	III
19	19ECOC19	Leadership and Management Skills for Engineers	III
20	19ECOC20	Innovation Management	III
21	19ECOC21	Project Management	III
22	19ECOC22	HMS foundation course on Mobile App Development	II
23	19ECOC23	Baseband Communication - Signal generation and analysis	II
24	19ECOC24	RF Measurement Laboratory	II
25		NPTEL COURSES	IV

GROUP	GROUP NAME
I	PROGRAMMING COURSES
II	INDUSTRY COLLABORATED COURSES
III	SOFT SKILLS DEVELOPMENT COURSES
IV	NPTEL COURSES

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## B.E. COMPUTER SCIENCE AND ENGINEERING

### CHOICE BASED CREDIT SYSTEM

Curriculum from the academic year 2019 - 2020 onwards

### SUBJECTS OF STUDY

#### Semester III

Course Code	Course Name	Periods			Credits	Category
		L	T	P		
19CIM31	Linear Algebra, Complex Variables and Transform Techniques	3	1	0	4	BSC
19CI31	Data Structures and Algorithms - I	3	1	0	4	PCC
19CI32	Digital Design	3	0	0	3	ESC
19CS31	Discrete Mathematics	2	0	0	2	PCC
19CI33	Object Oriented Programming and Java	3	0	0	3	PCC
19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	HSC
19CIL34	Digital Design Laboratory	0	0	3	1.5	ESC
19CIL35	Object Oriented Programming Laboratory	0	0	3	1.5	PCC
	One Credit Course	0	0	2	1	OCC
19HOC31	Communication Skills for Engineers - I*	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

#### Semester IV

Course Code	Course Name	Periods			Credits	Category
		L	T	P		
19CI41	Data Structures and Algorithms- II	3	0	0	3	PCC
19CI42	Database Management Systems	3	0	0	3	PCC
19CI43	Computer Architecture	3	0	0	3	PCC
19CI44	Operating Systems	3	0	0	3	PCC
19CI45	Software Engineering	2	1	0	3	PCC
19CS41	Formal Languages and Automata Theory	2	0	0	2	PCC
19CIL46	Database Management Systems Laboratory	0	0	3	1.5	PCC
19CIL47	Data Structures and Algorithms Laboratory	0	0	3	1.5	PCC
	One Credit Course	0	0	2	1	OCC
19HOC41	Communication Skills for Engineers - II*	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

\* Not to be counted for GPA. Pass is required.

### Semester V

Course Code	Course Name	Periods			Credits	Category
		L	T	P		
19CI51	Computer Networks	3	0	0	3	PCC
19CS51	Unix Internals	3	0	0	3	PCC
19CI52	Data Warehousing and Data Mining	3	0	0	3	PCC
19CS52	Statistical Data Analysis	2	1	0	3	PCC
	Elective - I	3	0	0	3	PEC/OEC
	Elective - II	3	0	0	3	PEC/OEC
19CIL54	Computer Networks Laboratory	0	0	2	1	PCC
19CIL48	Operating Systems Laboratory	0	0	2	1	PCC
	One Credit Course	0	0	2	1	OCC
19HOC51	Employability and Personality Development Skills - I*	0	0	2	1	EEC
19CS65	Mini Project	0	0	3	-	EEC
19INT51	Internship-I*	-	-	-	1	EEC
	<b>Total Credits</b>				<b>23</b>	

### Semester VI

Course Code	Course Name	Periods			Credits	Category
		L	T	P		
19CI53	Embedded Systems	3	0	0	3	PCC
19CS61	Internet of Things and Its Applications	3	0	0	3	PCC
19CS62	Machine Learning	3	0	0	3	PCC
	Elective - III	3	0	0	3	PEC/OEC
	Elective - IV	3	0	0	3	PEC/OEC
19CSL63	Embedded Systems & IOT Laboratory	0	0	2	1	PCC
19CSL64	Machine Learning Laboratory	0	0	2	1	PCC
19HOC61	Employability and Personality Development Skills-II*	0	0	2	1	EEC
	One Credit Course	0	0	2	1	OCC
19CS65	Mini Project	0	0	3	3	EEC
19INT61	Internship-II*	-	-	-	1	EEC
	<b>Total Credits</b>				<b>23</b>	

**\*Internship to be completed during 4th semester and 5th semester vacation**

\* Not to be counted for GPA. Pass is required.

**Semester VII**

Course Code	Course Name	Periods			Credits	Category
		L	T	P		
19CS71	Principles of Compiler Design	3	1	0	4	PCC
19CI61	Artificial Intelligence	3	0	0	3	PCC
19CI71	Cryptography and Network Security	3	1	0	4	PCC
	Elective - V	3	0	0	3	PEC/OEC
	Elective - VI	3	0	0	3	PEC/OEC
19CSL72	Compiler Design Laboratory	0	0	3	1.5	PCC
19CSL73	Artificial Intelligence Laboratory	0	0	3	1.5	PCC
19CS74	Project Phase-I	0	0	6	3	EEC
	<b>Total Credits</b>				<b>23</b>	

**Semester VIII**

Course Code	Course Name	Periods			Credits	Category
		L	T	P		
	Elective - VII	3	0	0	3	PEC/OEC
	Elective - VIII	3	0	0	3	PEC/OEC
19CS81	Project Phase-II	0	0	10	5	EEC
	<b>Total Credits</b>				<b>11</b>	

Note :

- Open Electives (Maximum 2) can be opted from other departments as approved by CSE department.
- NPTEL 3 credit courses can be opted instead of electives with approval of department.

**TOTAL CREDITS**

**CREDITS (First and Second semester) : 40**

**CREDITS (Third to Eight semester) : 124**

**TOTAL : 164 Credits**

**SCC-Subject Category Code:**

HSC - Humanities and Social Sciences, BSC - Basic Science Courses, ESC - Engineering Science Courses, PCC- Professional Core Courses, PEC - Professional Elective Courses, OEC - Open Elective Courses, EEC - Project Work, Entrepreneurship, Seminar, Soft skills, Internship, Comprehensive Test, MCC - Mandatory Courses, OCC - One Credit Courses

### PROFESSIONAL ELECTIVE COURSES (PEC)

Course Code	Course Name	L	T	P	C
19CIE01	Ad-hoc Networks	3	0	0	3
19CIE02	Big Data Analytics	3	0	0	3
19CIE03	Bioinformatics	3	0	0	3
19CIE04	Block Chain Technology	3	0	0	3
19CIE05	Cloud and Virtualization	3	0	0	3
19CIE06	Digital Forensics	3	0	0	3
19CIE07	Entrepreneurship Skill Development	3	0	0	3
19CIE08	Graph Theory	3	0	0	3
19CIE09	Graphics and Multimedia Systems	3	0	0	3
19CIE10	Information Security	3	0	0	3
19CIE11	Information Storage Management	3	0	0	3
19CIE12	Information Theory and coding	3	0	0	3
19CIE13	Neural Networks and Deep Learning	3	0	0	3
19CIE14	Object Oriented Analysis and Design	3	0	0	3
19CIE15	Open Source Systems	3	0	0	3
19CIE16	Parallel Architecture and Programming	3	0	0	3
19CIE17	Resource Management Techniques	3	0	0	3
19CIE18	Service Oriented Architecture and Web Services	3	0	0	3
19CIE19	Software Metrics and Measurement	3	0	0	3
19CIE20	Software Testing and Quality Assurance	3	0	0	3
19CIE21	Wireless Sensor Networks	3	0	0	3
19ECI01	Professional Readiness for Innovation, Employability and Entrepreneurship	0	0	6	3
19CSE01	Data Science	3	0	0	3
19CSE02	Natural Language Processing	3	0	0	3
19IT61	Mobile Computing	3	0	0	3
19IT62	Internet Technology	3	0	0	3
19IT71	Distributed Systems	3	0	0	3

### HUMANITIES AND SOCIAL SCIENCE COURSES (HSC)

Course Code	Course Name	L	T	P	C	Semester
19FYE11	Technical English	2	0	1	2	I
19FYE21	Language Elective	2	0	1	2	II
19FYC21	Environmental Science and Engineering	3	0	0	1	II
19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	II

**BASIC SCIENCE COURSES (BSC)**

Course Code	Course Name	L	T	P	C	Semester
19FYM14	Matrices and Calculus	3	1	0	4	I
19FYP13	Engineering Physics	3	0	0	3	I
19FYC11	Engineering Chemistry	3	0	0	3	I
19PL11	Physics Laboratory-I	0	0	2	0.5	I
19CL11	Chemistry Laboratory-I	0	0	2	0.5	I
19MEL12	Engineering Practices Laboratory	0	0	2	1	I
19FYM24	Fourier Series and Partial Differential Equation	3	1	0	4	II
19PL21	Physics Laboratory-II	0	0	2	0.5	II
19CL21	Chemistry Laboratory-II	0	0	2	0.5	II
19CIM31	Linear Algebra, Complex Variables and Transform Techniques	3	1	0	4	III

**ENGINEERING SCIENCE COURSES (ESC)**

Course Code	Course Name	L	T	P	C	Semester
19CSL12	Python Programming	1	0	4	3	I
19FYP24	Introduction to Electronic Devices	3	0	0	3	II
19CS21	C Programming	3	1	0	4	II
19CSL11	C Programming Laboratory	0	0	4	2	II
19MEL11	Engineering Graphics	1	0	4	3	II
19CI32	Digital Design	3	0	0	3	III
19CIL34	Digital Design Laboratory	0	0	3	1.5	III

**PROFESSIONAL CORE COURSES (PCC)**

Course Code	Course Name	L	T	P	C	Semester
19CI31	Data Structures and Algorithms - I	3	1	0	4	III
19CS31	Discrete Mathematics	2	0	0	2	III
19CI33	Object Oriented Programming and Java	3	0	0	3	III
19CIL35	Object Oriented Programming Laboratory	0	0	3	1.5	III
19CI41	Data Structures and Algorithms- II	3	0	0	3	IV
19CI42	Database Management Systems	3	0	0	3	IV
19CI43	Computer Architecture	3	0	0	3	IV
19CI44	Operating Systems	3	0	0	3	IV
19CI45	Software Engineering	2	1	0	3	IV
19CS41	Formal Languages and Automata Theory	2	0	0	2	IV
19CIL46	Database Management Systems Laboratory	0	0	3	1.5	IV
19CIL47	Data Structures and Algorithms Laboratory	0	0	3	1.5	IV
19CI51	Computer Networks	3	0	0	3	V

Course Code	Course Name	L	T	P	C	Semester
19CS51	Unix Internals	3	0	0	3	V
19CI52	Data Warehousing and Data Mining	3	0	0	3	V
19CS52	Statistical Data Analysis	2	1	0	3	V
19CIL54	Computer Networks Laboratory	0	0	2	1	V
19CIL48	Operating Systems Laboratory	0	0	2	1	V
19CI53	Embedded Systems	3	0	0	3	VI
19CS61	Internet of Things and Its Applications	3	0	0	3	VI
19CS62	Machine Learning	3	0	0	3	VI
19CSL63	Embedded Systems & IOT Laboratory	0	0	2	1	VI
19CSL64	Machine Learning Laboratory	0	0	2	1	VI
19CS71	Principles of Compiler Design	3	1	0	4	VI
19CI61	Artificial Intelligence	3	0	0	3	VI
19CI71	Cryptography and Network Security	3	1	0	4	VI
19CSL72	Compiler Design Laboratory	0	0	3	1.5	VI
19CSL73	Artificial Intelligence Laboratory	0	0	3	1.5	VI

#### EMPLOYABILITY ENHANCEMENT COURSES (EEC)

Course Code	Course Name	L	T	P	C	Semester
19FYE11	Employability Skills	0	0	2	1	I
19FYEL21	English for Employability	0	0	2	1	II
19HOC31	Communication Skills for Engineers - I	0	0	2	1	III
19HOC41	Communication Skills for Engineers - II	0	0	2	1	IV
19HOC51	Employability and Personality Development Skills-I	0	0	2	1	V
19HOC61	Employability and Personality Development Skills-II	0	0	2	1	VI
19INT51	Internship-I	-	-	-	1	V
19CS65	Mini Project	0	0	6	3	VI
19INT61	Internship-II	-	-	-	1	VI
19CS74	Project Phase-I	0	0	6	3	VII
19CS81	Project Phase-II	0	0	10	5	VIII

## ONE CREDIT COURSES (OCC)

### 1. Department Offered :

Course Code	Course Name	L	T	P	C
19CIOC01	C++ Programming	0	0	2	1
19CIOC02	R Programming	0	0	2	1
19CIOC03	Applications of Probability	0	0	2	1
19CIOC04	User Interface Design	0	0	2	1
19CIOC05	Open-Source Tools for Network Analysis	0	0	2	1
19CIOC06	Comprehensive Exam Training	0	0	2	1

### 2. Industry Offered :

Course Code	Course Name	L	T	P	C
19CSOC01	Software Testing Tools - Selenium	0	0	2	1
19CSOC02	Software Testing Tools - JMeter	0	0	2	1
19CSOC03	Software Testing Tools - TOSCA	0	0	2	1
19CSOC04	Data Science Tools- Jupyter	0	0	2	1
19CSOC05	MATLAB/SCILAB	0	0	2	1

### 3. NPTEL Offered (4 weeks courses not part of the curriculum)

# COIMBATORE INSTITUTE OF TECHNOLOGY

( Government Aided Autonomous Institution Affiliated to Anna University )

## B.Tech. CHEMICAL ENGINEERING

### Curriculum from the Academic Year - 2019

#### SUBJECTS OF STUDY

##### Semester III

Course Code	Course Name	L	T	P	C	CAT
19CEM31	Differential Equations and Boundary Value Problems	2	1	0	3	BS
19CH31	Mechanics of Solids	3	0	0	3	ES
19CH32	Fluid Mechanics	2	1	0	3	PCC
19CH33	Chemical Engineering Thermodynamics	2	1	0	3	PCC
19CH34	Environmental Science	3	0	0	3	PCC
19CH35	Chemical Process Calculations	2	1	0	3	PCC
19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	HS
19CHL36	Computer Laboratory (Programming for problem solving)	0	0	2	1	ES
19CHL37	Electrical and Electronics Engineering Laboratory	0	0	2	1	ES
	One Credit Course	1	0	0	1	
19HOC31	Communication Skills for Engineers - I*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>23</b>	

##### Semester IV

Course Code	Course Name	L	T	P	C	CAT
19CH41	Biology for Chemical Engineers	3	0	0	3	ES
19CH42	Mechanical Operations	2	1	0	3	PCC
19CH43	Chemical Reaction Engineering - I	2	1	0	3	PCC
19CH44	Heat Transfer	2	1	0	3	PCC
19CH45	Mass Transfer - I	2	1	0	3	PCC
19CH46	Instrumental Methods of Analysis	3	0	0	3	PCC
19CHL47	Fluid Mechanics Laboratory	0	0	2	1	PCC
19CHL48	Technical Analysis Laboratory	0	0	2	1	PCC
	One Credit Course	1	0	0	1	
19HOC41	Communication Skills for Engineers - II*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

\* Not to be counted for GPA. Pass is required.

**Semester V**

Course Code	Course Name	L	T	P	C	CAT
19CH51	Numerical Methods in Chemical Engineering	2	1	0	3	PCC
19CH52	Chemical Reaction Engineering- II	2	1	0	3	PCC
19CH53	Mass Transfer-II	2	1	0	3	PCC
	Elective - I	3	0	0	3	PEC
	Elective - II	3	0	0	3	PEC
19CHL56	Entrepreneurship Development	0	0	2	1	HS
19CHL57	Mechanical Operations Laboratory	0	0	2	1	PCC
19CHL58	Heat Transfer Laboratory	0	0	2	1	PCC
	One Credit Course	1	0	0	1	-
19CH68	Mini Project*	0	0	2	No Credit	EEC
19INT51	Internship-I#	0	0	2	1	EEC
19HOC51	Employability and Personality Development Skills-I*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>21</b>	

# Internship - I to be completed during 4th semester vacation

\* Mini Project will be evaluated in 6th Semester

**Semester VI**

Course Code	Course Name	L	T	P	C	CAT
19CH61	Process Dynamics and Control	2	1	0	3	PCC
19CH62	Chemical Process Industries	3	0	0	3	PCC
19CH63	Chemical Process Safety	3	0	0	3	PCC
	Elective - III	3	0	0	3	PEC
	Elective - IV	3	0	0	3	PEC
19CHL66	Chemical Reaction Engineering Laboratory	0	0	2	1	PCC
19CHL67	Mass Transfer Laboratory	0	0	2	1	PCC
	One Credit Course	1	0	0	1	-
19CH68	Mini Project	0	0	4	2	EEC
19INT61	Internship-II#	0	0	2	1	EEC
19HOC61	Employability and Personality Development Skills-II*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

# Internship-II to be completed during 5th semester vacation

\* Not to be counted for GPA. Pass is required.

**Semester VII**

Course Code	Course Name	L	T	P	C	CAT
19CH71	Transport Phenomena	2	1	0	3	PCC
19CH72	Process Economics and Technology Management	3	0	0	3	PCC
19CH73	Process Modeling and Simulation	2	1	0	3	PCC
19CH74	Electrochemical Engineering	3	0	0	3	PEC
	Elective - V	3	0	0	3	PEC/OEC
19CHL76	Process Equipment Design and Drawing	0	0	4	2	PCC
19CHL77	Process Control and Simulation Laboratory	0	0	2	1	PCC
19CH78	Project Work Phase - I	0	0	6	3	EEC
	<b>TOTAL CREDITS</b>				<b>21</b>	

**Semester VIII**

Course Code	Course Name	L	T	P	C	CAT
	Elective -VI	3	0	0	3	PEC
	Elective-VII	3	0	0	3	PEC
	Elective-VIII	3	0	0	3	PEC/OEC
19CH84	Project Work Phase - II	0	0	10	5	EEC
	<b>TOTAL CREDITS</b>				<b>14</b>	

Category : BS - Basic Science, HS - Humanities and Social Science, ES - Engineering Science, PCC - Professional Core Course, PEC - Professional Elective Course, OEC - Open Elective Course, EEC - Employability Enhancement Courses.

