

**ANNA UNIVERSITY, CHENNAI**  
**AFFILIATED INSTITUTIONS**  
**B.E. AERONAUTICAL ENGINEERING**  
**REGULATIONS – 2017**  
**CHOICE BASED CREDIT SYSTEM**  
**I TO VIII SEMESTERS CURRICULA AND SYLLABI**

**SEMESTER I**

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
<b>PRACTICALS</b>								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

**SEMESTER II**

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8251	Materials Science	BS	3	3	0	0	3
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
<b>PRACTICALS</b>								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>2</b>	<b>8</b>	<b>25</b>

### SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	ME8392	Manufacturing Technology	PC	3	3	0	0	3
3.	AE8301	Aero Engineering Thermodynamics	PC	3	3	0	0	3
4.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
5.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
6.	AE8302	Elements of Aeronautical Engineering	PC	3	3	0	0	3
<b>PRACTICAL</b>								
7.	CE8381	Strength of Materials and Fluid Mechanics & Machinery Laboratory	ES	4	0	0	4	2
8.	AE8311	Thermodynamics Laboratory	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>0</b>	<b>10</b>	<b>25</b>

### SEMESTER IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8491	Numerical Methods	BS	4	4	0	0	4
2.	AE8401	Aerodynamics - I	PC	3	3	0	0	3
3.	AE8402	Aircraft Systems and Instruments	PC	3	3	0	0	3
4.	PR8451	Mechanics of Machines	PC	3	3	0	0	3
5.	AE8403	Aircraft Structures - I	PC	5	3	2	0	4
6.	AE8404	Propulsion - I	PC	5	3	2	0	4
<b>PRACTICAL</b>								
7.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
8.	AE8411	Aerodynamics Laboratory	PC	2	0	0	2	1
<b>TOTAL</b>				<b>29</b>	<b>19</b>	<b>4</b>	<b>8</b>	<b>24</b>

**SEMESTER V**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	AE8501	Flight Dynamics	PC	5	3	2	0	4
2.	AE8502	Aircraft Structures - II	PC	5	3	2	0	4
3.	AE8503	Aerodynamics - II	PC	3	3	0	0	3
4.	AE8504	Propulsion - II	PC	3	3	0	0	3
5.	AE8505	Control Engineering	PC	3	3	0	0	3
6.		Open Elective - I	OE	3	3	0	0	3
<b>PRACTICAL</b>								
7.	AE8511	Aircraft Structures Laboratory	PC	4	0	0	4	2
8.	AE8512	Propulsion Laboratory	PC	2	0	0	2	1
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>30</b>	<b>18</b>	<b>4</b>	<b>8</b>	<b>24</b>

**SEMESTER VI**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	AE8601	Finite Element Methods	PC	3	3	0	0	3
2.	AE8602	Experimental Aerodynamics	PC	3	3	0	0	3
3.	AE8603	Composite Materials and Structures	PC	3	3	0	0	3
4.	AE8604	Aircraft Design	PC	3	3	0	0	3
5.	AE8605	Experimental Stress Analysis	PC	3	3	0	0	3
6.		Professional Elective – I	PE	3	3	0	0	3
<b>PRACTICAL</b>								
7.	AE8611	Aero Engine and Airframe Laboratory	PC	4	0	0	4	2
8.	AE8612	Computer Aided Simulation Laboratory	PC	4	0	0	4	2
9.	AE8613	Aircraft Design Project - I	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>28</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>23</b>

**SEMESTER VII**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	GE8077	Total Quality Management	HS	3	3	0	0	3
2.	AE8751	Avionics	PC	3	3	0	0	3
3.	ME8093	Computational Fluid Dynamics	PC	3	3	0	0	3
4.		Open Elective - II	OE	3	3	0	0	3
5.		Professional Elective – II	PE	3	3	0	0	3
6.		Professional Elective – III	PE	3	3	0	0	3
<b>PRACTICAL</b>								
7.	AE8711	Aircraft Systems Laboratory	PC	4	0	0	4	2
8.	AE8712	Flight Integration Systems and Control Laboratory	PC	4	0	0	4	2
9.	AE8713	Aircraft Design Project - II	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>28</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>23</b>