**Total Credits**

Semester	Credits
I	21
II	21
III	23
IV	22
V	21
VI	22
VII	21
VIII	14
<b>TOTAL</b>	<b>165</b>

**LIST OF PROFESSIONAL ELECTIVE COURSES**

S. No.	Course Code	Name of Subject	Credits
1.	19CHE01	Water Conservation and Management	3
2.	19CHE02	Sustainability Engineering	3
3.	19CHE03	Nanoscience and Nanotechnology for Chemical Science	3
4.	19CHE04	Polymer Science and Engineering	3
5.	19CHE05	Renewable Energy	3
6.	19CHE06	Advanced Separation Processes	3
7.	19CHE07	Environmental Pollution and Control	3
8.	19CHE08	Colloid and Interfacial Engineering	3
9.	19CHE09	Energy Management in Chemical Industries	3
10.	19CHE10	Biochemical Engineering	3
11.	19CHE11	Process Engineering	3
12.	19CHE12	Petroleum Refinery Engineering	3
13.	19CHE13	Drugs and Pharmaceuticals Technology	3
14.	19CHE14	Food Technology	3
15.	19CHE15	Piping and Instrumentation	3
16.	19CHE16	Process Automation	3
17.	19CHE17	Process Instrumentation	3
18.	19CHE18	Total Quality Management	3
19.	19CHE19	Optimization Methods	3
20.	19CHE20	Integrated Design of Chemical Processes	3
21.	19CHE21	Computer Aided Process Equipment Design	3
22.	19CHE22	Sugar Technology	3
23.	19CHE23	Energy Technology	3
24.	19CHE24	Petrochemicals Technology	3
25.	19CHE25	Fertilizer Technology	3
26.	19CHE26	Mineral Processing Technology	3
27.	19CHE27	Fluidization Engineering	3
28.	19CHE28	Pulp and Paper Technology	3
29.	19CHE29	Surface Coating Technology	3
30.	19CHE30	Heat Power Engineering	3
31.	19CHE31	Carbon Capture	3
32.	19CHE32	Material Science and Technology	3
33.	19CHE33	Bioprocess Technology	3
34.	19CHE34	Pilot Plant and Scale-up Methods	3

## LIST OF ONE CREDIT COURSES

S. No.	Course Code	Title of the Course
		<b>GROUP-I</b>
		<b>Personality and Skill Development Courses</b>
1	19CHOC01	Critical Thinking
2	19CHOC02	Creativity & Innovation
3	19CHOC03	Leadership
4	19CHOC04	Emotional Intelligence
5	19CHOC05	Health and Lifestyle
6	19CHOC06	Psychology for Engineers
		<b>GROUP-II</b>
		<b>Social Responsibility &amp; Environment Audit Courses</b>
7	19CHOC07	Fundamentals of Nanoscience
8	19CHOC08	An Introduction to Environmental Ethics
9	19CHOC09	Corporate Social Responsibilities
10	19CHOC10	Composite Material Preparation and Characterization
11	19CHOC11	Environmental Impact Assessment and Audit
		<b>GROUP-III</b>
		<b>Control and Automation Courses</b>
12	19CHOC12	Factory Automation
13	19CHOC13	Controller Tuning
14	19CHOC14	Neural Networks and Fuzzy Systems
15	19CHOC15	Internet of Things
16	19CHOC16	Process Automation and Fault Diagnosis
17	19CHOC17	Process Control in Petrochemical Industries
18	19CHOC18	Power Plant Instrumentation
19	19CHOC19	Industrial Automation
20	19CHOC20	Biomedical Instrumentation
		<b>GROUP-IV</b>
		<b>Energy and Nano Technology Courses</b>
21	19CHOC21	Energy Materials, Devices and Systems
22	19CHOC22	Surface Engineering of Nanomaterials
23	19CHOC23	Nano sensors : Basic components, Characterization and Application
24	19CHOC24	Nanopolymers : Synthesis, Characterization and Applications
25	19CHOC25	An approach to Nanotribology and Nanomechanics
26	19CHOC26	Nanomaterials and Nanofibers
27	19CHOC27	Biomass Conversion to Biofuels and Bioenergy
28	19CHOC28	Biofuel: Fate and Future
29	19CHOC29	Dimensional Analysis and Theory of Models
30	19CHOC30	Pinch Technology
31	19CHOC31	Drug Delivery Systems

S. No.	Course Code	Title of the Course
		<b>GROUP-V</b>
		<b>Waste Treatment and Environment Science Courses</b>
32	19CHOC32	Research Skills
33	19CHOC33	E-Waste Material Flow and Management Practices
34	19CHOC34	Chemicals in the Environment: Fate & Transport
35	19CHOC35	An Integrated approach for wastewater treatment
36	19CHOC36	Textile Effluents : Analysis and Treatment Methods
37	19CHOC37	Advanced Recycling and Recovery Technologies for E-Waste
		<b>GROUP-VI</b>
		<b>Certification Courses</b>
38	19CHOC38	NPTEL / MOOC Certification Courses (Chemical Engineering and Allied Courses)

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## B.Tech. INFORMATION TECHNOLOGY

### CHOICE BASED CREDIT SYSTEM

Curriculum from the academic year 2019-2020 onwards

### SUBJECTS OF STUDY

#### Semester III

Course Code	Course Name	L	T	P	C	Category
19CIM31	Linear Algebra, Complex Variables and Transform Techniques	3	1	0	4	BS
19CI31	Data Structures and Algorithms - I	3	1	0	4	PC
19CI32	Digital Design	3	0	0	3	ES
19IT31	Discrete Mathematics And Automata Theory	3	0	0	3	PC
19CI33	Object Oriented Programming and Java	3	0	0	3	PC
19HSS01	Science Of Creativity and Professional Ethics	1	0	0	1	HS
19CIL34	Digital Design Laboratory	0	0	3	1.5	ES
19CIL35	Object Oriented Programming Laboratory	0	0	3	1.5	PC
	One Credit Course	0	0	2	1	OCC
19HOC31	Communication Skills for Engineers - I*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>23</b>	

#### Semester IV

Course Code	Course Name	L	T	P	C	Category
19CI41	Data Structures and Algorithms II	3	0	0	3	PC
19CI42	Database Management Systems	3	0	0	3	PC
19CI43	Computer Architecture	3	0	0	3	PC
19CI44	Operating Systems	3	0	0	3	PC
19CI45	Software Engineering	2	1	0	3	PC
19CIL46	Database Management Systems Laboratory	0	0	3	1.5	PC
19CIL47	Data Structures and Algorithms Laboratory	0	0	3	1.5	PC
19CIL48	Operating Systems Laboratory	0	0	2	1	PC
	One Credit Course	0	0	2	1	OCC
19HOC41	Communication Skills for Engineers -II*	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>21</b>	

\* Not to be counted for GPA. Pass is required.

### Semester V

Course Code	Course Name	L	T	P	C	Category
19CI51	Computer Networks	3	0	0	3	PC
19CI52	Data Warehousing and Data Mining	3	0	0	3	PC
19CI53	Embedded Systems	3	0	0	3	PC
19IT51	Economics for Engineers	2	0	0	2	HS
	Elective-I	3	0	0	3	PE/OE
	Elective-II	3	0	0	3	PE/OE
19ITL52	Embedded Systems Laboratory	0	0	2	1	PC
19CIL54	Computer Networks Laboratory	0	0	2	1	PC
	One Credit Course	0	0	2	1	OCC
19HOC51	Employability and Personality Development Skills - I*	0	0	2	1	EEC
19IT65	Mini Project	0	0	3	-	EEC
19INT51	Internship-I	0	0	0	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

### Semester VI

Course Code	Course Name	L	T	P	C	Category
19CI61	Artificial Intelligence	3	0	0	3	PC
19IT61	Mobile Computing	3	0	0	3	PC
19IT62	Internet Technology	3	0	0	3	PC
	Elective-III	3	0	0	3	PE/OE
	Elective-IV	3	0	0	3	PE/OE
19ITL63	Data Analytics and Artificial Intelligence Laboratory	0	0	3	1.5	PC
19ITL64	Internet Technology & Software Engineering Laboratory	0	0	3	1.5	PC
	One Credit Course	0	0	2	1	OCC
19HOC61	Employability and Personality Development Skills - II*	0	0	2	1	EEC
19IT65	Mini Project	0	0	3	3	EEC
19INT61	Internship -II	0	0	0	1	EEC
	<b>TOTAL CREDITS</b>				<b>24</b>	

• Internship/Project to be completed during 4<sup>th</sup> and 5<sup>th</sup> semester vacation

\* Not to be counted for GPA. Pass is required.

**Semester VII**

Course Code	Course Name	L	T	P	C	Category
19CI71	Cryptography and Network Security	3	1	0	4	PC
19IT71	Distributed Systems	3	0	0	3	PC
19IT72	Internet of Things	3	1	0	4	PC
	Elective-V	3	0	0	3	PE/OE
	Elective-VI	3	0	0	3	PE/OE
19ITL73	Internet of Things Laboratory	0	0	3	1.5	PC
19ITL74	Mobile Application Development Laboratory	0	0	3	1.5	PC
19IT75	Project Phase-I	0	0	6	3	EEC
	<b>TOTAL CREDITS</b>				<b>23</b>	

**Semester VIII**

Course Code	Course Name	L	T	P	C	Category
	Elective-VII	3	0	0	3	PE/OE
	Elective-VIII	3	0	0	3	PE/OE
19IT81	Project Phase-II	0	0	10	5	EEC
	<b>TOTAL CREDITS</b>				<b>11</b>	

Total Credits : 164 (4 years B.Tech (IT))

Total Credits : 126 (Lateral B.Tech (IT))

122\* Credits for Laterals + 4 Credits - Bridge

Course ( Engineering Mathematics - 2 Credits & Physical - Sciences - 2 Credits)

## LIST OF PROFESSIONAL ELECTIVES (PE)

Course Code	Course Name	L	T	P	C
19ITE01	Advanced Algorithms	3	0	0	3
19CIE01	Ad-hoc Networks	3	0	0	3
19ITE02	Advanced Computer Architecture	3	0	0	3
19ITE03	Advanced Operating Systems	3	0	0	3
19CIE02	Big Data Analytics	3	0	0	3
19CIE03	Bioinformatics	3	0	0	3
19CIE04	Block Chain Technology	3	0	0	3
19CIE05	Cloud and Virtualization	3	0	0	3
19ITE04	Customer Relationship Management	3	0	0	3
19ITE05	Cyber Security	3	0	0	3
19ITE06	Data Communications	3	0	0	3
19CIE06	Digital Forensics	3	0	0	3
19ITE07	Digital Image Processing	3	0	0	3
19CIE07	Entrepreneurship Skill Development	3	0	0	3
19CIE08	Graph Theory	3	0	0	3
19CIE09	Graphics and Multimedia Systems	3	0	0	3
19ITE08	Human Computer Interaction	3	0	0	3
19ITE09	Information Retrieval	3	0	0	3
19CIE10	Information Security	3	0	0	3
19CIE11	Information Storage Management	3	0	0	3
19CIE12	Information Theory and coding	3	0	0	3
19CS62	Machine Learning	3	0	0	3
19ITE10	Multi-Agent Intelligent System	3	0	0	3
19CIE13	Neural Networks and Deep Learning	3	0	0	3
19CIE14	Object Oriented Analysis and Design	3	0	0	3
19CIE15	Open Source Systems	3	0	0	3
19CS71	Principles of Compiler Design	3	0	0	3
19CIE16	Parallel Architecture and Programming	3	0	0	3
19ITE11	Real Time Systems	3	0	0	3
19CIE17	Resource Management Techniques	3	0	0	3
19ITE12	Semantic Web	3	0	0	3
19CIE18	Service Oriented Architecture and Web Services	3	0	0	3
19ITE13	Soft Computing	3	0	0	3
19ITE14	Software Agents	3	0	0	3
19CIE19	Software Metrics and Measurement	3	0	0	3
19CIE20	Software Testing and Quality Assurance	3	0	0	3
19CIE21	Wireless Sensor Networks	3	0	0	3
19CS51	UNIX internals	3	0	0	3
19ITE15	Full Stack Development	3	0	0	3
19ITE16	Virtual and Augmented Reality	3	0	0	3

**HUMANITIES AND SOCIAL SCIENCES (HS)**

Course Code	Course Name	L	T	P	C	Semester
19FYE11	Technical English	2	0	1	2	I
19FYE21	Language Elective	2	0	1	2	II
19FYC21	Environmental Science and Engineering	3	0	0	1	II
19HSS01	Science of Creativity and Professional Ethics	1	0	0	1	III
19IT51	Economics for Engineers	2	0	0	2	V

**BASIC SCIENCES(BS)**

Course Code	Course Name	L	T	P	C	Semester
19FYM14	Matrices and Calculus	3	1	0	4	I
19FYP13	Engineering Physics	3	0	0	3	I
19FYC11	Engineering Chemistry	3	0	0	3	I
19PL11	Physics Laboratory-I	0	0	2	0.5	I
19CL11	Chemistry Laboratory-I	0	0	2	0.5	I
19MEL12	Engineering Practices Laboratory	0	0	2	1	I
19FYM24	Fourier Series and Partial Differential Equation	3	1	0	4	II
19PL21	Physics Laboratory-II	0	0	2	0.5	II
19CL21	Chemistry Laboratory-II	0	0	2	0.5	II
19CIM31	Linear Algebra, Complex Variables and Transform Techniques	3	1	0	4	III

**ENGINEERING SCIENCES (ES)**

Course Code	Course Name	L	T	P	C	Semester
19CSL12	Python Programming	1	0	4	3	I
19FYP24	Introduction to Electronic Devices	3	0	0	3	II
19CS21	C Programming	3	1	0	4	II
19CSL11	C Programming Laboratory	0	0	4	2	II
19MEL11	Engineering Graphics	1	0	4	3	II
19CI32	Digital Design	3	0	0	3	III
19CIL34	Digital Design Laboratory	0	0	3	1.5	III

**PROFESSIONAL CORE (PC)**

<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>Semester</b>
19CI31	Data Structures and algorithms-I	3	1	0	4	III
19IT31	Discrete Mathematics and Automata Theory	3	0	0	3	III
19CI33	Object Oriented Programming and Java	3	0	0	3	III
19CIL35	Object Oriented Programming Laboratory	0	0	3	1.5	III
19CI41	Data Structures and Algorithms II	3	0	0	3	IV
19CI42	Database Management Systems	3	0	0	3	IV
19CI43	Computer Architecture	3	0	0	3	IV
19CI44	Operating Systems	3	0	0	3	IV
19CI45	Software Engineering	2	1	0	3	IV
19CIL46	Database Management Systems Laboratory	0	0	3	1.5	IV
19CIL47	Data Structures and Algorithms Laboratory	0	0	3	1.5	IV
19CIL48	Operating Systems Laboratory	0	0	2	1	IV
19CI51	Computer Networks	3	0	0	3	V
19CI52	Data Warehousing and Data Mining	3	0	0	3	V
19CI53	Embedded Systems	3	0	0	3	V
19ITL52	Embedded Systems Laboratory	0	0	2	1	V
19CIL54	Computer Networks Laboratory	0	0	2	1	V
19CI61	Artificial Intelligence	3	0	0	3	VI
19IT61	Mobile Computing	3	0	0	3	VI
19IT62	Internet Technology	3	0	0	3	VI
19ITL63	Data Analytics and Artificial Intelligence Laboratory	0	0	3	1.5	VI
19ITL64	Internet Technology and Software Engineering Laboratory	0	0	3	1.5	VI
19CI71	Cryptography and Network Security	3	1	0	4	VII
19IT71	Distributed Systems	3	0	0	3	VII
19IT72	Internet of Things	3	1	0	4	VII
19ITL73	Internet of Things Laboratory	0	0	3	1.5	VII
19ITL74	Mobile Application Development Laboratory	0	0	3	1.5	VII

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

Course Code	Course Name	L	T	P	C	Semester
19FYEL11	Employability Skills	0	0	2	1	I
19FYEL21	English for Employability	0	0	2	1	II
19HOC31	Communication Skills for Engineers - I	1	0	0	1	III
19HOC41	Communication Skills for Engineers -II	1	0	0	1	IV
19HOC51	Employability and Personality Development Skills-I	0	0	2	1	V
19IT65	Mini Project	0	0	3	-	V
19INT51	Internship-I	0	0	0	1	V
19IT65	Mini Project	0	0	3	3	VI
19HOC61	Employability and Personality Development Skills-II	0	0	2	1	VI
19INT61	Internship-II	0	0	0	1	VI
19IT75	Project Phase-I	0	0	6	3	VII
19IT81	Project Phase-II	0	0	10	5	VIII

**ONE CREDIT COURSES (OCC)****1. DEPARTMENT BASED**

Course Code	Course Name	L	T	P	C
19CIIOC01	C++ Programming	0	0	2	1
19CIIOC02	R Programming	0	0	2	1
19CIIOC03	Applications of Probability	0	0	2	1
19CIIOC04	User Interface Design	0	0	2	1
19CIIOC05	Open-Source Tools for Network Analysis	0	0	2	1
19CIIOC06	Comprehensive Exam Training	0	0	2	1
19ITOC01	Aptitude Training	0	0	2	1

**2. INDUSTRY BASED**

Course Code	Course Name	L	T	P	C
19ITOC02	Data Visualization Tools	0	0	2	1
19ITOC03	Data Science Tools	0	0	2	1
19ITOC04	Cloud Computing Applications	0	0	2	1
19ITOC05	Agile Software Development	0	0	2	1
19ITOC06	Software Testing Tool	0	0	2	1

**3. NPTEL Offered (4 weeks courses not part of the curriculum)****4. Institute Based**

**B.Tech Artificial Intelligence and Data Science****SUBJECTS OF STUDY****SEMESTER I**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21FYM14	Matrices and Calculus	BS	3	1	0	4
21FYE11	Technical English	HS	2	0	1	2
21FYP13	Engineering Physics	BS	3	0	0	3
21FYC11	Engineering Chemistry	BS	3	0	0	3
21CS11	C Programming	ES	3	0	0	3
21CSL11	C Programming Laboratory	ES	0	0	4	2
21PL11	Physics Laboratory I	BS	0	0	2	0.5
21CL11	Chemistry Laboratory I	BS	0	0	2	0.5
21MEL12	Engineering Practices Laboratory	BS	0	0	2	1
21FYEL11	Employability Skills	EEC	0	0	2	1
<b>Total Credits</b>						<b>20</b>

**SEMESTER II**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21FYM21	Linear Algebra and Gradient Calculus	BS	3	1	0	4
21AD21	Fundamentals of Industry Revolution 4.0	PC	3	0	0	3
21FYC21	Environmental Science and Engineering	ES	3	0	0	1
21CS21	Digital Design	ES	3	0	0	3
21CSL22	Python Programming	ES	1	0	4	3
21MEL11	Engineering Graphics	ES	1	0	4	3
21PL21	Physics Laboratory II	BS	0	0	2	0.5
21CL21	Chemistry Laboratory II	BS	0	0	2	0.5
21CSL21	Digital Design Laboratory	ES	0	0	2	1
21FYEL21	English for Employability	EEC	0	0	2	1
21CC01	Co-curricular Activities	-	-	-	-	1
<b>Total Credits</b>						<b>21</b>

**SEMESTER III**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21AD31	Probability and Statistics	BS	3	1	0	4
21AD32	Data Structures and Algorithms	PC	3	1	0	4
21AD33	Principles of Artificial Intelligence	PC	3	0	0	3
21AD34	Software Engineering Principles and Practices	PC	3	0	0	3
21AD35	Web Development Technologies	PC	3	0	0	3
21AD36	Science of Creativity and Professional Ethics	HS	1	1	0	1
21ADL37	Data Structures and Algorithms Laboratory	PC	0	0	3	1.5
21ADL38	Web Development Laboratory	PC	0	0	3	1.5
21ADOC01	One Credit Course – Elective I	OCC	-	-	-	1
21HOC01	Communication Skills for Engineers – I	EEC	0	0	2	1
<b>Total Credits</b>						<b>23</b>

**SEMESTER IV**

Subject Code	Subject	SCC <sup>#</sup>	Periods			Credits
			L	T	P	
21AD41	Discrete Mathematics and Automata Theory	BS	3	1	0	4
21AD42	Machine learning techniques	PC	3	0	0	3
21AD43	Database Management Systems	PC	3	0	0	3
21AD44	Principles of Computer Systems	PC	3	0	0	3
21AD45	Data communication and Networking	PC	3	0	0	3
21AD46	Foundation in Data Science	PC	3	0	0	3
21ADL47	Machine Learning Laboratory	PC	0	0	3	1.5
21ADL48	Database Management Systems Laboratory	PC	0	0	3	1.5
21ADOC02	One Credit Course-Elective II	OCC	-	-	-	1
21HOC02	Communication Skills for Engineers – II	EEC	0	0	2	1
<b>Total Credits</b>						<b>24</b>

**SEMESTER V**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21AD51	Cloud Architecture	PC	3	0	0	3
21AD52	Mobile Application Development	PC	3	0	0	3
21AD53	Data Mining and Analysis	PC	3	0	0	3
21AD54	Big Data Architecture: Tools and Techniques	PC	3	0	0	3
	Professional Elective I	PE	3	0	0	3
	Open Elective I	OE	3	0	0	3
21ADL55	Mobile Application Development Laboratory	PC	0	0	2	1
21ADL56	Data Mining and Analysis Laboratory	PC	0	0	2	1
21ADOC03	Comprehensive Exam Training (One Credit Course)	EEC	-	-	-	1
21AD66	Mini Project <i>(** Evaluated at Sem VI)</i>	EEC	0	0	6	-
21ADI57	Internship I <i>*(To be completed during third/fourth semester vacation)</i>	EEC	0	0	0	1
<b>Total Credits</b>						<b>22</b>

### SEMESTER VI

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21AD61	Deep Learning Techniques	PC	3	0	0	3
21AD62	Computer Vision and Pattern Recognition	PC	3	0	0	3
21AD63	Data Visualization	PC	3	0	0	3
	Professional Elective II	PE	3	0	0	3
	Open Elective II	OE	3	0	0	3
21ADL64	Deep Learning Laboratory	PC	0	0	4	2
21ADL65	Data Visualization Laboratory	PC	0	0	2	1
21AD66	Mini Project	EEC	0	0	6	3
21ADI67	Internship II* ( <i>To be completed during fourth/fifth semester vacation</i> )	EEC	0	0	0	1
<b>Total Credits</b>						<b>22</b>

**SEMESTER VII**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21AD71	Data Security	PC	3	0	0	3
21AD72	IoT and its Applications	PC	3	0	0	3
21AD73	Applied Natural Language Processing	PC	3	0	0	3
	Professional Elective III	PE	3	0	0	3
	Professional Elective IV	PE	3	0	0	3
21ADL74	Applied Natural Language Processing Laboratory	PC	0	0	2	1
21ADL75	Internet of Things Laboratory	PC	0	0	2	1
21AD76	Project Phase-I	EEC	0	0	6	3
<b>Total Credits</b>						<b>20</b>

### SEMESTER VIII

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
	Professional Elective – V	PE	3	0	0	3
	Professional Elective – VI	PE	3	0	0	3
21AD81	Project Phase-II	EEC	0	0	10	5
<b>Total Credits</b>						<b>11</b>

**Note:**

- Open Electives can be opted from other departments too
- NPTEL 12-week courses, CISCO certifications, AWS certifications, PM certifications can be opted instead of electives with approval of department

**TOTAL CREDITS:**

**Semester I and Semester II : 41**

**Semester III to Semester VIII : 122**

**Total : 163**

## PROFESSIONAL ELECTIVES

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21ADE01	User Interface Design	PE	3	0	0	3
21ADE02	Design and Analysis of Algorithms	PE	3	0	0	3
21ADE03	Information Retrieval	PE	3	0	0	3
21ADE04	Generative AI	PE	3	0	0	3
21ADE05	Agile Software Development	PE	3	0	0	3
21ADE06	Optimization Techniques	PE	3	0	0	3
21ADE07	Graph Theory in Data Science	PE	3	0	0	3
21ADE08	Virtual Reality	PE	3	0	0	3
21ADE09	Regression Analysis	PE	3	0	0	3
21ADE10	Software Testing	PE	3	0	0	3
21ADE11	Reinforcement Learning	PE	3	0	0	3
21ADE12	Fundamentals of Blockchain	PE	3	0	0	3
21ADE13	Evolutionary Algorithms	PE	3	0	0	3
21ADE14	Digital Forensics	PE	3	0	0	3
21ADE15	Distributed Systems	PE	3	0	0	3
21ADE16	Cyber-Physical Systems	PE	3	0	0	3
21ADE17	Social Media Analytics	PE	3	0	0	3
21ADE18	DevOps	PE	3	0	0	3
21ADE19	Mining Large Datasets	PE	3	0	0	3

21ADE20	Information Theory and Coding	PE	3	0	0	3
21ADE21	AI in healthcare	PE	3	0	0	3
21ADE22	Financial AI	PE	3	0	0	3
21ADE23	Intelligent Systems	PE	3	0	0	3
21ADE24	Fog Computing	PE	3	0	0	3
21ADE25	Business Analytics	PE	3	0	0	3
21ADE26	Speech Recognition	PE	3	0	0	3
21ADE27	Neural Networks in Cognitive Science	PE	3	0	0	3
21ADE28	Game theory in AI	PE	3	0	0	3
21ADE29	GPU computing	PE	3	0	0	3
21ADE30	Ethical Hacking	PE	3	0	0	3

**Professional Electives 1**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21ADE01	User Interface Design	PE	3	0	0	3
21ADE02	Design and Analysis of Algorithms	PE	3	0	0	3
21ADE03	Information Retrieval	PE	3	0	0	3
21ADE04	Generative AI	PE	3	0	0	3
21ADE05	Agile Software Development	PE	3	0	0	3

**Professional Electives 2**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21ADE06	Optimization Techniques	PE	3	0	0	3
21ADE07	Graph Theory in Data Science	PE	3	0	0	3
21ADE08	Virtual Reality	PE	3	0	0	3
21ADE09	Regression Analysis	PE	3	0	0	3
21ADE10	Software Testing	PE	3	0	0	3

**Professional Electives 3**

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21ADE11	Reinforcement Learning	PE	3	0	0	3
21ADE12	Fundamentals of Blockchain	PE	3	0	0	3
21ADE13	Evolutionary Algorithms	PE	3	0	0	3
21ADE14	Digital Forensics	PE	3	0	0	3
21ADE15	Distributed Systems	PE	3	0	0	3

#### Professional Electives 4

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21ADE16	Cyber-Physical Systems	PE	3	0	0	3
21ADE17	Social Media Analytics	PE	3	0	0	3
21ADE18	DevOps	PE	3	0	0	3
21ADE19	Mining Large Datasets	PE	3	0	0	3
21ADE20	Information Theory and Coding	PE	3	0	0	3

#### Professional Electives 5

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21ADE21	AI in healthcare	PE	3	0	0	3
21ADE22	Financial AI	PE	3	0	0	3
21ADE23	Intelligent Systems	PE	3	0	0	3
21ADE24	Fog Computing	PE	3	0	0	3
21ADE25	Business Analytics	PE	3	0	0	3

#### Professional Electives 6

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
21ADE26	Speech Recognition	PE	3	0	0	3
21ADE27	Neural Networks in Cognitive Science	PE	3	0	0	3
21ADE28	Game theory in AI	PE	3	0	0	3

21ADE29	GPU computing	PE	3	0	0	3
21ADE30	Ethical Hacking	PE	3	0	0	3

### One Credit Course

Subject Code	Subject	SCC#	Periods			Credits
			L	T	P	
<b>Industry based</b>						
	Advanced Analytics	OCC	-	-	-	1
	Amazon Web Services	OCC	-	-	-	1
	Software Project Management	OCC	-	-	-	1
<b>NPTEL</b>						
	Python for Data Science	OCC	-	-	-	1
	Introduction to Haskell Programming	OCC	-	-	-	1
	Social Networks	OCC	-	-	-	1
<b>Institution</b>						
	Constitution of India	OCC	-	-	-	1
	Biology for Engineers	OCC	-	-	-	1
	Human Values	OCC	-	-	-	1

<b>Department Based</b>						
	R Programming	OCC	-	-	-	1
	Object Oriented Programming in Java	OCC	-	-	-	1
	Tensor Flow	OCC	-	-	-	1

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## DEPARTMENT OF COMPUTING M.SC. (SOFTWARE SYSTEMS)

Curriculum - For the Students admitted during 2020 - 2021 and onwards

### Semester I

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
20MSS11	Technical English	2	0	0	2	HS
20MSS12	Applied Algebra and Calculus	3	1	0	4	BS
20MSS13	Structured Systems Analysis and Design	3	0	0	3	PC
20MSS14	Digital Electronics	3	0	0	3	PC
20MSS15	Problem Solving using C Programming	3	1	0	4	PC
	<b>PRACTICALS</b>					
20MSS16	Computing Laboratory	0	0	4	2	PC
20MSS17	Programming Laboratory in C	0	0	4	2	PC
20MSS18	Digital Electronics Laboratory	0	0	2	1	PC
20MSS19	Employability Skills	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				22	

### Semester II

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
	Language Elective	2	0	0	2	HS
20MSS21	Probability and Statistics - I	3	1	0	4	BS
20MSS22	Data Structures and Algorithms	3	1	0	4	PC
20MSS23	Fundamentals of Web Technology	3	0	0	3	PC
20MSS24	Object Oriented Programming	3	0	0	3	PC
	<b>PRACTICALS</b>					
20MSS25	Web Application Development Laboratory	0	0	4	2	PC
20MSS26	Data Structures and Algorithms Laboratory	0	0	4	2	PC
20MSS27	Object Oriented Programming Laboratory	0	0	4	2	PC
20MSS28	English for Employability	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				23	

**Semester III**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
20MSS31	Theoretical Computer Science	3	0	0	3	BS
20MSS32	Probability and Statistics - II	3	1	0	4	BS
20MSS33	Advanced Data Structures	3	0	0	3	PC
20MSS34	Computer Architecture	3	0	0	3	PC
20MSS35	Operating Systems	3	0	0	3	PC
	<b>PRACTICALS</b>					
20MSS36	Python Programming Laboratory	0	0	4	2	PC
20MSS37	Advanced Data Structures Laboratory	0	0	4	2	PC
20MSS38	Operating Systems Laboratory	0	0	4	2	PC
	<b>TOTAL CREDITS</b>				<b>22</b>	

**Semester IV**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
20MSS41	Resource Management Techniques	3	0	0	3	BS
20MSS42	Microprocessors and Microcontrollers	3	0	0	3	PC
20MSS43	Software Engineering	3	0	0	3	PC
20MSS44	Database Management Systems	3	0	0	3	PC
20MSS45	Java Programming	3	0	0	3	PC
	<b>PRACTICALS</b>					
20MSS46	Microprocessors and Microcontrollers Laboratory	0	0	4	2	PC
20MSS47	Database Management Systems Laboratory	0	0	4	2	PC
20MSS48	Java Programming Laboratory	0	0	4	2	PC
20MSS49	Personality Development	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

**Semester V**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
20MSS51	Full Stack Application Development	3	0	0	3	PC
20MSS52	Computer Networks	3	0	0	3	PC
20MSS53	Design and Analysis of Algorithms	3	1	0	4	PC
20MSS54	Machine Learning	3	0	0	3	PC
	Elective I	3	0	0	3	PC
	<b>PRACTICALS</b>					
20MSS55	Full Stack Application Development Laboratory	0	0	4	2	PC
20MSS56	Network Programming Laboratory	0	0	4	2	PC
	Elective Laboratory I	0	0	4	2	PC
20MSS57	Communications Skills	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>23</b>	

**Semester VI**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
20MSS61	Software Testing and Quality Assurance	3	0	0	3	PC
20MSS62	Mobile Computing	3	0	0	3	PC
20MSS63	Cloud Computing	3	0	0	3	PC
20MSS64	Software Architecture	3	0	0	3	PC
	Elective II	3	0	0	3	PC
	<b>PRACTICALS</b>					
20MSS65	Software Engineering Laboratory	0	0	4	2	PC
20MSS66	Cloud and Mobile Application Development Lab	0	0	4	2	PC
	Elective Laboratory II	0	0	4	2	PC
20MSS67	Hackathon	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

**Semester VII**

Course Code	Course Name	L	T	P	C	CAT
20MSS71	Project Work and Viva Voce-I	0	0	0	18	EEC

**Semester VIII**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
20MSS81	Software Project Management	3	0	0	3	PC
20MSS82	Smart Sensors and Internet of Things	3	0	0	3	PC
20MSS83	Artificial Intelligence	3	0	0	3	PC
	Elective III	3	0	0	3	PC
	Elective IV	3	0	0	3	PC
	<b>PRACTICALS</b>					
20MSS84	Internet of Things Laboratory	0	0	4	2	PC
20MSS85	Artificial Intelligence Laboratory	0	0	4	2	PC
	Elective Laboratory III	0	0	4	2	PC
	<b>TOTAL CREDITS</b>				<b>21</b>	

**Semester IX**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
20MSS91	Agile Methods for Software Development	3	0	0	3	PC
20MSS92	Information Security	3	0	0	3	PC
20MSS93	Professional Ethics	3	0	0	3	EEC
	Elective V	3	0	0	3	PC
	Elective VI	3	0	0	3	PC
	<b>PRACTICALS</b>					
20MSS94	Information Security Laboratory	0	0	4	2	PC
	Elective Laboratory IV	0	0	4	2	PC
	Elective Laboratory V	0	0	4	2	PC
	<b>TOTAL CREDITS</b>				<b>21</b>	

**Semester X**

Course Code	Course Name	L	T	P	C	CAT
20MSS101	Project Work and Viva Voce-II	0	0	0	18	EEC
	<b>TOTAL CREDITS</b>				<b>18</b>	
	<b>GRAND TOTAL OF CREDITS</b>				<b>212</b>	

### ELECTIVE THEORY COURSES

Course Code	Course Name	L	T	P	C	CAT
	<b>DISTRIBUTED AND NETWORKED SYSTEMS STREAM</b>					
20MSSE01	SOA and Web Services	3	0	0	3	PE
20MSSE02	Distributed Computing	3	0	0	3	PE
20MSSE03	Parallel Computing	3	0	0	3	PE
20MSSE04	Blockchain Technologies	3	0	0	3	PE
	<b>DATA ANALYTICS STREAM</b>					
20MSSE05	Big Data Architecture	3	0	0	3	PE
20MSSE06	Information Retrieval	3	0	0	3	PE
20MSSE07	Advanced Database Management Systems	3	0	0	3	PE
20MSSE08	Predictive Analytics	3	0	0	3	PE
20MSSE09	Data Mining	3	0	0	3	PE
	<b>INTELLIGENT SYSTEMS STREAM</b>					
20MSSE10	Computer Vision	3	0	0	3	PE
20MSSE11	Natural Language Processing	3	0	0	3	PE
20MSSE12	Meta-Heuristic Learning	3	0	0	3	PE
20MSSE13	Deep Learning	3	0	0	3	PE
20MSSE14	Decision Support Systems	3	0	0	3	PE
20MSSE15	Business Intelligence	3	0	0	3	PE
	<b>GENERAL STREAM</b>					
20MSSE16	Virtual and Augmented Reality	3	0	0	3	PE
20MSSE17	Compiler Design	3	0	0	3	PE
20MSSE18	Software User Interface Design	3	0	0	3	PE
20MSSE19	Enterprise Application Development	3	0	0	3	PE
20MSSE20	Design Thinking	3	0	0	3	PE
20MSSE21	Business Process Management	3	0	0	3	PE
20MSSE22	Software Language Engineering	3	0	0	3	PE
20MSSE23	Accounting and Financial Management	3	0	0	3	PE
20MSSE24	Human Computer Interaction and Interface	3	0	0	3	PE
20MSSE25	Quantum Computing	3	0	0	3	PE
20MSSE26	Real Time Systems	3	0	0	3	PE

### ELECTIVE LABS

Course Code	Course Name	L	T	P	C	CAT
	<b>DISTRIBUTED AND NETWORKED SYSTEMS STREAM</b>					
20MSSL01	S0A and Web Services Laboratory	0	0	4	2	PE
20MSSL02	Parallel Computing Laboratory	0	0	4	2	PE
20MSSL03	Blockchain Technologies Laboratory	0	0	4	2	PE
	<b>DATA ANALYTICS STREAM</b>					
20MSSL04	Data Mining Laboratory	0	0	4	2	PE
20MSSL05	Big Data Architecture Laboratory	0	0	4	2	PE
20MSSL06	Predictive Analytics Laboratory	0	0	4	2	PE
	<b>INTELLIGENT SYSTEMS STREAM</b>					
20MSSL07	Natural Language Processing Laboratory	0	0	4	2	PE
20MSSL08	Meta-Heuristic Learning Laboratory	0	0	4	2	PE
20MSSL09	Deep Learning Laboratory	0	0	4	2	PE
20MSSL10	Business Intelligence Laboratory	0	0	4	2	PE
20MSSL11	Computer Vision Laboratory	0	0	4	2	PE
20MSSL12	Machine Learning Laboratory	0	0	4	2	PE
	<b>GENERAL STREAM</b>					
20MSSL13	Virtual and Augmented Reality Laboratory	0	0	4	2	PE
20MSSL14	Compiler Construction Laboratory	0	0	4	2	PE
20MSSL15	Enterprise Application Development Laboratory	0	0	4	2	PE
20MSSL16	Accounting and Financial Management Laboratory	0	0	4	2	PE
20MSSL17	Quantum Computing Laboratory	0	0	4	2	PE

### LANGUAGE ELECTIVES

Course Code	Course Name	L	T	P	C	CAT
20MSSLE01	Professional English	2	0	0	2	HS
19FYG21	Basic German	2	0	0	2	HS
19FYF21	Basic French	2	0	0	2	HS

Coimbatore Institute of Technology, Coimbatore - 14.

(Government Aided Autonomous Institution Affiliated to Anna University)

Department of Computing

M. Sc. DATA SCIENCE

CHOICE BASED CREDIT SYSTEM

Five year Integrated Programme

Curriculum for the Academic Year 2021 – 2026

Semester 1

Subject code	Name of the Subject	L	T	P	C	CAT
	<b>THEORY</b>					
21MDS11	Technical English	2	0	0	2	HS
21MDS12	Algebra and Applications	3	1	0	4	BS
21MDS13	Statistical Methods	3	0	0	3	PC
21MDS14	Problem Solving and Programming in Python	3	0	0	3	PC
21MDS15	Principles of Digital Electronics	3	0	0	3	PC
	<b>PRACTICALS</b>					
21MDS16	Computing Laboratory I	0	0	4	2	PC
21MDS17	Programming Laboratory in Python	0	0	4	2	PC
21MDS18	Digital Electronics Laboratory	0	0	4	2	PC
21MDS19	English for Employability	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

Semester 2

Subject code	Name of the Subject	L	T	P	C	CAT
	<b>THEORY</b>					
	Language Elective	2	0	0	2	HS

21MDS21	Calculus and Applications	3	1	0	4	BS
21MDS22	Probability Distributions and Applications	3	0	0	3	PC
21MDS23	Data Structures and Algorithms I	3	0	0	3	PC
21MDS24	Object Oriented Programming	3	0	0	3	PC
	<b>PRACTICALS</b>					
21MDS25	Computing Laboratory II	0	0	4	2	PC
21MDS26	Data Structures and Algorithms Laboratory I	0	0	4	2	PC
21MDS27	Object Oriented Programming Laboratory	0	0	4	2	PC
21MDS28	Employability Skills	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

### Semester 3

Subject code	Subject Name	L	T	P	C	CAT
	<b>THEORY</b>					
21MDS31	Business Statistics	3	0	0	3	PC
21MDS32	Discrete Structures and Automata Theory	3	0	0	3	PC
21MDS33	Operating Systems	3	0	0	3	PC
21MDS34	Database Systems	3	0	0	3	PC
21MDS35	Data Structures and Algorithms II	3	0	0	3	PC
	<b>PRACTICALS</b>					
21MDS36	Database Systems Laboratory	0	0	4	2	PC
21MDS37	Data Structures and Algorithms Laboratory II	0	0	4	2	PC
21MDS38	Web Technology Framework Laboratory	0	0	4	2	PC
	<b>Total Credits</b>				<b>21</b>	

### Semester 4

Subject code	Subject Name	L	T	P	C	CAT
	<b>THEORY</b>					

21MDS41	Multivariate Data Analysis	3	0	0	3	PC
21MDS42	Graph Theory	3	0	0	3	PC
21MDS43	Design and Analysis of Algorithms	3	0	0	3	PC
21MDS44	Computer Networks	3	0	0	3	PC
21MDS45	Machine Learning	3	0	0	3	PC
	<b>PRACTICALS</b>					
21MDS46	Predictive Analytics Laboratory	0	0	4	2	PC
21MDS47	Design and Analysis of Algorithms Laboratory	0	0	4	2	PC
21MDS48	Machine Learning Laboratory	0	0	4	2	PC
21MDS49	Personality Development	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

#### Semester 5

Subject code	Subject Name	L	T	P	C	CAT
	<b>THEORY</b>					
21MDS51	Operations Research	3	0	0	3	PC
21MDS52	Deep Learning	3	0	0	3	PC
21MDS53	Big Data Computing	3	0	0	3	PC
21MDS54	Artificial Intelligence	3	0	0	3	PC
	Elective - I	3	0	0	3	PE
	<b>PRACTICALS</b>					
21MDS55	Deep Learning Laboratory	0	0	4	2	PC
21MDS56	Big Data Computing Laboratory	0	0	4	2	PC
	Elective Lab - I	0	0	4	2	PE
21MDS57	Communication Skills	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