**SEMESTER VIII**

<b>SL. NO.</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>CONTACT PERIODS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>THEORY</b>								
1.		Professional Elective – IV	PE	3	3	0	0	3
2.		Professional Elective – V	PE	3	3	0	0	3
<b>PRACTICAL</b>								
3.	AE8811	Project Work	EEC	20	0	0	20	10
<b>TOTAL</b>				<b>26</b>	<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>

**TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE = 185**

### HUMANITIES AND SOCIAL SCIENCES (HS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	GE8077	Total Quality Management	HS	3	3	0	0	3

### BASIC SCIENCE (BS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8251	Materials Science	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8491	Numerical Methods	BS	4	4	0	0	4

### ENGINEERING SCIENCES (ES)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
7.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
8.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
9.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
10.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2

**PROFESSIONAL CORE (PC)**

<b>SL. NO.</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>CONTACT PERIODS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1.	ME8392	Manufacturing Technology	PC	3	3	0	0	3
2.	AE8301	Aero Engineering Thermodynamics	PC	3	3	0	0	3
3.	AE8302	Elements of Aeronautical Engineering	PC	3	3	0	0	3
4.	AE8311	Thermodynamics Laboratory	PC	4	0	0	4	2
5.	AE8401	Aerodynamics - I	PC	3	3	0	0	3
6.	AE8402	Aircraft Systems and Instruments	PC	3	3	0	0	3
7.	PR8451	Mechanics of Machines	PC	3	3	0	0	3
8.	AE8403	Aircraft Structures - I	PC	5	3	2	0	4
9.	AE8404	Propulsion - I	PC	5	3	2	0	4
10.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
11.	AE8411	Aerodynamics Laboratory	PC	2	0	0	2	1
12.	AE8501	Flight Dynamics	PC	5	3	2	0	4
13.	AE8502	Aircraft Structures - II	PC	5	3	2	0	4
14.	AE8503	Aerodynamics - II	PC	3	3	0	0	3
15.	AE8504	Propulsion - II	PC	3	3	0	0	3
16.	AE8505	Control Engineering	PC	3	3	0	0	3
17.	AE8511	Aircraft Structures Laboratory	PC	4	0	0	4	2
18.	AE8512	Propulsion Laboratory	PC	2	0	0	2	1
19.	AE8601	Finite Element Methods	PC	3	3	0	0	3
20.	AE8602	Experimental Aerodynamics	PC	3	3	0	0	3
21.	AE8603	Composite Materials and Structures	PC	3	3	0	0	3
22.	AE8604	Aircraft Design	PC	3	3	0	0	3
23.	AE8611	Aero Engine and Airframe Laboratory	PC	4	0	0	4	2
24.	AE8612	Computer Aided Simulation Laboratory	PC	4	0	0	4	2
25.	AE8751	Avionics	PC	3	3	0	0	3
26.	ME8093	Computational Fluid Dynamics	PC	3	3	0	0	3
27.	AE8605	Experimental Stress Analysis	PC	3	3	0	0	3
28.	AE8711	Aircraft Systems Laboratory	PC	4	0	0	4	2
29.	AE8712	Flight Integration Systems and Control Laboratory	PC	4	0	0	4	2

**PROFESSIONAL ELECTIVES FOR B.E. AERONAUTICAL ENGINEERING**

**SEMESTER VI, ELECTIVE – I**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PR8072	New Product Development	PE	3	3	0	0	3
2.	AE8001	Space Mechanics	PE	3	3	0	0	3
3.	AE8002	Aircraft General Engineering and Maintenance Practices	PE	3	3	0	0	3
4.	AE8003	Heat Transfer	PE	3	3	0	0	3
5.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