**Semester 6**

Subject code	Subject Name	L	T	P	C	CAT
	<b>THEORY</b>					
21MDS61	Stochastic Models	3	0	0	3	PC
21MDS62	Cloud Computing	3	0	0	3	PC
21MDS63	Data Mining	3	0	0	3	PC
21MDS64	Software Engineering	3	0	0	3	PC
	Elective- II	3	0	0	3	PE
	<b>PRACTICALS</b>					
21MDS65	Cloud Computing Laboratory	0	0	4	2	PC
21MDS66	Data Mining and Visualization Laboratory	0	0	4	2	PC
	Elective Lab - II	0	0	4	2	PE
21MDS67	Hackathon	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

**Semester 7**

Subject code	Subject Name	L	T	P	C	CAT
21MDS71	Project Work and Viva Voce-I	0	0	0	18	EEC
	<b>Total Credits</b>				<b>18</b>	

**Semester 8**

Subject code	Subject Name	L	T	P	C	CAT
	<b>THEORY</b>					
21MDS81	Data Privacy and Security Analytics	3	0	0	3	PC
21MDS82	Quantum Machine Learning	3	0	0	3	PC
21MDS83	Ethics in Data Science	3	0	0	3	PC

	Elective - III	3	0	0	3	PE
	Elective - IV	3	0	0	3	PE
	<b>PRACTICALS</b>					
21MDS84	Data Privacy and Security Analytics Laboratory	0	0	4	2	PC
21MDS85	Quantum Machine Learning Laboratory	0	0	4	2	PC
	Elective Lab - III	0	0	4	2	PE
	<b>Total Credits</b>				<b>21</b>	

### Semester 9

Subject code	Subject Name	L	T	P	C	CAT
	<b>THEORY</b>					
21MDS91	Econometric Analysis	3	1	0	4	PC
21MDS92	Web Analytics	3	0	0	3	PC
21MDS93	Healthcare Analytics	3	1	0	4	PC
	Elective - V	3	0	0	3	PE
	Elective - VI	3	0	0	3	PE
	<b>PRACTICALS</b>					
21MDS94	Econometric Analysis Laboratory	0	0	4	2	PE
21MDS95	Web Analytics Laboratory	0	0	4	2	PE
	Elective Lab - IV	0	0	4	2	PE
	<b>Total Credits</b>				<b>23</b>	

### Semester 10

Subject code	Subject Name	L	T	P	C	CAT
21MDS101	Project Work and Viva Voce- II	0	0	0	18	EEC
	<b>Total Credits</b>				<b>18</b>	
<b>Grand Total of Credits</b>					<b>211</b>	

**Language Elective**

<b>Subject code</b>	<b>Subject Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CAT</b>
21MDSLE01	Professional English	2	0	0	2	HS
19FYG21	Basic German	2	0	0	2	HS
19FYF21	Basic French	2	0	0	2	HS

**Professional Electives**

<b>Subject code</b>	<b>Subject Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CAT</b>
<b>Data Analytics and Intelligent Systems Stream</b>						
21MDSE1	Business Intelligence	3	0	0	3	PE
21MDSE2	Natural Language Processing	3	0	0	3	PE
21MDSE3	Computational Intelligence	3	0	0	3	PE
21MDSE4	Geographical Information Analysis	3	0	0	3	PE
21MDSE5	Robotic Process Automation	3	0	0	3	PE
21MDSE6	Machine Learning in Industry 4.0	3	0	0	3	PE
21MDSE7	Cyber Security Analytics	3	0	0	3	PE
21MDSE8	Knowledge Engineering	3	0	0	3	PE
21MDSE9	Recommender System	3	0	0	3	PE
21MDSE10	Social Network Analysis	3	0	0	3	PE
21MDSE11	Human Resource Analytics	3	0	0	3	PE
21MDSE12	Marketing Analytics	3	0	0	3	PE
21MDSE13	Data Analytics Software Development	3	0	0	3	PE
21MDSE14	Financial Analytics	3	0	0	3	PE
<b>Technology Stream</b>						
21MDSE15	GPU Computing	3	0	0	3	PE
21MDSE16	Mobile Application Development	3	0	0	3	PE

21MDSE17	Blockchain Technology	3	0	0	3	PE
21MDSE18	Internet of Things	3	0	0	3	PE
21MDSE19	Fog and Edge Computing	3	0	0	3	PE
21MDSE20	Augmented and Virtual Reality	3	0	0	3	PE
21MDSE21	Design Thinking	3	0	0	3	PE
21MDSE22	Enterprise Computing	3	0	0	3	PE
21MDSE23	Business Process Management	3	0	0	3	PE
21MDSE24	Software Architecture and Design Patterns	3	0	0	3	PE

**Professional Electives Labs**

<b>Subject code</b>	<b>Subject Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CAT</b>
21MDSEL1	Business Intelligence Laboratory	0	0	4	2	PE
21MDSEL2	Natural Language Processing Laboratory	0	0	4	2	PE
21MDSEL3	Computational Intelligence Laboratory	0	0	4	2	PE
21MDSEL4	Geographical Information Analysis Laboratory	0	0	4	2	PE
21MDSEL5	Internet of Things Laboratory	0	0	4	2	PE
21MDSEL6	Robotic Process Automation Laboratory	0	0	4	2	PE
21MDSEL7	Mobile Application Development Laboratory	0	0	4	2	PE
21MDSEL8	Blockchain Technology Laboratory	0	0	4	2	PE
21MDSEL9	Enterprise Computing Laboratory	0	0	4	2	PE

CAT - Category, BS - Basic Sciences, HS - Humanities and Social Sciences,

ES - Engineering Sciences, PC - Professional Core, PE - Professional Elective,

EEC - Employability Enhancement Course, MC - Mandatory Course

**Coimbatore Institute of Technology, Coimbatore - 14**

**Department of Computing**

**M. Sc. DECISION AND COMPUTING SCIENCES**

**(Five year Integrated Programme)**

**Curriculum from the Academic Year 2022 – 2023 onwards**

<b>Semester I</b>						
<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CAT</b>
<b>Theory</b>						
22MDC11	Technical English	2	0	1	2	HS
22MDC12	Applied Algebra and Calculus	3	1	0	4	BS
22MDC13	Statistical Methods	3	0	0	3	BS
22MDC14	Principles of Management	3	0	0	3	PC
22MDC15	Problem Solving and Programming in C	3	0	0	3	PC
<b>Practicals</b>						
22MDC16	Mathematical and Statistical Computing Laboratory	0	0	4	2	PC
22MDC17	C Programming Laboratory	0	0	4	2	PC
22MDC18	Foundations of Computer Science Laboratory	0	0	4	2	PC
22MDC19	Employability Skills	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	
<b>Semester II</b>						
<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CAT</b>
<b>Theory</b>						
	Language Elective	2	0	1	2	HS
22MDC21	Probability Distributions and Applications	3	0	0	3	BS
22MDC22	Organisational Behavior	4	0	0	4	PC
22MDC23	Data Structures and Algorithms	3	0	0	3	PC
22MDC24	Computer Organization and Operating Systems	3	0	0	3	PC
<b>Practicals</b>						
22MDC25	Applied Probability Laboratory	0	0	4	2	PC
22MDC26	Data Structures and Algorithms Laboratory	0	0	4	2	PC
22MDC27	Python Programming Laboratory	0	0	4	2	PC
22MDC28	English for Employability	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

## Curriculum and Syllabi

### Semesters III - X and Electives

#### Semester III

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
22MDC31	Applied Statistics for Business Decisions	3	1	0	4	BS
22MDC32	Financial Analysis and Reporting	3	1	0	4	PC
22MDC33	Digital Marketing	3	0	0	3	PC
22MDC34	Database Management Systems	3	0	0	3	PC
22MDC35	Object Oriented Programming	3	0	0	3	PC
	<b>PRACTICALS</b>					
22MDC36	Digital Marketing Laboratory	0	0	4	2	PC
22MDC37	Database Management Systems Laboratory	0	0	4	2	PC
22MDC38	Object Oriented Programming Laboratory	0	0	4	2	PC
	<b>Total Credits</b>				<b>23</b>	

#### Semester IV

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
22MDC41	Predictive Analytics	3	0	0	3	BS
22MDC42	Operations Research for Business	3	1	0	4	PC
22MDC43	Financial Engineering	3	0	0	3	PC
22MDC44	Advanced Data Structures and Algorithms	3	0	0	3	PC

22MDC45	Artificial Intelligence	3	0	0	3	PC
	<b>PRACTICALS</b>					
22MDC46	Predictive Analytics Laboratory	0	0	4	2	PC
22MDC47	Financial Engineering Laboratory	0	0	4	2	PC
22MDC48	Advanced Data Structures and Algorithms Laboratory	0	0	4	2	PC
22MDC49	Personality Development	0	0	2	1	EEC
	<b>Total Credits</b>				<b>23</b>	

### Semester V

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
22MDC51	Human Resource Management and Analytics	3	1	0	4	PC
22MDC52	Software Engineering	3	0	0	3	PC
22MDC53	Computer Networks	3	0	0	3	PC
22MDC54	Machine Learning	3	0	0	3	PC
	Elective - I	3	0	0	3	PE
	<b>PRACTICALS</b>					
22MDC55	Full Stack Application Development lab	0	0	4	2	PC
22MDC56	Machine Learning Laboratory	0	0	4	2	PC
	Elective Laboratory - I	0	0	4	2	PE
22MDC57	Managerial Communication Skills	0	0	2	1	EEC
	<b>Total Credits</b>				<b>23</b>	

### Semester VI

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
22MDC61	Economic Foundations of Business	3	0	0	3	PC
22MDC62	Systems for Decision Support	3	0	0	3	PC
22MDC63	Cloud Computing	3	0	0	3	PC
22MDC64	Deep Learning	3	0	0	3	PC

**Semester V**

	Elective - II	3	0	0	3	PE
	<b>PRACTICALS</b>					
22MDC65	Cloud and Mobile Application Development Laboratory	0	0	4	2	PC
22MDC66	Deep Learning Laboratory	0	0	4	2	PC
	Elective Laboratory - II	0	0	4	2	PE
22MDC67	Hackathon	0	0	2	1	EEC
	<b>Total Credits</b>				<b>22</b>	

**Semester VII**

<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>Category</b>
22MDC71	Project Work and Viva Voce-I	0	0	0	18	EEC
	<b>Total Credits</b>				<b>18</b>	

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
22MDC81	Modelling and Simulation	3	0	0	3	PC
22MDC82	Game Theory and Decision Analysis	3	0	0	3	PC
22MDC83	Production and Operations Management	3	0	0	3	PC
	Elective – III	3	0	0	3	PE
	Elective – IV	3	0	0	3	PE
	<b>PRACTICALS</b>					
22MDC84	Game Theory and Decision Analysis Laboratory	0	0	4	2	EEC
22MDC85	Minor Project (Decision Tool Development)	0	0	4	2	PC
	Elective Laboratory - III	0	0	4	2	PE
	<b>Total Credits</b>				<b>21</b>	

### Semester IX

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
22MDC91	Project Management	3	0	0	3	PC
22MDC92	Business Ethics and Entrepreneurship Development	3	0	0	3	PC
22MDC93	Data Privacy and Security Analytics	3	0	0	3	PC
	Elective – V	3	0	0	3	PE
	Elective – VI	3	0	0	3	PE
	<b>PRACTICALS</b>					
22MDC94	Data Privacy and Security Analytics Laboratory	0	0	4	2	PC

	Elective Laboratory IV	0	0	4	2	EEC
	Elective Laboratory V	0	0	4	2	
	<b>Total Credits</b>				<b>21</b>	

### Semester X

Course Code	Course Name	L	T	P	C	Category
22MDC101	Project Work and Viva Voce- II	0	0	0	18	EEC
	<b>Total Credits</b>				<b>18</b>	

### ELECTIVE COURSE

Course Code	Course Name	L	T	P	C	Category
	<b>MANAGEMENT STREAM</b>					
	<b>General Management</b>					
22MDCE01	Business Process Management	3	0	0	3	PE
22MDCE02	Business Environment	3	0	0	3	PE
22MDCE03	Legal Aspects of Business	3	0	0	3	PE
22MDCE04	Strategic Management	3	0	0	3	PE
22MDCE05	Technology and Innovation Management	3	0	0	3	PE
	<b>Finance</b>					

22MDCE11	Equity Valuation	3	0	0	3	PE
22MDCE12	Credit Risk Analytics and Management	3	0	0	3	PE
22MDCE13	International Financial Management	3	0	0	3	PE
	<b>Marketing</b>					
22MDCE21	Customer Relationship Management	3	0	0	3	PE
22MDCE22	Brand Management	3	0	0	3	PE
22MDCE23	Marketing Analytics	3	0	0	3	PE
	<b>Human Resources</b>					
22MDCE31	Strategic Human Resource Management	3	0	0	3	PE
22MDCE32	Performance Management	3	0	0	3	PE
22MDCE33	Compensation Management	3	0	0	3	PE
	<b>Operations &amp; Logistics</b>					
22MDCE41	Total Quality Management	3	0	0	3	PE
22MDCE42	Logistics Strategy and Planning	3	0	0	3	PE
22MDCE43	Supply Chain Management	3	0	0	3	PE
	<b>COMPUTER SCIENCE STREAM</b>					
	<b>Advanced Analytics and Intelligent Systems</b>					
22MDCE51	Graph Theory for Data Science	3	0	0	3	PE
22MDCE52	Healthcare Analytics	3	0	0	3	PE

22MDCE53	Social Network Analysis	3	0	0	3	PE
22MDCE54	Natural Language Processing	3	0	0	3	PE
	<b>Distributed and Network Systems</b>					
22MDCE61	Blockchain Technologies	3	0	0	3	PE
22MDCE62	Distributed Computing	3	0	0	3	PE
22MDCE63	Embedded Systems	3	0	0	3	PE
22MDCE64	Sensing and Sensors	3	0	0	3	PE
22MDCE65	Internet of Things	3	0	0	3	PE
	<b>Software Engineering</b>					
22MDCE71	Software Testing and Quality Assurance	3	0	0	3	PE
22MDCE72	Human Computer Interaction and Interface	3	0	0	3	PE
22MDCE73	Software Architecture and Design Patterns	3	0	0	3	PE
	<b>Cyber Security</b>					
22MDCE81	Cyber Security Analytics	3	0	0	3	PE
22MDCE82	Digital Forensics	3	0	0	3	PE
	<b>Professional Electives - Laboratory Courses</b>					
22MDCEL1	Business Intelligence Laboratory	0	0	4	2	PE
22MDCEL2	Natural Language Processing Laboratory	0	0	4	2	PE
22MDCEL3	Computational Intelligence Laboratory	0	0	4	2	PE

22MDCEL4	Software Engineering Laboratory	0	0	4	2	PE
22MDCEL5	Internet of Things Laboratory	0	0	4	2	PE

# HS - Humanities and Social Sciences, BS - Basic Sciences, PC - Professional Core, PE - Professional Elective, EEC - Employability Enhancement Course.

NOTE :

- Equal weightage for Decision Science and Computer Science is given in the design of the curriculum, which complement each other to address the industry needs.
- Students of this Programme can specialize in Decision Science and/or Computing Science by choosing interested elective courses given under different streams.

# COIMBATORE INSTITUTE OF TECHNOLOGY

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## DEPARTMENT OF COMPUTING - ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

### M.Sc. ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

(Five-Year Integrated Programme)

Curriculum from the Academic Year 2019 - 2020 and onwards

#### Semester I

Course Code	Course Name	L	T	P	C	CAT
19MAM11	Technical English	2	0	0	2	HS
19MAM12	Applied Algebra	3	0	0	3	BS
19MAM13	Fundamental Statistical Methods	3	0	0	3	BS
19MAM14	Data Structures	3	0	0	3	PC
19MAM15	Theory of Programming Languages	3	0	0	3	PC
	<b>PRACTICALS</b>					
19MAM16	Algebra and Statistics Lab	0	0	4	2	PC
19MAM17	Data Structures Lab	0	0	4	2	PC
19MAM18	Python Programming Lab	1	0	4	3	PC
19FYEL11	Employability Skills	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

#### Semester II

Course Code	Course Name	L	T	P	C	CAT
19MAMLE01	Professional English	2	0	0	2	HS
19MAM21	Applied Calculus	3	0	0	3	BS
19MAM22	Probability Distributions and Applications	3	0	0	3	BS
19MAM23	Computer System Architecture	3	0	0	3	PC
19MAM24	Advanced Data Structures	3	0	0	3	PC
	<b>PRACTICALS</b>					
19MAM25	Calculus and Probability Lab	0	0	4	2	PC
19MAM26	Programming Paradigm Lab	0	0	4	2	PC
19MAM27	Advanced Data Structures Lab	0	0	4	2	PC
19FYEL21	English for Employability	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>21</b>	

**Semester III**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
19MAM31	Artificial Intelligence	3	0	0	3	PC
19MAM32	Theory of Computing	3	0	0	3	PC
19MAM33	Database Management Systems	3	0	0	3	PC
19MAM34	Predictive Analytics	3	0	0	3	BS
19MAM35	Human Computer Interaction	3	1	0	4	PC
	<b>PRACTICALS</b>					
19MAM36	Artificial Intelligence Lab	0	0	4	2	PC
19MAM37	Database Management Systems Lab	0	0	4	2	PC
19MAM38	Predictive Analytics Lab	0	0	4	2	PC
	<b>TOTAL CREDITS</b>				<b>22</b>	

**Semester IV**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
19MAM41	Operations Research	3	0	0	3	BS
19MAM42	Machine Learning	3	0	0	3	PC
19MAM43	Design and Analysis of Algorithms	3	0	0	3	PC
19MAM44	Data Communications and Networking	3	0	0	3	PC
19MAM45	Operating Systems	3	0	0	3	PC
	<b>PRACTICALS</b>					
19MAM46	Machine Learning Lab	0	0	4	2	PC
19MAM47	Design and Analysis of Algorithms Lab	0	0	4	2	PC
19MAM48	Network Programming Lab	0	0	4	2	PC
	<b>TOTAL CREDITS</b>				<b>21</b>	

**Semester V**

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
19MAM51	Advanced Machine Learning	3	0	0	3	PC
19MAM52	Artificial Neural Networks	3	0	0	3	PC
19MAM53	Knowledge Based Systems	3	0	0	3	PC
19MAM54	AI Systems Engineering	3	0	0	3	PC
19MAM55	Distributed and Cloud Computing	3	0	0	3	PC
	<b>PRACTICALS</b>					
19MAM56	Advanced Machine Learning Lab	0	0	4	2	PC
19MAM57	Full Stack Web Development Lab	0	0	4	2	PC
19MAM58	Cloud Computing Lab	0	0	4	2	PC
19MAM59	Personality Development	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

**Semester VI**

	<b>THEORY</b>					
19MAM61	Intelligent Agents	3	0	0	3	PC
19MAM62	Deep Learning	3	0	0	3	PC
19MAM63	Information Retrieval and Web Search	3	0	0	3	PC
19MAM64	Big Data Analytics	3	0	0	3	PC
	Elective - I	3	0	0	3	PE
	<b>PRACTICALS</b>					
19MAM65	Deep Learning Lab	0	0	4	2	PC
19MAM66	Mobile Application Development Lab	0	0	4	2	PC
19MAM67	Big Data Analytics Lab	0	0	4	2	PC
19MAM68	Communication Skills	0	0	2	1	EEC
19MAM69	Hackathon	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>23</b>	

**Semester VII**

Course Code	Course Name	L	T	P	C	CAT
19MAM71	Project Work and Viva Voce - I	0	0	0	18	EEC
	<b>TOTAL CREDITS</b>				<b>18</b>	

### Semester VIII

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
19MAM81	Graph Representation Learning	3	0	0	3	PC
19MAM82	Reinforcement Learning	3	0	2	4	PC
19MAM83	Meta-Heuristic Optimization Techniques	3	0	0	3	PC
	Elective II	3	0	0	3	PE
	Elective III	3	0	0	3	PE
	<b>PRACTICALS</b>					
19MAM84	Meta-Heuristic Optimization Lab	0	0	4	2	PC
	Elective Lab I	0	0	4	2	PE
	Elective Lab II	0	0	4	2	PE
	<b>TOTAL CREDITS</b>				<b>22</b>	

### Semester IX

Course Code	Course Name	L	T	P	C	CAT
	<b>THEORY</b>					
19MAM91	Computer Vision	3	0	0	3	PC
19MAM92	Cyber Threat Intelligence	3	0	0	3	PC
	Elective - IV	3	0	0	3	PE
	Elective - V	3	0	0	3	PE
	Elective - VI	3	0	0	3	PE
	<b>PRACTICALS</b>					
19MAM93	Computer Vision Lab	0	0	4	2	PC
19MAM94	Intelligent Cyber Security Lab	0	0	4	2	PC
	Elective Lab - III	0	0	4	2	PE
	<b>TOTAL CREDITS</b>				<b>21</b>	

### Semester X

Course Code	Course Name	L	T	P	C	CAT
19MAM101	Project Work and Viva Voce - II	0	0	0	18	EEC
	<b>Total Credits</b>				<b>18</b>	
	<b>Grand Total of Credits</b>				<b>210</b>	

**PROFESSIONAL ELECTIVES - AI & ML**

Course Code	Course Name	L	T	P	C	CAT
19MAME01	Ethics in AI	3	0	0	3	PE
19MAME02	Healthcare Analytics	2	0	2	3	PE
19MAME03	Smart Applications	3	0	0	3	PE
19MAME04	Spatial Data Modelling and Analysis	3	0	0	3	PE
19MAME05	Augmented and Virtual Reality	3	0	0	3	PE
19MAME06	Medical Image Processing	3	0	0	3	PE
19MAME07	Natural Language Processing	3	0	0	3	PE
19MAME08	Probabilistic Graphical Models	2	0	2	3	PE
19MAME09	Cognitive Computing	3	0	0	3	PE
19MAME10	Recommender Systems	2	0	2	3	PE
19MAME11	Robotics and its Applications	3	0	0	3	PE
19MAME12	Conversational AI	3	0	0	3	PE
19MAME13	Game Theory	3	0	0	3	PE

**PROFESSIONAL ELECTIVES-INFORMATION TECHNOLOGY**

Course Code	Course Name	L	T	P	C	CAT
19MAME14	Agile Software Development	3	0	0	3	PE
19MAME15	SOA and Web Services	2	0	2	3	PE
19MAME16	Internet of Things	3	0	0	3	PE
19MAME17	Digital Signal and Image Processing	2	0	2	3	PE
19MAME18	Cyber Security	3	0	0	3	PE

**PROFESSIONAL ELECTIVES - ECONOMICS, FINANCE AND MANAGEMENT**

Course Code	Course Name	L	T	P	C	CAT
19MAME19	Business Intelligence	3	0	0	3	PE

**PROFESSIONAL ELECTIVES - LABORATORY**

Course Code	Course Name	L	T	P	C	CAT
19MAMEL01	Spatial Data Modelling and Analysis Laboratory	0	0	4	2	PE
19MAMEL02	Augmented and Virtual Reality Lab	0	0	4	2	PE
19MAMEL03	Natural Language Processing Lab	0	0	4	2	PE
19MAMEL04	Graph Analytics Lab	0	0	4	2	PE
19MAMEL05	Internet of Things Lab	0	0	4	2	PE
19MAMEL06	Cyber Security Lab	0	0	4	2	PE

**ONE CREDIT COURSES\*\***

<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CAT</b>
19MAMOC01	Econometrics and Machine Learning in Finance	1	0	0	1	EEC
19MAMOC02	Java Programming	0	0	2	1	EEC

\*\*Over and above the CGPA

# COIMBATORE INSTITUTE OF TECHNOLOGY

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## DEPARTMENT OF COMPUTER APPLICATIONS

### MCA 2 YEARS PROGRAMME 2020

Curriculum from the Academic Year 2020 and onwards

Under Choice Based Credit System

Name of the degree : MCA

Specialization : Computer Applications

#### Semester I

Course Code	Course Name	L	T	P	C	CY
20MCA11	Mathematical Foundations of Computer Applications	3	0	0	3	FC
20MCA12	Data Structures and Algorithms	3	0	0	3	FC
20MCA13	Database Management Systems	3	0	0	3	FC
20MCA14	Operating System Principles	3	0	0	3	FC
20MCA15	Software Engineering	3	0	0	3	FC
20MCA16	Data Structures Laboratory	0	0	4	2	FC
20MCA17	Database Management Systems Laboratory	0	0	4	2	FC
20MCA18	Python Programming Laboratory	0	0	4	2	PC
20MCA19	Communication Skills	0	0	2	1	EEC
	Total Credits				22	

#### Semester II

Course Code	Course Name	L	T	P	C	CY
20MCA21	Artificial Intelligence	3	0	0	3	FC
20MCA22	Advanced Java Programming	3	0	0	3	PC
20MCA23	Virtualization and Cloud Computing	3	0	0	3	FC
20MCA24	SOA and Web Services	3	0	0	3	FC
	Elective I	3	0	0	3	PE
20MCA25	Artificial Intelligence Laboratory	0	0	4	2	FC
20MCA26	Advanced Programming Laboratory	0	0	4	2	PC
20MCA27	Professional English	0	0	2	1	EEC
20MCA28	Mini Project	0	0	2	1	EEC
20HAC01	Hackathon	0	0	0	1	EEC
	One Credit Course	1	0	0	1	OC
	Total Credits				23	

**Semester III**

Course Code	Course Name	L	T	P	C	CY
20MCA31	Cryptography and Network Security	3	0	0	3	FC
20MCA32	Machine Learning	3	0	0	3	FC
	Elective II	3	0	0	3	PE
	Elective III	3	0	0	3	PE
	Elective IV (Management Elective)	3	0	0	3	PE
20MCA33	Cryptography and Network Security Laboratory	0	0	4	2	FC
20MCA34	Machine Learning Laboratory	0	0	4	2	FC
	Elective Lab	0	0	4	2	PE
20MCAIT01	Inplant Training	0	0	0	1	EEC
	Total Credits				22	

**Semester IV**

Course Code	Course Name	L	T	P	C	CY
20MCA41	Project work and viva voce	-	-	-	13	EEC
	Total Credits				13	

**Total Credits****80****#One Credit Course**

Course Code	Course Name	L	T	P	C	CY
20MCAOC01	Recent Trends in Web Technology	1	0	0	1	OC
20MCAOC02	Devops Essentials	1	0	0	1	OC

**Professional Electives - IT Electives**

Course Code	Course Name	L	T	P	C	CY
20MCAE101	Graphics and Multimedia	3	0	0	3	PE
20MCAE102	Advanced Database Management Systems	3	0	0	3	PE
20MCAE103	Distributed Systems	3	0	0	3	PE
20MCAE104	Grid and Cluster Computing	3	0	0	3	PE
20MCAE105	Internet of Things	3	0	0	3	PE
20MCAE106	Software Metrics and Measurement	3	0	0	3	PE
20MCAE107	Agile Methods for Software Development	3	0	0	3	PE
20MCAE108	Software Architecture and Design Patterns	3	0	0	3	PE
20MCAE109	Basics of Robotics	3	0	0	3	PE
20MCAE110	GPU and Parallel Programming	3	0	0	3	PE
20MCAE111	Digital Image Processing	3	0	0	3	PE
20MCAE112	Blockchain Technologies	3	0	0	3	PE
20MCAE113	Single page web applications	3	0	0	3	PE

Course Code	Course Name	L	T	P	C	CY
20MCAE114	Digital Marketing	3	0	0	3	PE
20MCAE115	Software Project Management	3	0	0	3	PE
20MCAE116	Computer Vision	3	0	0	3	PE
20MCAE117	Software Testing and Quality Assurance	3	0	0	3	PE
20MCAE118	Open Source Ecosystem	3	0	0	3	PE
20MCAE119	Enterprise Management and Computing	3	0	0	3	PE

#### Professional Electives - Data Science Electives

Course Code	Course Name	L	T	P	C	CY
20MCAE201	Data Analytics	3	0	0	3	PE
20MCAE202	Intelligent Information Retrieval	3	0	0	3	PE
20MCAE203	Big Data Technologies	3	0	0	3	PE
20MCAE204	Data Mining and Warehousing	3	0	0	3	PE
20MCAE205	Natural Language Processing	3	0	0	3	PE
20MCAE206	Social Network Analysis	3	0	0	3	PE

#### Professional Electives - Networking Electives

Course Code	Course Name	L	T	P	C	CY
20MCAE301	Computer Networks	3	0	0	3	PE
20MCAE302	Internetworking Protocols and Management	3	0	0	3	PE
20MCAE303	Mobile Computing	3	0	0	3	PE
20MCAE304	Wireless networks	3	0	0	3	PE
20MCAE305	Ad Hoc Networks	3	0	0	3	PE

#### Professional Electives - Management Electives

Course Code	Course Name	L	T	P	C	CY
20MCAE401	Organizational Behaviour	3	0	0	3	PE
20MCAE402	Principles of Management	3	0	0	3	PE
20MCAE403	Accounting and Financial Management	3	0	0	3	PE
20MCAE404	E-Commerce	3	0	0	3	PE
20MCAE405	Decision Making	3	0	0	3	PE
20MCAE406	Entrepreneurship Development	3	0	0	3	PE
20MCAE407	Principles of Environmental Science	3	0	0	3	PE

### Professional Electives Laboratories

Course Code	Course Name	L	T	P	C	CY
20MCAEL01	Mobile Application Development Laboratory	0	0	4	2	PE
20MCAEL02	Graphics and Multimedia Laboratory	0	0	4	2	PE
20MCAEL03	Internet of Things Laboratory	0	0	4	2	PE
20MCAEL04	Data Analytics Laboratory	0	0	4	2	PE
20MCAEL05	Data Mining Laboratory	0	0	4	2	PE
20MCAEL06	GPU and Parallel Programming Laboratory	0	0	4	2	PE
20MCAEL07	Image Processing Laboratory	0	0	4	2	PE
20MCAEL08	Web Frameworks Laboratory	0	0	4	2	PE
20MCAEL09	Natural Language Processing Laboratory	0	0	4	2	PE
20MCAEL10	Social Network Analysis Laboratory	0	0	4	2	PE
20MCAEL11	Networks Programming Laboratory	0	0	4	2	PE
20MCAEL12	Digital Marketing Laboratory	0	0	4	2	PE

### BRIDGE COURSE\*\*

#### SEMESTER I

Course Code	Course Name	L	T	P	C	CY
20MCAB11	Basics of Data Structures	1	0	0	0	FC
20MCAB12	Programming in C	1	0	0	0	FC
20MCAB13	Computer Hardware and Organization	1	0	0	0	FC

#### SEMESTER II

Course Code	Course Name	L	T	P	C	CY
20MCAB21	Basics of Internet	1	0	0	0	FC
20MCAB22	Software Project Management	1	0	0	0	FC
20MCAB23	Object Oriented Programming in C++	1	0	0	0	FC

\*\* Applicable to the candidates who has been admitted with Non Computer Science Undergraduate Degree

FC - Foundation Course, PC - Professional Core, OC- One Credit Course, PE - Professional Elective,

EEC - Employability Enhancement Course.

# COIMBATORE INSTITUTE OF TECHNOLOGY

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## DEPARTMENT OF MANAGEMENT STUDIES (MBA)

### MASTER OF BUSINESS ADMINISTRATION REGULATIONS - 2021

#### CHOICE BASED CREDIT SYSTEM

#### PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :

MBA programme curriculum is designed to prepare the post graduate students

- I. To have a thorough understanding of the core aspects of the business.
- II. To provide the learners with the management tools to identify, analyze and create business opportunities as well as solve business problems.
- III. To prepare them to have a holistic approach towards management functions.
- IV. To motivate them for continuous learning.
- V. To inspire and make them practice ethical standards in business.

#### PROGRAMME OUTCOMES (POs) :

On successful completion of the programme,

1. Ability to apply the business acumen gained in practice.
2. Ability to understand and solve managerial issues.
3. Ability to communicate and negotiate effectively, to achieve organizational and individual goals.
4. Ability to upgrade their professional and managerial skills in their workplace.
5. Ability to explore and reflect about managerial challenges, develop informed managerial decisions in a dynamically unstable environment.
6. Ability to take up challenging assignments.
7. Ability to understand one's own ability to set achievable targets and complete them.
8. Ability to pursue life long learning.
9. To have a fulfilling business career.
10. Ability to have financial literacy.
11. Ability to fulfill social out reach
12. Ability to understand business analytics

#### MAPPING OF PEOS WITH POS :

Programme Educational Objectives	Programme Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I	3	3	2	1	3	3	1	2	1	1	1	3
II	1	3	1	2	3	1	3	2	1	3	1	3
III	3	3	2	3	3	2	3	3	3	1	2	3
IV	2	1	2	3	3	1	3	3	3	1	2	1
V	1	3	3	2	2	3	1	2	3	1	3	1

Year	Sem.	COURSE TITLE	Programme Outcomes								
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
YEAR 1	SEM 1	Statistics for Management		-							
		Management Concepts and Organizational Behavior	-		-	-					
		Managerial Economics	-				-	-			
		Accounting for Decision Making		-							
		Legal Aspects of Business	-	-	-						
		Information Management	-		-	-				-	-
		Marketing Management	-			-					-
		Indian Ethos and Business Ethics Seminar					-	-			-
		Business Communication (Laboratory)			-	-				-	-
	SEM 2	Quantitative Techniques for Decision Making		-		-					
		Financial Management		-		-		-			-
		Human Resource Management	-		-	-		-		-	-
		Operations Management	-	-		-			-		
		Business Research Methods		-		-			-		
		Business Analytics		-		-					-
		Non-Functional Elective									
		Data Analysis and Business Modelling (Laboratory)		-				-	-		-
		Rural Community Engagement	-		-		-			-	-
	YEAR 2	SEM 3	Strategic Management	-		-	-		-		-
International Business			-		-		-				-
Creativity and Innovation Laboratory			-	-		-		-			-
Elective I											
Elective II											
Elective III											
Elective IV											
Elective V											
Elective VI											
Summer Internship			-	-	-	-	-	-	-	-	-
	SEM 4	Project work - 16 weeks Project Work + Maximum 4 weeks for report writing	-	-	-	-	-	-	-	-	

**NON - FUNCTIONAL ELECTIVES**

Sl. No.	Subject	Programme Outcomes								
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
1.	Entrepreneurship Development	-			-					
2.	Corporate Governance	-		-	-				-	
3.	Event Management				-				-	
4.	Micro and Small Business Management	-			-				-	
5.	Fuzzy logic for Management Decision Making		-			-	-	-		
6.	Intellectual Property Rights				-				-	
7.	Sustainable Management	-		-	-				-	

**STREAM / SPECIALIZATION : FINANCIAL MANAGEMENT**

Sl. No.	Subject	Programme Outcomes								
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
1.	Security Analysis and Portfolio Management						-		-	-
2.	Financial markets						-		-	
3.	Banking and Financial Services						-		-	
4.	Financial Derivatives						-		-	
5.	Financial Modelling			-			-	-	-	-
6.	Business Analysis and Valuation			-	-		-	-	-	
7.	International Finance						-		-	
8.	Behavioral Finance	-					-		-	-
9.	Fintech and Blockchain Applications in Finance			-			-	-	-	-

**STREAM / SPECIALIZATION : OPERATIONS MANAGEMENT**

10.	Supply Chain Management		-		-	-				-
11.	Quality Management	-			-				-	-
12.	Materials Management				-					
13.	Services Operations Management	-	-	-	-	-				-
14.	Process Management	-	-		-					
15.	Supply Chain Analytics		-		-	-	-	-	-	
16.	Project Management	-	-		-					-
17.	Product design				-					-
18.	Lean Six Sigma		-		-	-	-		-	
19.	Robust Design	-			-				-	-

**STREAM / SPECIALIZATION : MARKETING MANAGEMENT**

Sl. No.	Subject	Programme Outcomes								
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
20.	Retail Marketing				-					-
21.	Consumer Behavior	-		-	-				-	-
22.	Integrated Marketing Communications				-	-				
23.	Services Marketing	-		-	-					-
24.	Sales and Distribution Management				-					-
25.	Product and Brand Management				-					
26.	Digital Marketing		-		-	-	-	-		
27.	International Marketing	-			-		-			-
28.	Marketing Analytics		-		-	-	-	-	-	
29.	B2B & B2C Sales & Marketing									

**STREAM / SPECIALIZATION : HUMAN RESOURCE MANAGEMENT**

30.	Strategic Human Resource Management	-			-		-		-	-
31.	Industrial Relations and Labour Legislations	-			-					-
32.	Social Psychology	-		-	-	-			-	
33.	Organizational, Design, Change and Development				-		-			-
34.	Managerial Behavior and Effectiveness	-		-	-	-			-	-
35.	Negotiation and Conflict Management	-		-	-	-				-
36.	Reward and Compensation Management				-	-			-	
37.	Personal Effectiveness	-		-	-	-		-	-	-
38.	International Human Resources Management				-		-		-	
39.	Human Resource Analytics		-		-		-	-		
40.	Talent Acquisition and Management									

**STREAM / SPECIALIZATION : SYSTEMS MANAGEMENT**

41.	e-business			-	-				-	-
42.	Internet of Things				-		-		-	-
43.	Cloud computing				-	-			-	
44.	Enterprise Resource Planning	-			-				-	-
45.	Software Project and quality management				-	-				
46.	Data Mining for Business Intelligence		-		-				-	-
47.	Big Data Analytics		-		-	-	-	-		
48.	Deep Learning & Artificial Intelligence			-	-	-	-	-	-	
49.	R Programming		-			-	-	-		
50.	Python Programming		-			-	-	-		

**STREAM / SPECIALIZATION : BUSINESS ANALYTICS**

Sl. No.	Subject	Programme Outcomes								
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
51.	Block Chain Technology				-	-	-			
52.	Social media web Analytics		-		-	-	-	-		-
53.	Stochastic Modelling		-			-	-	-		
54.	Time Series Analysis		-			-	-	-		
55.	Multivariate data analysis		-			-	-	-		
56.	Data Mining for Business Intelligence		-		-				-	-
57.	Big Data Analytics		-		-	-	-	-		
58.	Deep Learning & Artificial Intelligence			-	-	-	-	-	-	
59.	R Programming		-			-	-	-		
60.	Python Programming		-			-	-	-		
61.	Logistics & Supply Chain Management									

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## DEPARTMENT OF MANAGEMENT STUDIES (MBA)

### REGULATIONS - 2021 ONWARDS

FOR THE STUDENTS ADMITTED DURING 2021 - 22 AND ONWARDS

### CHOICE BASED CREDIT SYSTEM

## MASTER OF BUSINESS ADMINISTRATION (FULL - TIME)

### CURRICULUM AND SYLLABI FOR I TO IV SEMESTERS

#### SEMESTER I

Sl No.	Course Code	Course Title	Category	Periods per week			Total contact periods	Credits
				L	T	P		
		<b>THEORY</b>						
1.	21MBA11	Statistics for Management	PCC	3	0	0	3	3
2.	21MBA12	Management Concepts and Organizational Behavior	PCC	3	0	0	3	3
3.	21MBA13	Managerial Economics	PCC	3	0	0	3	3
4.	21MBA14	Accounting for Decision Making	PCC	3	0	0	3	3
5.	21MBA15	Legal Aspects of Business	PCC	3	0	0	3	3
6.	21MBA16	Information Management	PCC	3	0	0	3	3
7.	21MBA17	Marketing Management	PCC	3	0	0	3	3
		<b>PRACTICALS</b>						
8.	21MBAL18	Indian Ethos and Business Ethics (Seminar)	EEC	0	0	4	4	2
9.	21MBAL19	Business Communications (Laboratory)	EEC	0	0	4	4	2
		<b>TOTAL CREDITS</b>						<b>25</b>