**SEMESTER VII, ELECTIVES– II**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AE8004	Helicopter Theory	PE	3	3	0	0	3
2.	AE8005	Aero Engine Maintenance and Repair	PE	3	3	0	0	3
3.	AE8006	UAV Systems	PE	3	3	0	0	3
4.	AE8007	Aircraft Materials	PE	3	3	0	0	3
5.	AE8008	Vibration and Elements of Aeroelasticity	PE	3	3	0	0	3
6.	GE8071	Disaster Management	PE	3	3	0	0	3

**SEMESTER VII, ELECTIVES – III**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AE8009	Airframe Maintenance and Repair	PE	3	3	0	0	3
2.	AE8010	Fatigue and Fracture	PE	3	3	0	0	3
3.	PR8071	Lean Six Sigma	PE	3	3	0	0	3
4.	ME8097	Non Destructive Testing and Evaluation	PE	3	3	0	0	3
5.	GE8074	Human Rights	PE	3	3	0	0	3

**SEMESTER VIII, ELECTIVES – IV**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AE8011	Hypersonic Aerodynamics	PE	3	3	0	0	3
2.	AE8012	Wind Tunnel Techniques	PE	3	3	0	0	3
3.	AE8013	Rockets and Missiles	PE	3	3	0	0	3
4.	AE8014	Structural Dynamics	PE	3	3	0	0	3
5.	AE8015	Industrial Aerodynamics	PE	3	3	0	0	3

**SEMESTER VIII, ELECTIVES – V**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PR8491	Computer Integrated Manufacturing	PE	3	3	0	0	3
2.	AE8016	Flight Instrumentation	PE	3	3	0	0	3
3.	AE8017	Theory of Elasticity	PE	3	3	0	0	3
4.	AE8018	Air Traffic Control and Planning	PE	3	3	0	0	3
5.	MG8591	Principles of Management	PE	3	3	0	0	3
6.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
2.	HS8581	Professional Communication	EEC	2	0	0	2	1
3.	AE8613	Aircraft Design Project - I	EEC	2	0	0	2	1
4.	AE8713	Aircraft Design Project - II	EEC	2	0	0	2	1
5.	AE8811	Project Work	EEC	20	0	0	20	10

**SUMMARY**

<b>B.E. AERONAUTICAL ENGINEERING</b>												
SL. NO.	Subject Area	Credits per semester								Credits Total	Percentage %	
		I	II	III	IV	V	VI	VII	VIII			
1	Humanities Sciences	4	7	0	0	0	0	3	0	14	<b>7.57</b>	
2	Basic Sciences	12	7	4	4	0	0	0	0	27	<b>14.59</b>	
3	Engineering Sciences	9	11	9	0	0	0	0	0	29	<b>15.14</b>	
4	Professional Core	0	0	11	20	20	19	10	0	80	<b>43.24</b>	
5	Professional Elective	0	0	0	0	0	3	6	6	15	<b>8.11</b>	
6	Open Elective	0	0	0	0	3	0	3	0	6	<b>3.24</b>	
7	Employability Enhancement Courses	-	-	1	0	1	1	1	10	14	<b>8.11</b>	
	<b>Total</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>24</b>	<b>24</b>	<b>23</b>	<b>23</b>	<b>16</b>	<b>185</b>		
8	<b>Non Credit/Mandatory</b>											



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**CHOICE BASED CREDIT SYSTEM**  
**OPEN ELECTIVES (Offered by Other Branches)**