**SEMESTER II**

Sl No.	Course Code	Course Title	Category	Periods per week			Total contact periods	Credits
				L	T	P		
		<b>THEORY</b>						
1.	21MBA21	Quantitative Techniques for Decision Making	PCC	3	0	0	3	3
2.	21MBA22	Financial Management	PCC	3	0	0	3	3
3.	21MBA23	Human Resource Management	PCC	3	0	0	3	3
4.	21MBA24	Operations Management	PCC	3	0	0	3	3
5.	21MBA25	Business Research Methods	PCC	3	0	0	3	3
6.	21MBA26	Business Analytics	PCC	3	0	0	3	3
7.		Non-Functional Elective	PEC	3	0	0	3	3
		<b>PRACTICALS</b>						
8.	21MBAL27	Data analysis and Business Modeling (Laboratory)	PCC	0	0	4	4	2
9.	21MBAL28	Rural Community Engagement	EEC	0	0	4	4	2
		<b>TOTAL CREDITS</b>						<b>25</b>

**NOTE :** In the second semester Students need to choose one elective from the Non-Functional stream

Summer internship - minimum of 4 weeks of internship Training Report has to be submitted

**SEMESTER III**

Sl No.	Course Code	Course Title	Category	Periods per week			Total contact periods	Credits
				L	T	P		
		<b>THEORY</b>						
1.	21MBA31	Strategic Management	PCC	3	0	0	3	3
2.	21MBA32	International Business	PCC	3	0	0	3	3
3.		Elective I	PEC	3	0	0	3	3
4.		Elective II	PEC	3	0	0	3	3
5.		Elective III	PEC	3	0	0	3	3
6.		Elective IV	PEC	3	0	0	3	3
7.		Elective V	PEC	3	0	0	3	3
8.		Elective VI	PEC	3	0	0	3	3
		<b>PRACTICALS</b>						
9.	21MBAL33	Creativity and Innovation Laboratory	EEC	0	0	4	4	2
10.	21MBAL34	Summer Internship	EEC	0	0	4	4	2
		<b>TOTAL CREDITS</b>						<b>28</b>

**NOTE :** In the third semester Students need to choose -Three electives from 2 functional streams for Dual Specialization

**SEMESTER IV**

SI No.	Course Code	Course Title	Category	Periods per week			Total contact periods	Credits
				L	T	P		
		<b>THEORY</b>						
1.	21MBA41	Project Work	EEC	0	0	24	24	12
		<b>TOTAL CREDITS</b>						<b>12</b>

**GRAND TOTAL NO. OF CREDITS : 90**

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## DEPARTMENT OF CIVIL ENGINEERING

### COURSES OF STUDY

For the students admitted during 2019 - 2020 and onwards

Under Choice Based Credit System

Name of the degree : M.E. (Full-Time) Specialization :

**M.E. Structural Engineering**

#### Semester I

Course Code	Course Name	L	T	P	C	CY
19MCE11	Applied Mathematics	4	0	0	4	FC
19MCE12	Applied Elasticity and Plasticity	3	0	0	3	PC
19MCE13	Matrix Methods of Structural Analysis	3	0	0	3	PC
19MCE14	Advanced Reinforced Concrete Structures	3	0	0	3	PC
19MCE15	Advanced Steel Structures	3	0	0	3	PC
	Program Elective - I	3	0	0	3	PE
19MCE16	Computer Applications Laboratory	0	0	4	2	PC
	<b>TOTAL CREDITS</b>				<b>21</b>	

#### Semester II

Course Code	Course Name	L	T	P	C	CY
19MCE21	Structural Dynamics	3	0	0	3	PC
19MCE22	Finite Element Method	3	0	0	3	PC
19MCE23	Design of Foundation Structures	3	0	0	3	PC
	Program Elective - II	3	0	0	3	PE
	Program Elective - III	3	0	0	3	PE
	Program Elective - IV	3	0	0	3	PE
19MCE24	Advanced Structural Engineering Laboratory	0	0	4	2	PC
	<b>TOTAL CREDITS</b>				<b>20</b>	

**Semester III**

Course Code	Course Name	L	T	P	C	CY
	Program Elective - V	3	0	0	3	PE
	Program Elective - VI	3	0	0	3	PE
	Open Elective / Professional Elective - VII	3	0	0	3	OE
	One Credit Course	1	0	0	1	EEC
19MCE31	Practical Training	0	0	0	2	EEC
	<b>TOTAL CREDITS</b>				<b>12</b>	

**Semester IV**

Course Code	Course Name	L	T	P	C	CY
19MCE41	Project Work and Viva Voce	0	0	36	18	EEC
	<b>TOTAL CREDITS</b>				<b>18</b>	

Total number of credits : 71

**LIST OF OPEN ELECTIVES**

Course Code	Course Name	L	T	P	C	CY
19MCEOE01	Disaster Management	3	0	0	3	OE
19MCEOE02	Energy Efficient Building	3	0	0	3	OE
19MCMOE01	Landscaping and Architecture	3	0	0	3	OE
19MENOE01	Climate Change and Adaptation	3	0	0	3	OE

**LIST OF ONE CREDIT COURSES**

Course Code	Course Name	L	T	P	C	CY
19MCOC01	Practical Geotechnical Engineering	1	0	0	1	EEC
19MCOC02	Green Buildings	1	0	0	1	EEC
19MCOC03	Geoinformatics Laboratory	1	0	0	1	EEC
19MCOC04	Sustainable Architecture	1	0	0	1	EEC

**LIST OF PROGRAM ELECTIVES**

<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CY</b>
19MCEE01	Stability of Structures	3	0	0	3	PE
19MCEE02	Advanced Concrete Technology	3	0	0	3	PE
19MCEE03	Experimental Techniques and Instrumentation	3	0	0	3	PE
19MCEE04	Earthquake Resistant Design of Structures	3	0	0	3	PE
19MCEE05	Structural Optimization	3	0	0	3	PE
19MCEE06	Health Monitoring of Structures	3	0	0	3	PE
19MCEE07	Prestressed Concrete Structures	3	0	0	3	PE
19MCEE08	Corrosion of Steel in Concrete Structures	3	0	0	3	PE
19MCEE09	Theory of Plates	3	0	0	3	PE
19MCEE10	Design of Concrete Bridges	3	0	0	3	PE
19MCEE11	Design of Steel Concrete Composite Structures	3	0	0	3	PE
19MCEE12	Offshore Structures	3	0	0	3	PE
19MCEE13	Shell Structures	3	0	0	3	PE
19MCEE14	Design of Tall Buildings	3	0	0	3	PE
19MCEE15	Wind and Cyclone Effects on Structures	3	0	0	3	PE
19MCEE16	Soil Structure Interaction	3	0	0	3	PE
19MCEE17	Mechanics of Composite Materials	3	0	0	3	PE
19MCEE18	Prefabricated Structures	3	0	0	3	PE

L : Lecture

T : Tutorial

P : Practical

C : Credits

CY : Category

PC : Program Core

PE : Program Elective

EEC : Employability Enhancement Course

OE : Open elective

OC : One credit course

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## M.E. (ENVIRONMENTAL ENGINEERING AND MANAGEMENT)

( Curriculum from the Academic Year 2019-2020 onwards )

### SUBJECTS OF STUDY

#### Semester I

Course Code	Course Name	Category	L	T	P	C
19MEN11	Applied Statistics and Probability	FC	3	0	0	3
19MEN12	Environmental Chemistry	PC	3	0	0	3
19MEN13	Environmental Microbiology	PC	3	0	0	3
19MEN14	Separation Process In Environmental Engineering	PC	3	0	0	3
19MEN15	Industrial Wastewater Treatment and Management	PC	3	0	0	3
	Program Elective - I	PE	3	0	0	3
19MEN16	Process Engineering Laboratory - I	PC	0	0	4	2
	<b>TOTAL</b>		<b>18</b>	<b>0</b>	<b>4</b>	<b>20</b>

#### Semester II

Course Code	Course Name	Category	L	T	P	C
19MEN21	Design of Water and wastewater treatment Plant	PC	3	0	0	3
19MEN22	Air Pollution and Control	PC	3	0	0	3
19MEN23	Solid and Hazardous Waste Management	PC	3	0	0	3
	Program Elective - 2	PE	3	0	0	3
	Program Elective - 3	PE	3	0	0	3
	Program Elective - 4	PE	3	0	0	3
19MEN24	Process Engineering Laboratory - II	PC	0	0	4	2
	<b>TOTAL</b>		<b>18</b>	<b>0</b>	<b>4</b>	<b>20</b>

#### Semester III

Course Code	Course Name	Category	L	T	P	C
	Program Elective - 5	PE	3	0	0	3
	Program Elective - 6	PE	3	0	0	3
	Open Elective / Professional Elective - VII	OE	3	0	0	3
19MEN31	Practical Training	EEC	-	-	-	2
	One credit course	EEC	0	-	2	1
	<b>TOTAL</b>		<b>10</b>	<b>0</b>	<b>2</b>	<b>12</b>

**Semester IV**

Course Code	Course Name	Category	L	T	P	C
19MEN41	Project	EEC	0	0	36	18
	<b>TOTAL</b>		<b>0</b>	<b>0</b>	<b>36</b>	<b>18</b>

**Total Credits : 70**

L - Lecture, T - Tutorial, P - Practical, C - Credit, FC - Foundation Course, PC - Professional Core,  
PE - Professional Elective, EEC - Employment Enhancement Course

**LIST OF PROGRAM ELECTIVES**

Course Code	Course Name
19MENE01	Environmental Biotechnology
19MENE02	Adsorption Technology
19MENE03	Instrumental Method of Analysis
19MENE04	Noise Pollution and Management
19MENE05	Ecology and Ecosystem Management
19MENE06	Optimization of Environmental Systems
19MENE07	Air and Water Quality Modelling
19MENE08	Geo Environmental Engineering
19MENE09	Transport of Water and Wastewater
19MENE10	Environmental Impact Assessment
19MENE11	Design of Environmental Engineering Structures
19MENE12	Biodegradation and Bioremediation Techniques
19MENE13	Energy Management
19MENE14	Environmental Economics and Legislation
19MENE15	Sustainable Development and Cleaner Production

**LIST OF OPEN ELECTIVES**

Course Code	Course Name
19MENOE01	Climate Change and Adaptation
19MCEOE01	Disaster Management
19MCEOE02	Energy Efficient Building
19MCMOE01	Landscaping and Architecture

**LIST OF ONE CREDIT COURSE**

Course Code	Course Name
19MCOC01	Practical Geotechnical Engineering
19MCOC02	Green Buildings
19MCOC03	Geo Informatics Laboratory
19MCOC04	Sustainable Architecture

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## M.E. CONSTRUCTION MANAGEMENT

(Curriculum from the Academic Year 2019 - 2020 onwards)

### Semester I

Course Code	Course Name	Category	L	T	P	C
19MCM11	Statistical Methods and Research Methodology for Construction Management	FC	3	-	-	3
19MCM12	Construction Project Management	PC	3	-	-	3
19MCM13	Construction Project Formulation and Appraisal	PC	3	-	-	3
19MCM14	Construction Resource Planning and Management	PC	3	-	-	3
19MCM15	Construction Economics and Financial Management	PC	3	-	-	3
	Program Elective - 1	PE	3	-	-	3
19MCM16	Data Analysis Laboratory for Construction Management	PC	-	-	4	2
	<b>Total</b>		<b>18</b>	<b>0</b>	<b>2</b>	<b>20</b>

### Semester II

Course Code	Course Name	Category	L	T	P	C
19MCM21	Construction Planning, Scheduling and Control	PC	3	-	-	3
19MCM22	Contract Management and Dispute Resolution	PC	3	-	-	3
19MCM23	Quantitative Techniques in Construction Management	PC	3	-	-	3
	Program Elective - 2	PE	3	-	-	3
	Program Elective - 3	PE	3	-	-	3
	Program Elective - 4	PE	3	-	-	3
19MCM24	Project Planning Laboratory for Construction Management	PC	-	-	4	2
	<b>Total</b>		<b>18</b>	<b>0</b>	<b>2</b>	<b>20</b>

### Semester III

Course Code	Course Name	Category	L	T	P	C
	Program Elective - 5	PE	3	-	-	3
	Program Elective - 6	PE	3	-	-	3
	Open Elective / Program Elective - 7	PE	3	-	-	3
19MCM31	Practical Training	EEC	-	-	-	2
	One Credit course	EEC			-	1
	<b>Total</b>		<b>9</b>	<b>-</b>	<b>-</b>	<b>12</b>

**Semester IV**

Course Code	Course Name	Category	L	T	P	C
19MCM41	Project Work	EEC	-	-	-	18
	<b>Total</b>		-	-	-	<b>18</b>

Total Credits to be Earned for the Award of the Degree = 70

FC - Foundation Courses

PC - Professional Core

PE - Professional Electives

EEC - Employment Enhancement Courses

**PROFESSIONAL ELECTIVE COURSES (PE)**

Course Code	Course Name	Category	L	T	P	C
19MCME01	Advanced Construction Materials and Equipment	PE	3	-	-	3
19MCME02	Quality Management for Construction Projects	PE	3	-	-	3
19MCME03	Management Information systems	PE	3	-	-	3
19MCME04	Advanced Construction Techniques	PE	3	-	-	3
19MCME05	Functional Planning, Building Services and Maintenance Management	PE	3	-	-	3
19MCME06	Construction Risk Management	PE	3	-	-	3
19MCME07	Shoring, Scaffolding and Formwork	PE	3	-	-	3
19MCME08	Advanced Concrete Constructions	PE	3	-	-	3
19MCME09	Valuation of Real Properties	PE	3	-	-	3
19MCME10	Building Information Management	PE	3	-	-	3
19MCME11	Construction Safety and Health Management	PE	3	-	-	3
19MCME12	Lean Construction Concepts, Tools and Practices	PE	3	-	-	3

**ONE CREDIT COURSE**

Course Code	Course Name
19MCOC01	Practical Geotechnical Engineering
19MCOC02	Green buildings
19MCOC03	Geo informatics laboratory
19MCOC04	Sustainable architecture

**PG OPEN ELECTIVES**

Course Code	Course Name	Category	L	T	P	C
19MCEO01	Disaster Management	OE	3	-	-	3
19MCEO02	Energy efficient buildings	OE	3	-	-	3
19MCMOE01	Landscaping and Architecture	OE	3	-	-	3
19MENOE01	Climate change and adaptation	OE	3	-	-	3

\* Add / Include Syllabus for one Credit Course & Open Electives

## CURRICULUM

### M.E- ADVANCED MANUFACTURING TECHNOLOGY

<b>SEMESTER – I</b>						
S.No	COURSE CODE	COURSE NAME	TEACHING SCHEME			CREDITS
			L	T	P	
1.	19MMA11	Applied Numerical Analysis	3	0	0	3
2.	19MMA12	Mechatronics in Manufacturing Systems	3	0	0	3
3.	19MMA13	Computer Integrated Manufacturing	3	0	0	3
4.	19MMA14	Optimization for Engineering Applications	3	0	0	3
5.	19MMA15	Advanced Material Engineering	3	0	0	3
6.		Professional Elective – I	3	0	0	3
7.	19MMA17	CIM Laboratory & Mechatronics Laboratory	0	0	4	2
<b>Total Credits:</b>			<b>18</b>		<b>4</b>	<b>20</b>

<b>SEMESTER – II</b>						
S.No	COURSE CODE	COURSE NAME	TEACHING SCHEME			CREDITS
			L	T	P	
1	19MMA21	Design for Manufacture and Assembly	3	0	0	3
2	19MMA22	Advanced Metal Joining Technology	3	0	0	3
	19MMA23	Finite Element Analysis in Manufacturing Engineering	3	0	0	3
3		Professional Elective – II	3	0	0	3
4		Professional Elective – III	3	0	0	3
		Professional Elective – IV	3	0	0	3
5	19MMA27	Simulation Laboratory & Welding Laboratory	0	0	4	2
8		Mini project / Industrial Training / Employability Enhancement Courses	0	0	4	2
<b>Total Credits:</b>			<b>18</b>		<b>8</b>	<b>22</b>

## M.E- ADVANCED MANUFACTURING TECHNOLOGY

<b>SEMESTER – III</b>						
S.No	COURSE CODE	COURSE NAME	TEACHING SCHEME			CREDITS
			L	T	P	
1		Professional Elective - IV	3	0	0	3
2		Professional Elective -V	3	0	0	3
		Open Elective / Professional Elective	3	0	0	3
3	19MMA41	Project Work and Viva Voce	0	0	0	0
<b>Total Credits:</b>			<b>9</b>			<b>9</b>

<b>SEMESTER – IV</b>						
S.No	COURSE CODE	COURSE NAME	TEACHING SCHEME			CREDITS
			L	T	P	
1	19MMA41	Project Work and Viva Voce	0	0	0	18
<b>Total Credits:</b>						<b>18</b>

**TOTAL CREDITS FOR THE PROGRAMME = 20 + 22 + 9 + 18 = 69**

## M.E- ADVANCED MANUFACTURING TECHNOLOGY

<b>LIST OF PROFESSIONAL ELECTIVES</b>						
Sl.no	COURSE CODE	COURSE TITLE	TEACHING SCHEME			CREDITS
			L	T	P	
1.	19MMAE 01	Design of Hydraulic and Pneumatic system	3	0	0	3
2.	19MMAE 02	Optimization Techniques in Manufacturing	3	0	0	3
3.	19MMAE 03	Advanced Operations Research	3	0	0	3
4.	19MMAE 04	Industrial Robotics and Machine Vision	3	0	0	3
5.	19MMAE 05	Manufacturing Information systems	3	0	0	3
6.	19MMAE 06	Supply Chain Management	3	0	0	3
7.	19MMAE 07	Advanced Metrology and Non - Destructive testing	3	0	0	3
8.	19MMAE 08	Productivity Management and Re-Engineering	3	0	0	3
9.	19MMAE 09	Supply chain Information systems	3	0	0	3
10.	19MMAE 10	Additive Manufacturing	3	0	0	3
11.	19MMAE 11	Advances in Casting and Welding	3	0	0	3
12.	19MMAE 12	Product Design and Development	3	0	0	3
13.	19MMAE 13	Computer Aided Process Planning	3	0	0	3
14.	19MMAE 14	Advanced Manufacturing Planning and Control	3	0	0	3
15.	19MMAE 15	Flexible competitive manufacturing system	3	0	0	3
16.	19MMAE 16	Corrosion and Surface engineering	3	0	0	3
17.	19MMAE 17	Advanced Tool Engineering and Design	3	0	0	3
18.	19MMAE 18	Total Quality Systems and Engineering	3	0	0	3
19.	19MMAE 19	Plastics and Composite Materials	3	0	0	3
20.	19MMAE 20	Advances in Foundry Technology	3	0	0	3
21.	19MMAE 21	Advanced Agile and Lean Manufacturing Systems	3	0	0	3
22.	19MMAE 22	Advanced Biomaterials	3	0	0	3
23.	19MMAE 23	Concepts and Analysis of Robot Manipulators	4	0	0	4
24.	19MMAE 24	Smart Materials and Systems	3	0	0	3
25.	19MMAE 25	Ultrasonic and Applications	3	0	0	3
26.	19MMAE 26	Vibration Analysis and Control	3	0	0	3
27.	19MMAE 27	Design of Experiments and Taguchi Methods	3	0	0	3
28.	19MMAE 28	Metal Cutting Theory and Practice	3	0	0	3
29.	19MMAE 29	Automotive Suspension and System Dynamics	3	0	0	3
30.	19MMAE 30	Design and Analysis of Experiments	3	0	0	3

## M.E- ADVANCED MANUFACTURING TECHNOLOGY

<b>LIST OF OPEN ELECTIVES TO OTHER DEPARTMENTS</b>						
S. No	COURSE CODE	COURSE NAME	TEACHING SCHEME			CREDITS
			L	T	P	
1.	OE01	Automation and Robotics	3	0	0	3
2.	OE02	Work Study and Ergonomics	3	0	0	3
3.	OE03	Product Life Cycle Management	3	0	0	3
4.	OE04	IoT in Manufacturing	3	0	0	3
5.	OE05	Artificial Intelligence and Machine Learning in Design and Manufacturing	3	0	0	3
6.	OE06	Research Methodology and IPR	3	0	0	3