**V SEMESTER**  
**OPEN ELECTIVE - I**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OCE551	Air Pollution and Control Engineering	OE	3	3	0	0	3
2.	OAT551	Automotive Systems	OE	3	3	0	0	3
3.	OBM551	Bio Chemistry	OE	3	3	0	0	3
4.	OIC551	Biomedical Instrumentation	OE	3	3	0	0	3
5.	OIT552	Cloud Computing	OE	3	3	0	0	3
6.	OIT551	Database Management Systems	OE	3	3	0	0	3
7.	OME551	Energy Conservation and Management	OE	3	3	0	0	3
8.	OAI551	Environment and Agriculture	OE	3	3	0	0	3
9.	OPT551	Fibre Reinforced Plastics	OE	3	3	0	0	3
10.	OCE552	Geographic Information System	OE	3	3	0	0	3
11.	OME553	Industrial Safety Engineering	OE	3	3	0	0	3
12.	OAT552	Internal Combustion Engines	OE	3	3	0	0	3
13.	OML551	Introduction To Nanotechnology	OE	3	3	0	0	3
14.	OIM552	Lean Manufacturing	OE	3	3	0	0	3
15.	OBM552	Medical Physics	OE	3	3	0	0	3
16.	OML552	Microscopy	OE	3	3	0	0	3
17.	OAI552	Participatory Water Resources Management	OE	3	3	0	0	3
18.	OCH552	Principles of Chemical Engineering	OE	3	3	0	0	3
19.	OBT554	Principles of Food Preservation	OE	3	3	0	0	3
20.	OMF551	Product Design and Development	OE	3	3	0	0	3
21.	OAI553	Production Technology of Agricultural Machinery	OE	3	3	0	0	3
22.	ORO551	Renewable Energy Sources	OE	3	3	0	0	3
23.	OAN551	Sensors and Transducers	OE	3	3	0	0	3
24.	OIC552	State Variable Analysis And Design	OE	3	3	0	0	3
25.	OTL553	Telecommunication Network Management	OE	3	3	0	0	3
26.	OIM551	World Class Manufacturing	OE	3	3	0	0	3

**VII SEMESTER**  
**OPEN ELECTIVE - II**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OAI751	Agricultural Finance, Banking and Co-operation	OE	3	3	0	0	3
2.	OEE751	Basic Circuit Theory	OE	3	3	0	0	3
3.	OGI751	Climate Change and its Impact	OE	3	3	0	0	3
4.	OCS751	Data Structures and Algorithms	OE	3	3	0	0	3
5.	OML752	Electronic Materials	OE	3	3	0	0	3
6.	OCE751	Environmental and Social Impact Assessment	OE	3	3	0	0	3
7.	OGI752	Fundamentals of Planetary Remote Sensing	OE	3	3	0	0	3
8.	OEN751	Green Building Design	OE	3	3	0	0	3
9.	OAI752	Integrated Water Resources Management	OE	3	3	0	0	3
10.	OEI 751	Introduction to Embedded Systems	OE	3	3	0	0	3
11.	OMF751	Lean Six Sigma	OE	3	3	0	0	3
12.	OAN751	Low Cost Automation	OE	3	3	0	0	3
13.	OMT751	MEMS and NEMS	OE	3	3	0	0	3
14.	ORO751	Nano Computing	OE	3	3	0	0	3
15.	OEC755	Photonic Networks	OE	3	3	0	0	3
16.	OCH751	Process Modeling and Simulation	OE	3	3	0	0	3
17.	OAT751	Production of Automotive Components	OE	3	3	0	0	3
18.	OIE751	Robotics	OE	3	3	0	0	3
19.	OML753	Selection of Materials	OE	3	3	0	0	3
20.	OME753	Systems Engineering	OE	3	3	0	0	3
21.	OML751	Testing of Materials	OE	3	3	0	0	3
22.	OAT752	Vehicle Styling and Design	OE	3	3	0	0	3
23.	OTT751	Weaving Mechanisms	OE	3	3	0	0	3
24.	OPR751	Basics in Manufacturing and Metal Cutting Process	OE	3	3	0	0	3
25.	OPR752	Processing of Polymer and Composites	OE	3	3	0	0	3
26.	OMV751	Marine Vehicles	OE	3	3	0	0	3

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**I TO VIII SEMESTERS CURRICULA & SYLLABI**  
**SEMESTER I**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics – I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
<b>PRACTICALS</b>								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

**SEMESTER II**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics – II	BS	4	4	0	0	4
3.	PH8201	Physics For Civil Engineering	BS	3	3	0	0	3
4.	BE8251	Basic Electrical and Electronics Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
<b>PRACTICALS</b>								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	CE8211	Computer Aided Building Drawing	PC	4	0	0	4	2
<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>2</b>	<b>8</b>	<b>25</b>

**SEMESTER III**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	CE8301	Strength of Materials I	PC	3	3	0	0	3
3.	CE8302	Fluid Mechanics	PC	3	3	0	0	3
4.	CE8351	Surveying	PC	3	3	0	0	3
5.	CE8391	Construction Materials	PC	3	3	0	0	3
6.	CE8392	Engineering Geology	ES	3	3	0	0	3
<b>PRACTICALS</b>								
7.	CE8311	Construction Materials Laboratory	PC	4	0	0	4	2
8.	CE8361	Surveying Laboratory	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills / Listening and Speaking	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>29</b>	<b>19</b>	<b>0</b>	<b>10</b>	<b>24</b>

**SEMESTER IV**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8491	Numerical Methods	BS	4	4	0	0	4
2.	CE8401	Construction Techniques and Practices	PC	3	3	0	0	3
3.	CE8402	Strength of Materials II	PC	3	3	0	0	3
4.	CE8403	Applied Hydraulic Engineering	PC	3	3	0	0	3
5.	CE8404	Concrete Technology	PC	3	3	0	0	3
6.	CE8491	Soil Mechanics	PC	3	3	0	0	3
<b>PRACTICALS</b>								
7.	CE8481	Strength of Materials Laboratory	PC	4	0	0	4	2
8.	CE8461	Hydraulic Engineering Laboratory	PC	4	0	0	4	2
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>29</b>	<b>19</b>	<b>0</b>	<b>10</b>	<b>24</b>

**SEMESTER V**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	CE8501	Design of Reinforced Cement Concrete Elements	PC	5	3	2	0	4
2.	CE8502	Structural Analysis I	PC	3	3	0	0	3
3.	EN8491	Water Supply Engineering	PC	3	3	0	0	3
4.	CE8591	Foundation Engineering	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Open Elective I*	OE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	CE8511	Soil Mechanics Laboratory	PC	4	0	0	4	2
8.	CE8512	Water and Waste Water Analysis Laboratory	PC	4	0	0	4	2
9.	CE8513	Survey Camp (2 weeks –During IV Semester)	EEC	0	0	0	0	2
<b>TOTAL</b>				<b>28</b>	<b>18</b>	<b>2</b>	<b>8</b>	<b>25</b>

**SEMESTER VI**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	CE8601	Design of Steel Structural Elements	PC	5	3	2	0	4
2.	CE8602	Structural Analysis II	PC	3	3	0	0	3
3.	CE8603	Irrigation Engineering	PC	3	3	0	0	3
4.	CE8604	Highway Engineering	PC	3	3	0	0	3
5.	EN8592	Wastewater Engineering	PC	3	3	0	0	3
6.		Professional Elective II	PE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	CE8611	Highway Engineering Laboratory	PC	4	0	0	4	2
8.	CE8612	Irrigation and Environmental Engineering Drawing	PC	4	0	0	4	2
<b>TOTAL</b>				<b>28</b>	<b>18</b>	<b>2</b>	<b>8</b>	<b>23</b>

**SEMESTER VII**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	CE8701	Estimation, Costing and Valuation Engineering	PC	3	3	0	0	3
2.	CE8702	Railways, Airports, Docks and Harbour Engineering	PC	3	3	0	0	3
3.	CE8703	Structural Design and Drawing	PC	5	3	0	2	4
4.		Professional Elective III	PE	3	3	0	0	3
5.		Open Elective II*	OE	3	3	0	0	3
<b>PRACTICALS</b>								
6.	CE8711	Creative and Innovative Project (Activity Based - Subject Related)	EEC	4	0	0	4	2
7.	CE8712	Industrial Training (4 weeks During VI Semester – Summer)	EEC	0	0	0	0	2
<b>TOTAL</b>				<b>21</b>	<b>15</b>	<b>0</b>	<b>6</b>	<b>20</b>

**SEMESTER VIII**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
<b>PRACTICALS</b>								
3.	CE8811	Project Work	EEC	20	0	0	20	10
<b>TOTAL</b>				<b>26</b>	<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>

**TOTAL NO. OF CREDITS: 182**

\*Course from the curriculum of other UG Programmes.