<b>LIST OF EMPLOYABILITY ENHANCEMENT COURSE</b>						
S.No	COURSE CODE	COURSE NAME	TEACHING SCHEME			CREDITS
			L	T	P	
1.	19MMA 41	Project Work and Viva Voce	-	-	-	18
2.	EEC01	English for Research Paper Writing	0	0	4	2
3.	EEC02	Constitution of India	0	0	4	2
4.	EEC03	Pedagogy Studies	0	0	4	2
5.	EEC04	Personality and skill Development	0	0	4	2
6.	EEC05	Python Programming	0	0	4	2
7.	EEC06	Intellectual Property Rights and Patents	0	0	4	2
8.	EEC07	Study of Indian Economy	0	0	4	2
9.	EEC08	Seminar and term paper writing	0	0	4	2

<b>M.E- HEAT POWER ENGINEERING</b>						
<b>SEMESTER – I</b>						
<b>S.No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>TEACHING SCHEME</b>			<b>CREDITS</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1	19MMH11	Applied Mathematics for Mechanical Engineers	3	0	0	3
2	19MMH12	Advanced Thermodynamics	3	0	0	3
3	19MMH13	Incompressible Flow	3	0	0	3
4	19MMH14	Energy Conservation and Energy Audit	3	0	0	3
5	19MMH15	Turbo machinery	3	0	0	3
6		Professional Elective - I	3	0	0	3
7	19MMH17	Thermodynamics Laboratory	0	0	4	2
Total Credits:			18	0	4	20

<b>M.E- HEAT POWER ENGINEERING</b>						
<b>SEMESTER – II</b>						
<b>S.No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>TEACHING SCHEME</b>			<b>CREDITS</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1	19MMH21	Conduction Heat Transfer	3	0	0	3
2	19MMH22	Convective Heat Transfer	3	0	0	3
3	19MMH23	Design of Heat Exchangers	3	0	0	3
4		Professional Elective - II	3	0	0	3
5		Professional Elective - III	3	0	0	3
6		Professional Elective - IV	3	0	0	3
7	19MMH27	Heat Transfer Laboratory	0	0	4	2
8		Employability Enhancement Course (EEC-I)	0	0	4	2
<b>Total Credits:</b>			<b>18</b>	<b>0</b>	<b>08</b>	<b>22</b>

<b>M.E- HEAT POWER ENGINEERING</b>						
<b>SEMESTER – III</b>						
<b>S.No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>TEACHING SCHEME</b>			<b>CREDITS</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1		Professional Elective V	3	0	0	3
2		Professional Elective VI	3	0	0	3
3		Open Elective/Professional Elective VII	3	0	0	3
4	19MMH41	Project Work and Viva Voce	0	0	0	0
<b>Total Credits:</b>			<b>9</b>	<b>0</b>	<b>0</b>	<b>9</b>

<b>M.E- HEAT POWER ENGINEERING</b>						
<b>SEMESTER – IV</b>						
<b>S.No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>TEACHING SCHEME</b>			<b>CREDITS</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1	19MMH41	Project Work and Viva voce	0	0	0	18
<b>Total Credits:</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>

**TOTAL CREDITS FOR THE PROGRAMME = 20+22+09+18 = 69**

<b>M.E- HEAT POWER ENGINEERING</b>						
<b>LIST OF PROFESSIONAL ELECTIVE</b>						
<b>S.No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>TEACHING SCHEME</b>			<b>CREDITS</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1	19MMHE01	Advanced Internal Combustion Engines	3	0	0	3
2	19MMHE02	Refrigeration & Air-Conditioning	3	0	0	3
3	19MMHE03	Solar Energy Utilization & TER	3	0	0	3
4	19MMHE04	Turbulent Flows	3	0	0	3
5	19MMHE05	Numerical Methods in Heat Transfer & Fluid Flow	3	0	0	3
6	19MMHE06	Compressible Flow	3	0	0	3
7	19MMHE07	Finite Element Methods in Thermal Engineering	3	0	0	3
8	19MMHE08	Radiation Heat Transfer	3	0	0	3
9	19MMHE09	Design & Optimization of Thermal Equipment	3	0	0	3
10	19MMHE10	Thermal Measurements and Process Control	3	0	0	3
11	19MMHE11	Thermal Storage Systems	3	0	0	3
12	19MMHE12	Hybrid Vehicles	3	0	0	3
13	19MMHE13	Materials for Thermal Engineering	3	0	0	3
14	19MMHE14	Alternative Energy Resources	3	0	0	3

**M.E- HEAT POWER ENGINEERING****LIST OF OPEN ELECTIVE**

<b>S.No</b>	<b>COURSE CODE</b>	<b>COURSE NAME</b>	<b>TEACHING SCHEME</b>			<b>CREDITS</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1	OE01	Industrial Safety	3	0	0	3
2	OE02	Waste Heat Recovery	3	0	0	3
3	OE03	Product Design and Process Development	3	0	0	3
4	OE04	Power Plant Management and Cost Estimations	3	0	0	3
5	OE05	Automobile Engineering	3	0	0	3
6	OE06	Vehicles Automation	3	0	0	3
7	OE07	Nuclear Engineering	3	0	0	3
8	OE08	Entrepreneurship Development and Management	3	0	0	3

**M.E- HEAT POWER ENGINEERING****LIST OF EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

S.No	COURSE CODE	COURSE NAME	TEACHING SCHEME			CREDITS
			L	T	P	
1	19MMH41	Project Viva-Voce/Industrial Training	0	0	0	18
2	EEC01	Internet of Things (IoT) for Thermal Sciences	0	0	4	2
3	EEC02	English for Research Paper Writing	0	0	4	2
4	EEC03	Constitution of India	0	0	4	2
5	EEC04	Pedagogy Studies	0	0	4	2
6	EEC05	Personality and Skill Development	0	0	4	2
7	EEC06	Intellectual Property Rights and Patents	0	0	4	2
8	EEC07	Seminar & Term Paper Writing	0	0	4	2
9	EEC08	Study of Indian Economy	0	0	4	2
10	EEC09	Python Programming	0	0	4	2

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Curriculum from the Academic Year 2019 - 2020 onwards

Under Choice Based Credit System

### Specialization : Embedded And Real Time Systems

#### Semester I

Course Code	Course Name	L	T	P	C	Category
19MA11	Linear Algebra and Stochastic Processes	4	0	0	4	FC
19MER11	Real Time Operating Systems	3	1	0	4	PC
19MER12	Embedded Processors	3	0	0	3	PC
19MER13	Wireless Communication Sensors	3	0	0	3	PC
19MA14	Electromagnetic Interference and Compatibility	3	0	0	3	PC
	<b>ELECTIVE I</b>	3	0	0	3	PE
19MER14	Embedded Processors Laboratory	0	0	4	2	PC
	<b>Total</b>				<b>22</b>	

#### Semester II

Course Code	Course Name	L	T	P	C	Category
19MA21	Automation and Industrial Internet of Things	3	0	0	3	PC
19MA22	Robotics Technology and Intelligence	3	0	0	3	PC
19MER21	Embedded System Design using FPGA	3	0	0	3	PC
	<b>ELECTIVE II</b>	3	0	0	3	PE
	<b>ELECTIVE III</b>	3	0	0	3	PE
	<b>ELECTIVE IV</b>	3	0	0	3	PE
19MER22	FPGA based Embedded System Design Laboratory	0	0	4	2	PC
19MAEE01	Feasibility Report Preparation	0	0	4	2	EEC 1
	One Credit Course				1	OCC1
	<b>TOTAL</b>				<b>23</b>	

#### Semester III

Course Code	Course Name	L	T	P	C	Category
	<b>ELECTIVE V</b>	3	0	0	3	PE
	<b>ELECTIVE VI</b>	3	0	0	3	PE
	<b>OPEN ELECTIVE I</b>	3	0	0	3	OE
	One Credit Course				1	OCC 2
	<b>TOTAL</b>				<b>10</b>	

**Semester IV**

Course Code	Course Name	L	T	P	C	Category
19MER41	PROJECT - DISSERTATION	0	0	36	18	EEC2
	<b>TOTAL</b>				<b>18</b>	

**TOTAL CREDITS: 73**

(Note : FC - Foundation Course; PC - Professional Core; PE - Professional Elective; OC - Open Elective; EEC - Employability Enhancement Course; OCC - One Credit Course)

**LIST OF PROFESSIONAL ELECTIVES**

Course Code	Course Name	L	T	P	C	Category
	<b>EMBEDDED CONTROL OF INDUSTRIAL SYSTEMS</b>					
19MERE01	Intelligent Controllers for Power Quality Enhancement	3	0	0	3	PE
19MERE02	Embedded Control of Industrial Drives	3	0	0	3	PE
19MERE03	Design of Green Transportation System	3	0	0	3	PE
19MERE04	Embedded Sensors Networks	3	0	0	3	PE
	<b>ARCHITECTURE AND PROGRAMMING</b>					
19MERE05	Modeling and Design of Embedded Systems	3	0	0	3	PE
19MERE06	Multicore Architecture	3	0	0	3	PE
19MERE07	System Simulation and Modeling	3	0	0	3	PE
	<b>ELECTRONIC SYSTEM DESIGN</b>					
19MAE10	Digital System Design and Testing	3	0	0	3	PE
19MAE11	Synthesis and Optimization of Digital Circuits	3	0	0	3	PE
19MAE12	Computer Vision	3	0	0	3	PE
19MAE13	High Performance Computer Architecture	3	0	0	3	PE
	<b>EXPERT SYSTEMS</b>					
19MAE14	Cryptography and Block Chain Technologies	3	0	0	3	PE
19MAE15	Augmented Reality	3	0	0	3	PE
19MAE16	Data science & Analytics	3	0	0	3	PE
19MAE17	Network Virtualization	3	0	0	3	PE
19MAE18	Soft Computing	3	0	0	3	PE
19MAE19	Edge Computing	3	0	0	3	PE
19MAE20	Computer Security	3	0	0	3	PE

**LIST OF OPEN ELECTIVES**

S.No.	Course Code	Course Name	L	T	P	C	Category
1	19MEROE01	Design of Green Transportation System	3	0	0	3	OE
2	19MEROE02	Embedded Sensor Networks	3	0	0	3	OE
3	19MAOE04	Digital System Design and Testing	3	0	0	3	OE
4	19MAOE05	Data Science & Analytics	3	0	0	3	OE

**LIST OF ONE CREDIT COURSES\***

S.No.	Course Code	Course Name	C	Category
1	19MAOC01	Essential of Research	1	OCC
2	19MAOC02	Data analysis in EXCEL	1	OCC
3	19MAOC03	Educational Technology	1	OCC
4	19MAOC04	Industrial IoT on Google cloud platform	1	OCC
5	19MAOC05	Behavioral Psychology	1	OCC
6	19MAOC06	Battery Management Systems	1	OCC
7	19MAOC07	Communication Network for IoT	1	OCC
8	19MAOC08	Digital Twin Technology	1	OCC

\* One Credit Courses opted from Industry / NPTEL / Institute / Department

# COIMBATORE INSTITUTE OF TECHNOLOGY

(Government Aided Autonomous Institution Affiliated to Anna University, Chennai)

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Curriculum from the Academic Year 2019 - 2020 onwards

Under Choice Based Credit System

**Specialization : Applied Electronics**

### Semester I

Course Code	Course Name	L	T	P	C	Category
19MA11	Linear Algebra and Stochastic Processes	4	0	0	4	FC
19MA12	Statistical Signal Processing	3	1	0	4	PC
19MER12	Embedded Processors	3	0	0	3	PC
19MA13	Solid State Power Conversion Techniques and Applications	3	0	0	3	PC
19MA14	Electromagnetic Interference and Compatibility	3	0	0	3	PC
	<b>ELECTIVE I</b>	3	0	0	3	PE
19MER14	Embedded Processors Laboratory	0	0	4	2	PC
	<b>TOTAL</b>				<b>22</b>	

### Semester II

Course Code	Course Name	L	T	P	C	Category
19MA21	Automation and Industrial Internet of Things	3	0	0	3	PC
19MA22	Robotics Technology and Intelligence	3	0	0	3	PC
19MER21	Embedded System Design using FPGA	3	0	0	3	PC
	<b>ELECTIVE II</b>	3	0	0	3	PE
	<b>ELECTIVE III</b>	3	0	0	3	PE
	<b>ELECTIVE IV</b>	3	0	0	3	PE
19MER22	FPGA based Embedded System Design Laboratory	0	0	4	2	PC
19MAEE01	Feasibility Report Preparation	0	0	4	2	EEC1
	One Credit Course				1	OCC1
	<b>Total</b>				<b>23</b>	

### Semester III

Course Code	Course Name	L	T	P	C	Category
	<b>ELECTIVE V</b>	3	0	0	3	PE
	<b>ELECTIVE VI</b>	3	0	0	3	PE
	<b>OPEN ELECTIVE I</b>	3	0	0	3	OE
	One Credit Course				1	OCC2
	<b>TOTAL</b>				<b>10</b>	

**Semester IV**

Course Code	Course Name	L	T	P	C	Category
19MA41	Project - Dissertation	0	0	36	18	EEC2

**TOTAL CREDITS : 73**

(Note : FC - Foundation Course; PC - Professional Core; PE - Professional Elective; OC - Open Elective; EEC - Employability Enhancement Course; OCC - One Credit Course)

**LIST OF PROFESSIONAL ELECTIVES**

Course Code	Course Name	L	T	P	C	Category
	<b>POWER AND ENERGY</b>					
19MAE01	Design of Smart Grid Systems	3	0	0	3	PE
19MAE02	Power Quality	3	0	0	3	PE
19MAE03	System identification and adaptive control	3	0	0	3	PE
19MAE04	Smart Systems	3	0	0	3	PE
	<b>CONTROL AND AUTOMATION</b>					
19MAE05	Optimal Control	3	0	0	3	PE
19MAE06	Modern Control Theory	3	0	0	3	PE
19MAE07	Robust control	3	0	0	3	PE
19MAE08	Data Acquisition and Control Using LABVIEW	3	0	0	3	PE
19MAE09	Industry 4.0	3	0	0	3	PE
	<b>ELECTRONIC SYSTEM DESIGN</b>					
19MAE10	Digital System Design and Testing	3	0	0	3	PE
19MAE11	Synthesis and Optimization of Digital Circuits	3	0	0	3	PE
19MAE12	Computer Vision	3	0	0	3	PE
19MAE13	High Performance Computer Architecture	3	0	0	3	PE
	<b>EXPERT SYSTEMS</b>					
19MAE14	Cryptography and Block Chain Technologies	3	0	0	3	PE
19MAE15	Augmented Reality	3	0	0	3	PE
19MAE16	Data science & Analytics	3	0	0	3	PE
19MAE17	Network Virtualization	3	0	0	3	PE
19MAE18	Soft Computing	3	0	0	3	PE
19MAE19	Edge Computing	3	0	0	3	PE
19MAE20	Computer Security	3	0	0	3	PE

**LIST OF OPEN ELECTIVES**

S.No.	Course Code	Course Name	L	T	P	C	Category
1	19MAOE01	Design for Smart Grid Systems	3	0	0	3	OE
2	19MAOE02	Data Acquisition and Control using LABVIEW	3	0	0	3	OE
3	19MAOE03	Industry 4.0	3	0	0	3	OE
4	19MAOE04	Digital System Design and Testing	3	0	0	3	OE
5	19MAOE05	Data Science & Analytics	3	0	0	3	OE

**LIST OF ONE CREDIT COURSES\***

S.No.	Course Code	Course Name	C	Category
1	19MAOC01	Essential of Research	1	OCC
2	19MAOC02	Data analysis in EXCEL	1	OCC
3	19MAOC03	Educational Technology	1	OCC
4	19MAOC04	Industrial IoT on Google cloud platform	1	OCC
5	19MAOC05	Behavioral Psychology	1	OCC
6	19MAOC06	Battery Management Systems	1	OCC
7	19MAOC07	Communication Network for IoT	1	OCC
8	19MAOC08	Digital Twin Technology	1	OCC

\* One Credit Courses opted from Industry / NPTEL / Institute / Department

# COIMBATORE INSTITUTE OF TECHNOLOGY

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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### M.E. COMPUTER SCIENCE AND ENGINEERING

#### SUBJECTS OF STUDY

##### Semester I

Course Code	Course Name	Category	L	T	P	C
19MCS11	Graph theory and Linear algebra	FC	3	0	0	3
19MCS12	Design and Analysis of Algorithms	PC	3	1	0	4
19MCS13	Software Engineering Methodologies	PC	3	1	0	4
19MCS14	Artificial Intelligence	PC	3	0	0	3
	<b>Professional Elective I</b>	PE	3	0	0	3
19MCS15	Artificial Intelligence Laboratory	LC	0	0	4	2
19MCS16	Design and Analysis of Algorithms Laboratory	LC	0	0	4	2
	<b>TOTAL CREDITS</b>		<b>15</b>	<b>2</b>	<b>8</b>	<b>21</b>

##### Semester II

Course Code	Course Name	Category	L	T	P	C
19MCS21	Probability and Statistics	FC	3	1	0	4
19MCS22	Machine Learning	PC	3	0	0	3
19MCS23	Database Engineering	PC	3	1	0	4
	<b>Professional Elective -II</b>	PE	3	0	0	3
	<b>Professional Elective -III</b>	PE	3	0	0	3
19MCS24	Machine Learning Laboratory	LC	0	0	4	2
19MCS25	Mini Project	EEC	0	0	6	3
	<b>TOTAL CREDITS</b>		<b>15</b>	<b>2</b>	<b>10</b>	<b>22</b>

##### Semester III

Course Code	Course Name	Category	L	T	P	C
	Professional Elective -IV	PE	3	0	0	3
	Professional Elective -V	PE	3	0	0	3
	Open Elective*	OE	3	0	0	3
	Python Programming	EEC	0	0	2	1
	<b>TOTAL CREDITS</b>		<b>9</b>	<b>0</b>	<b>2</b>	<b>10</b>

\* Open Elective can be opted from same stream or from other streams.