### HUMANITIES AND SOCIAL SCIENCES (HS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3

### BASIC SCIENCES (BS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics – I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics – II	BS	4	4	0	0	4
6.	PH8201	Physics for Civil Engineering	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8491	Numerical Methods	BS	4	4	0	0	4

### ENGINEERING SCIENCES (ES)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8251	Basic Electrical and Electronics Engineering	ES	3	3	0	0	3
5.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
7.	CE8392	Engineering Geology	ES	3	3	0	0	3

### PROFESSIONAL CORE (PC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8211	Computer Aided Building Drawing	PC	4	0	0	4	2
2.	CE8391	Construction Materials	PC	3	3	0	0	3
3.	CE8301	Strength of Materials I	PC	3	3	0	0	3
4.	CE8302	Fluid Mechanics	PC	3	3	0	0	3
5.	CE8351	Surveying	PC	3	3	0	0	3

6.	CE8481	Strength of Materials Laboratory	PC	4	0	0	4	2
7.	CE8361	Surveying Laboratory	PC	4	0	0	4	2
8.	CE8311	Construction Materials Laboratory	PC	4	0	0	4	2
9.	CE8401	Construction Techniques and Practices	PC	3	3	0	0	3
10.	CE8402	Strength of Materials II	PC	3	3	0	0	3
11.	CE8403	Applied Hydraulic Engineering	PC	3	3	0	0	3
12.	CE8404	Concrete Technology	PC	3	3	0	0	3
13.	CE8491	Soil Mechanics	PC	3	3	0	0	3
14.	CE8461	Hydraulic Engineering Laboratory	PC	4	0	0	4	2
15.	CE8501	Design of Reinforced Cement Concrete Elements	PC	5	3	2	0	4
16.	CE8502	Structural Analysis I	PC	3	3	0	0	3
17.	CE8511	Soil Mechanics Laboratory	PC	4	0	0	4	2
18.	CE8512	Water and Waste Water Analysis Laboratory	PC	4	0	0	4	2
19.	CE8591	Foundation Engineering	PC	3	3	0	0	3
20.	CE8601	Design of Steel Structural Elements	PC	5	3	2	0	4
21.	CE8602	Structural Analysis II	PC	3	3	0	0	3
22.	CE8603	Irrigation Engineering	PC	3	3	0	0	3
23.	CE8604	Highway Engineering	PC	3	3	0	0	3
24.	CE8611	Highway Engineering Laboratory	PC	4	0	0	4	2
25.	CE8612	Irrigation and Environmental Engineering Drawing	PC	4	0	0	4	2
26.	EN8592	Wastewater Engineering	PC	3	3	0	0	3
27.	EN8491	Water Supply Engineering	PC	3	3	0	0	3
28.	CE8701	Estimation, Costing and Valuation Engineering	PC	3	3	0	0	3
29.	CE8702	Railways, Airports, Docks and Harbour Engineering	PC	3	3	0	0	3
30.	CE8703	Structural Design and Drawing	PC	5	3	0	2	4



**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills / Listening and Speaking	EEC	2	0	0	2	1
2.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
3.	CE8513	Survey Camp (2 weeks – During IV Semester)	EEC	0	0	0	0	2
4.	CE8711	Creative and Innovative Project (Activity Based - Subject Related)	EEC	4	0	0	4	2
5.	CE8712	Industrial Training (4 weeks During VI Semester – Summer)	EEC	0	0	0	0	2
6.	CE8811	Project Work	EEC	20	0	0	20	10