**Semester IV**

Course Code	Course Name	Category	L	T	P	C
19MCS41	Project and Viva-Voce	EEC	0	0	36	18
	<b>TOTAL CREDITS</b>		<b>0</b>	<b>0</b>	<b>36</b>	<b>18</b>

Total Credits : 71

**FOUNDATION COURSE (FC)**

Course Code	Course Name	L	T	P	C	Semester
19MCS11	Graph theory and Linear algebra	3	0	0	3	1
19MCS21	Probability and Statistics	3	1	0	4	2

**PROFESSIONAL CORE (PC)**

Course Code	Course Name	L	T	P	C	Semester
19MCS12	Design and Analysis of Algorithms	3	1	0	4	1
19MCS13	Software Engineering Methodologies	3	1	0	4	1
19MCS14	Artificial Intelligence	3	0	0	3	1
19MCS22	Machine Learning	3	0	0	3	2
19MCS23	Database Engineering	3	1	0	4	2

**LABORATORY COURSE (LC)**

Course Code	Course Name	L	T	P	C	Semester
19MCS15	Artificial Intelligence Laboratory	0	0	4	2	1
19MCS16	Design and Analysis of Algorithms Laboratory	0	0	4	2	1
19MCS24	Machine Learning Laboratory	0	0	4	2	2

**EMPLOYABILITY ENHANCEMENT COURSE (EEC)**

Course Code	Course Name	L	T	P	C	Semester
19MCS25	Mini Project	0	0	6	3	2
19MCS41	Project	0	0	36	18	4
19MCSOC01	Python Programming	0	0	2	1	3

**PROFESSIONAL ELECTIVES (PE)**

<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
19MCSE01	Cryptography and Network Security	3	0	0	3
19MCSE02	High Performance Computing	3	0	0	3
19MCSE03	Neural Networks	3	0	0	3
19MCSE04	Open Source systems	3	0	0	3
19MCSE05	Approximation Algorithm	3	0	3	3
19MCSE06	Internet Technologies	3	0	0	3
19MCSE07	Data Warehousing and Data Mining	3	0	0	3
19MCSE08	Business Intelligence	3	0	0	3
19MCSE09	Cloud Computing	3	0	0	3
19MCSE10	Information Security	3	0	0	3
19MCSE11	Knowledge based AI	3	0	0	3
19MCSE12	Software Metrics and Measurements	3	0	0	3
19MCSE13	Robot Human Interaction	3	0	0	3
19MCSE14	Big Data Analytics	3	0	0	3
19MCSE15	Deep Learning	3	0	0	3
19MCSE16	Bio informatics	3	0	0	3
19MCSE17	Internet of Things	3	0	0	3
19MCSE18	Web Engineering	3	0	0	3
19MCSE19	Parallel Algorithms	3	0	0	3
19MCSE20	Computer Vision	3	0	0	3
19MCSE21	Case Based Reasoning	3	0	0	3
19MCSE22	Multimedia Systems	3	0	0	3
19MCSE23	Ad Hoc Networks	3	0	0	3
19MCSE24	Wireless Sensor Networks	3	0	0	3
19MCSE25	Secure Software Engineering	3	0	0	3
19MCSE26	Service Oriented Architecture	3	0	0	3
19MCSE27	Human Computer Interaction	3	0	0	3
19MCSE28	Social Network Analysis	3	0	0	3
19MCSE29	Advanced cryptography and practices	3	0	0	3
19MCSE30	Blockchain design and their use cases	3	0	0	3

**OPEN ELECTIVES (OE)**

Course Code	Course Name	L	T	P	C
19MCSEOE01	Optimization Techniques	3	0	0	3
19MCSEOE02	Mobile Applications and Services	3	0	0	3
19MCSEOE03	Soft Computing	3	0	0	3
19MCSEOE04	Digital Forensics	3	0	0	3
19MCSEOE05	Data Science	3	0	0	3
19MCSEOE06	Introduction to Intelligent Systems	3	0	0	3

S.No.	Course Category	Credits as per semester				Category Wise Credits distribution
		I	II	III	IV	
1	FC	3	4	-	-	7
2	PC	11	7	-	-	18
3	LC	4	2	-	-	6
4	PE	3	6	6	-	15
5	OE	-	-	3	-	3
6	EEC	-	3	1	18	22
	<b>Semester Wise Credits distribution</b>	<b>21</b>	<b>22</b>	<b>10</b>	<b>18</b>	<b>71</b>

# COIMBATORE INSTITUTE OF TECHNOLOGY

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## M.Tech NANO SCIENCE AND TECHNOLOGY

### SUBJECTS OF STUDY

#### Semester I

Course Code	Course Name	Contact Hours	L	T	P	C	Category
19MN11	Modeling and Simulation of Particulate Processes	4	3	1	0	4	FC
19MN12	Quantum Mechanics	3	3	0	0	3	FC
19MN13	Materials Science	3	3	0	0	3	PC
19MN14	Physical and Chemical Synthesis of Nanomaterials	3	3	0	0	3	PC
	Elective - I	3	3	0	0	3	PE
19MN15	Material Synthesis and Characterization Laboratory-I	4	0	0	4	2	PC
19MN16	Modelling and Simulation Laboratory	4	0	0	4	2	PC
19MN17	Seminar and Technical Writing	3	0	0	3	1	EEC
	<b>TOTAL</b>					<b>21</b>	

#### Semester II

Course Code	Course Name	Contact Hours	L	T	P	C	Category
19MN21	Physical and Chemical Methods for Characterization of Nanomaterials	3	3	0	0	3	PC
19MN22	Processing and Properties of Nanostructured Materials	3	3	0	0	3	PC
19MN23	Thermodynamics and Kinetics	4	3	1	0	4	PC
	Elective - II	3	3	0	0	3	PE
	Elective - III	3	3	0	0	3	PE
	Elective - IV	3	3	0	0	3	PE
19MN24	Material Synthesis and Characterization Laboratory-II	4	0	0	4	2	PC
19MN25	Mini Project	4	0	0	4	2	EEC
	<b>Total</b>					<b>23</b>	

**Semester III**

Course Code	Course Name	Contact Hours	L	T	P	C	Category
	Elective - II	3	3	0	0	3	PE
	Elective - III	3	3	0	0	3	PE
	Elective - IV	3	3	0	0	3	OE
	<b>Total</b>					<b>9</b>	

**Semester IV**

Course Code	Course Name	Contact Hours	L	T	P	C	Category
19MN41	Project Work and Viva-Voce					18	EEC
	<b>Total</b>					<b>18</b>	

**Total Credits : 71****LIST OF PROFESSIONAL ELECTIVES**

Course Code	Course Name	Contact Hours	L	T	P	C	Category
19MNE01	Numerical Methods and Computer Programming	3	3	0	0	3	PE
19MNE02	Nanoscale Integrated Computing	3	3	0	0	3	PE
19MNE03	Nanotechnology in Energy Conversion and Storage	3	3	0	0	3	PE
19MNE04	Semiconductor Nanoparticles	3	3	0	0	3	PE
19MNE05	Nano Devices and Sensors	3	3	0	0	3	PE
19MNE06	Polymers and Nanocomposites	3	3	0	0	3	PE
19MNE07	Thin Film Technology	3	3	0	0	3	PE
19MNE08	New Separation Techniques	3	3	0	0	3	PE
19MNE09	Crystal Growth Techniques	3	3	0	0	3	PE
19MNE10	Nanobiotechnology	3	3	0	0	3	PE
19MNE11	Biochemical Engineering	3	3	0	0	3	PE
19MNE12	Industrial Nanotechnology	3	3	0	0	3	PE
19MNE13	Nano pollution and E-waste Management	3	3	0	0	3	PE
19MNE14	Design and Analysis of Experiments	3	3	0	0	3	PE
19MNE15	Digital Process Dynamics and Control	3	3	0	0	3	PE
19MNE16	Research Methodology	3	3	0	0	3	PE
19MNE17	Intellectual Property Rights and Innovation	3	3	0	0	3	PE

## LIST OF OPEN ELECTIVES

Course Code	Course Name	Contact Hours	L	T	P	C	Category
19MNOE01	Nanoelectronics and Sensors	3	3	0	0	3	OE
19MNOE02	Safety Engineering	3	3	0	0	3	OE
19MNOE03	Societal Implications of Nanotechnology	3	3	0	0	3	OE

L : Lecture, T : Tutorial, P : Practical, C : Credit

- FC - Fundamental Course, PC - Professional Course, PE - Professional Elective, EEC - Employment Enhancement course
- Student can opt for a maximum of 1 open elective subject from other programmes during their entire programme of study

# COIMBATORE INSTITUTE OF TECHNOLOGY

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## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### M.E. COMMUNICATION ENGINEERING

Curriculum from the Academic Year 2019 - 2020 onwards

#### Semester I

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
19MEC11	Applied Mathematics for Communication Engineering	4	0	0	4	FC
19MEC12	Modulation and Coding Techniques	3	0	0	3	PC
19MEC13	RF Circuits and Communication Link Design	3	0	0	3	PC
19MEC14	Statistical Digital Signal Processing	3	0	0	3	PC
19MEC15	Radiation Systems	3	0	0	3	PC
	Professional Elective -I	3	0	0	3	PE
	<b>PRACTICAL</b>					
19MEC16	Signal Processing Laboratory	0	0	4	2	PC
19MEC17	Seminar and Technical Writing	0	0	2	1	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

#### Semester II

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
19MEC21	Advanced Wireless Communication Systems	3	0	0	3	PC
19MEC22	Optical Switching and Networking	3	0	0	3	PC
19MEC23	Communication Network Security	3	0	0	3	PC
	Professional Elective-II	3	0	0	3	PE
	Professional Elective-III	3	0	0	3	PE
	Professional Elective-IV	3	0	0	3	PE
	<b>PRACTICAL</b>					
19MEC24	Wireless Communication and Networking Laboratory	0	0	4	2	PC
19MEC25	Mini Project	0	0	4	2	EEC
	<b>TOTAL CREDITS</b>				<b>22</b>	

**Semester III**

Course Code	Course Name	L	T	P	C	Category
	<b>THEORY</b>					
	Professional Elective-V	3	0	0	3	PE
	Professional Elective-VI	3	0	0	3	PE
	Open Elective - I / Professional Elective-VII	3	0	0	3	OE/PE
	<b>PRACTICAL</b>					
19MEC41	Project Work & Viva Voce					EEC
	<b>TOTAL CREDITS</b>				<b>9</b>	

**Semester IV**

Course Code	Course Name	L	T	P	C	Category
	<b>PRACTICAL</b>					
19MEC41	Project Work & Viva Voce				18	EEC
	<b>TOTAL CREDITS</b>				<b>18</b>	
	<b>GRAND TOTAL CREDITS</b>				<b>71</b>	

**LIST OF PROFESSIONAL ELECTIVE COURSES**

Course Code	Course Name	L	T	P	C	Category
19MECE01	Satellite Communication and Applications	3	0	0	3	PE
19MECE02	Modern Networking Technologies	3	0	0	3	PE
19MECE03	Image and Video Processing	3	0	0	3	PE
19MECE04	Network Routing Algorithms	3	0	0	3	PE
19MECE05	High Performance Computer Networks	3	0	0	3	PE
19MECE06	Millimeter Wave Communications	3	0	0	3	PE
19MECE07	Modeling and Simulation of Wireless Systems	3	0	0	3	PE
19MECE08	Communication Network Modeling and Simulation	3	0	0	3	PE
19MECE09	Detection and Estimation Theory	3	0	0	3	PE
19MECE10	Embedded and Real Time Systems	3	0	0	3	PE
19MECE11	Electromagnetic Interference Measurements and Compliance in Design	3	0	0	3	PE
19MECE12	LTE Technology and Standards	3	0	0	3	PE
19MECE13	Software Defined Radio and Cognitive Radio Technologies	3	0	0	3	PE
19MECE14	Space Time Wireless Communication	3	0	0	3	PE
19MECE15	Multimedia Compression and Communication	3	0	0	3	PE
19MECE16	OFDM/OFDMA Communications	3	0	0	3	PE
19MECE17	Information Coding Theory	3	0	0	3	PE
19MECE18	Analog and Mixed Signal Circuit Design	3	0	0	3	PE
19MECE19	Mobile AD HOC and Sensor Networks	3	0	0	3	PE

Course Code	Course Name	L	T	P	C	Category
19MECE20	5G Network Technologies	3	0	0	3	PE
19MECE21	VLSI for Wireless Communication	3	0	0	3	PE
19MECE22	High Speed Digital Design	3	0	0	3	PE
19MECE23	Coding Theory for Wireless Channels	3	0	0	3	PE
19MECE24	Data Converters	3	0	0	3	PE
19MECE25	Speech Processing and Synthesis	3	0	0	3	PE
19MECE26	Multirate Signal Processing	3	0	0	3	PE
19MECE27	Non-Linear Signal Processing	3	0	0	3	PE
19MECE28	Wavelet Transforms and its Applications	3	0	0	3	PE
19MECE29	Social Network Analysis	3	0	0	3	PE
19MECE30	Machine Learning in Communication Networks	3	0	0	3	PE
19MECE31	Web of Things	3	0	0	3	PE
19MECE32	VLSI Signal Processing	3	0	0	3	PE
19MECE33	Bio Signal Processing	3	0	0	3	PE
19MECE34	Machine Learning for Signal and Image Processing	3	0	0	3	PE
19MECE35	Game Theory for Wireless Communication and Networking	3	0	0	3	PE
19MECE36	Internet of Things based Sensing and Actuator Devices	3	0	0	3	PE
19MECE37	Embedded System Design	3	0	0	3	PE
19MECE38	Design of Embedded Control Systems	3	0	0	3	PE
19MECE39	RF MEMS	3	0	0	3	PE
19MECE40	Radio Frequency Integrated Circuit Design	3	0	0	3	PE
19MECE41	Smart Antennas	3	0	0	3	PE
19MECE42	Modern Antennas	3	0	0	3	PE
19MECE43	Electromagnetic Metamaterials	3	0	0	3	PE
19MECE44	Bio MEMS	3	0	0	3	PE
19MECE45	Medical Imaging and Classification	3	0	0	3	PE
19MECE46	Baseband Algorithms on FPGA	3	0	0	3	PE
19MECE47	Wearable Body Area Networks	3	0	0	3	PE
19MECE48	Wireless Transceiver Design	3	0	0	3	PE
19MECE49	Micro Electro Mechanical Systems	3	0	0	3	PE
19MECE50	Long Range Wireless Communication for Internet of Things	3	0	0	3	PE
19MECE51	Sensor Technology	3	0	0	3	PE

**LIST OF OPEN ELECTIVE COURSES**

<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>Category</b>
19MECOE01	Technology Management	3	0	0	3	OE
19MECOE02	Educational Psychology	3	0	0	3	OE
19MECOE03	Neural Networks	3	0	0	3	OE
19MECOE04	Entrepreneurship Development	3	0	0	3	OE
19MECOE05	Soft Computing	3	0	0	3	OE
19MECOE06	Waste to Energy Conversion	3	0	0	3	OE
19MECOE07	Cost Management of Engineering Projects	3	0	0	3	OE

**LIST OF ONE CREDIT COURSES**

<b>Course Code</b>	<b>Course Name</b>
19MECOC01	Python for Research
19MECOC02	Vehicular AD HOC Network
19MECOC03	Wearable Technology
19MECOC04	Smart Sensors

Note : L - Lecture, T - Theory, P - Practical, C - Credit

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## LIST OF OPEN ELECTIVES

### DEPARTMENT OF CIVIL ENGINEERING

Course Code	Course Name	L	T	P	C	Eligible Branches
19CEOE01	Town Planning and Architecture	3	0	0	3	All Branches
19CEOE02	Climate Change and Adaptation	3	0	0	3	All Branches
19CEOE03	Metro Systems and Engineering	3	0	0	3	All Branches
19CEOE04	Renewable Energy Sources	3	0	0	3	All Branches
19CEOE05	Principles of Sustainable Development	3	0	0	3	All Branches
19CEOE06	Disaster Management	3	0	0	3	All Branches

### DEPARTMENT OF MECHANICAL ENGINEERING

Course Code	Course Name	L	T	P	C	Eligible Branches
19MEOE01	Design of Experiments	3	0	0	3	All branches
19MEOE02	Engineering Optimization	3	0	0	3	All branches
19MEOE03	Engineering Polymers, Composites and Allied Manufacturing Processes	3	0	0	3	Mechanical Chemical & Civil
19MEOE04	Industrial Robotics	3	0	0	3	Mechanical EEE and ECE
19MEOE05	Business Process Re-engineering	3	0	0	3	All branches
19MEOE06	Engineering Economics and Financial Management	3	0	0	3	All branches

### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Course Code	Course Name	L	T	P	C	Eligible Branches
19EEOE01	Energy Auditing	3	0	0	3	ECE, Mech, Chemical, Civil
19EEOE02	Solar and Wind Energy systems	3	0	0	3	ECE, Mech, Chemical
19EEOE03	Electrical Safety Procedures and Management	3	0	0	3	All Branches
19EEOE04	Energy Efficient Illumination Systems	3	0	0	3	All Branches
19EEOE05	Electric Vehicle Technology	3	0	0	3	All Branches except Civil & Chemical
19EEOE06	Energy Efficiency in Thermal and Electrical Utilities	3	0	0	3	EEE & Mechanical

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

Course Code	Course Name	L	T	P	C	Eligible Branches
19ECEOE01	Signal Processing and its Applications	3	0	0	3	Chemical, Mechanical & Civil
19ECEOE02	Smart Sensors and IoT	3	0	0	3	All Branches
19ECEOE03	Consumer Electronics	3	0	0	3	Mechanical & Civil
19ECEOE04	Robotics	3	0	0	3	Mechanical, CSE & IT
19ECEOE05	Information Theory and Coding Techniques	3	0	0	3	All Branches
19ECEOE06	Wireless Sensor Networks	3	0	0	3	All Branches
19ECEOE07	Automotive Embedded Systems	3	0	0	3	All Branches
19ECEOE08	5G Technologies and Applications	3	0	0	3	All Branches
19ECEOE09	Vehicular Communication	3	0	0	3	All Branches
19ECEOE010	Sensing for Automotive Systems	3	0	0	3	All Branches

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

Course Code	Course Name	L	T	P	C	Eligible Branches
19CSOE01	Customer Relationship Management	3	0	0	3	All Branches
19CSOE02	Fundamentals of Software Engineering	3	0	0	3	All Branches
19CSOE03	Internet Programming	3	0	0	3	All Branches
19CSOE04	Introduction to Data Warehousing and Data Mining	3	0	0	3	All Branches
19CSOE05	Introduction to Embedded Systems	3	0	0	3	All Branches

**DEPARTMENT OF INFORMATION TECHNOLOGY**

Course Code	Course Name	L	T	P	C	Eligible Branches
19ITOE01	Digital Computer Basics	3	0	0	3	Civil, Mech, Chem
19ITOE02	Programming in Java	3	0	0	3	EEE, ECE, Mech, Civil & Chemical
19ITOE03	Fundamentals of Database Systems	3	0	0	3	EEE, ECE, Mech, Civil & Chemical
19ITOE04	Cloud Computing Fundamentals	3	0	0	3	EEE, ECE, Mech, Civil & Chemical
19ITOE05	Information Security Fundamentals	3	0	0	3	EEE, ECE, Mech, Civil & Chemical
19ITOE06	Introduction to Human Computer Interaction	3	0	0	3	EEE, ECE, Mech, Civil & Chemical
19ITOE07	Enterprise Resource planning Concepts	3	0	0	3	EEE, ECE, Mech, Civil & Chemical

**DEPARTMENT OF CHEMICAL ENGINEERING**

Course Code	Course Name	L	T	P	C	Eligible Branches
19CHOE01	Industrial Safety Engineering	3	0	0	3	All Branches
19CHOE02	Risk Analysis and Hazop	3	0	0	3	All Branches
19CHOE03	Green Technology	3	0	0	3	All Branches
19CHOE04	Corrosion Science and Engineering	3	0	0	3	All Branches
19CHOE05	Introduction to Chemical Engineering	3	0	0	3	All Branches
19CHOE06	Nanomaterial Synthesis and Characterization Laboratory	0	0	6	3	All Branches
19CHOE07	Multivariate Statistics Laboratory	0	0	6	3	All Branches

**DEPARTMENT OF MATHEMATICS**

Course Code	Course Name	L	T	P	C	Eligible Branches
19MOE01	Graph Theory & its Applications	3	0	0	3	All Branches
19MOE02	Methods of Applied Mathematics	3	0	0	3	All Branches
19MOE03	Linear and Non - Linear Programming	3	0	0	3	All Branches
19MOE04	Probability and Random Processes	3	0	0	3	All Branches

**DEPARTMENT OF PHYSICS**

Course Code	Course Name	L	T	P	C	Eligible Branches
19POE01	Introduction to Nanoscience and Nanotechnology	3	0	0	3	All Branches except IT
19POE02	Physics and Technology of Thin Films	3	0	0	3	Mechanical, EEE, Chemical & ECE
19POE03	Solar Cell Fundamentals and Materials	3	0	0	3	EEE, ECE & Chemical
19POE04	Advanced Material Processing Technologies	3	0	0	3	Mechanical & Chemical

**DEPARTMENT OF CHEMISTRY**

Course Code	Course Name	L	T	P	C	Eligible Branches
19COE01	Medical Nanotechnology	3	0	0	3	Chemical
19COE02	Advanced Drug Delivery Systems	3	0	0	3	Chemical
19COE03	Biosensors	3	0	0	3	Chemical, ECE & EEE
19COE04	Nanocomposites	3	0	0	3	Mechanical, Chemical & Civil
19COE05	Biorefinery	3	0	0	3	Mechanical & Chemical

**DEPARTMENT OF HUMANITIES**

<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>Eligible Branches</b>
19HOE01	Principles of Management	3	0	0	3	Common to all branches
19HOE02	Current Trends in Indian Economy	3	0	0	3	Common to all branches
19HOE03	Monetary Economics	3	0	0	3	Common to all branches
19HOE04	English for Academic Purposes	3	0	0	3	Common to all branches
19HOE05	English for Competitive Exams	3	0	0	3	Common to all branches
19HOE06	Life and Literature	3	0	0	3	Common to all branches