**PROFESSIONAL ELECTIVE  
SEMESTER V  
ELECTIVE - I**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GI8012	Digital Cadastre	PE	3	3	0	0	3
2.	GI8013	Advanced Surveying	PE	3	3	0	0	3
3.	GI8014	Geographic Information System	PE	3	3	0	0	3
4.	GI8015	Geoinformatics Applications for Civil Engineers	PE	3	3	0	0	3
5.	GI8491	Total Station and GPS Surveying	PE	3	3	0	0	3
6.	GE8071	Disaster Management	PE	3	3	0	0	3
7.	GE8074	Human Rights	PE	3	3	0	0	3

**SEMESTER VI  
ELECTIVE - II**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8001	Ground Improvement Techniques	PE	3	3	0	0	3
2.	CE8002	Introduction to Soil Dynamics and Machine Foundations	PE	3	3	0	0	3
3.	CE8003	Rock Engineering	PE	3	3	0	0	3
4.	CE8004	Urban Planning and Development	PE	3	3	0	0	3
5.	CE8005	Air Pollution and Control Engineering	PE	3	3	0	0	3
6.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

**SEMESTER VII  
ELECTIVE – III**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8006	Pavement Engineering	PE	3	3	0	0	3
2.	CE8007	Traffic Engineering and Management	PE	3	3	0	0	3
3.	CE8008	Transport and Environment	PE	3	3	0	0	3
4.	CE8009	Industrial Structures	PE	3	3	0	0	3
5.	CE8010	Environmental and Social Impact Assessment	PE	3	3	0	0	3
6.	CE8011	Design of Prestressed Concrete Structures	PE	3	3	0	0	3
7.	CE8012	Construction Planning and Scheduling	PE	3	3	0	0	3
8.	EN8591	Municipal Solid Waste Management	PE	3	3	0	0	3
9.	GE8077	Total Quality Management	PE	3	3	0	0	3

**SEMESTER VIII  
ELECTIVE – IV**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8013	Coastal Engineering	PE	3	3	0	0	3
2.	CE8014	Participatory Water Resources Management	PE	3	3	0	0	3
3.	CE8015	Integrated Water Resources Management	PE	3	3	0	0	3
4.	CE8016	Groundwater Engineering	PE	3	3	0	0	3
5.	CE8017	Water Resources Systems Engineering	PE	3	3	0	0	3
6.	CE8018	Geo-Environmental Engineering	PE	3	3	0	0	3
7.	CE8091	Hydrology and Water Resources Engineering	PE	3	3	0	0	3
8.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

**SEMESTER VIII  
ELECTIVE – V**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8019	Computer Aided Design of Structures	PE	3	3	0	0	3
2.	CE8020	Maintenance, Repair and Rehabilitation of Structures	PE	3	3	0	0	3
3.	CE8021	Structural Dynamics and Earthquake Engineering	PE	3	3	0	0	3
4.	CE8022	Prefabricated Structures	PE	3	3	0	0	3
5.	CE8023	Bridge Engineering	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

**ANNA UNIVERSITY, CHENNAI**  
**AFFILIATED INSTITUTIONS**  
**B.E. CIVIL ENGINEERING**  
**REGULATIONS – 2017**  
**CHOICE BASED CREDIT SYSTEM**  
**OPEN ELECTIVES (Offered By Other Branches)**

**SEMESTER V**  
**OPEN ELECTIVE - I**

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OME551	Energy Conservation and Management	OE	3	3	0	0	3
2.	OAI551	Environment and Agriculture	OE	3	3	0	0	3
3.	OCH551	Industrial Nanotechnology	OE	3	3	0	0	3
4.	OAI553	Production Technology of Agricultural machinery	OE	3	3	0	0	3
5.	ORO551	Renewable Energy Sources	OE	3	3	0	0	3
6.	OAN551	Sensors and Transducers	OE	3	3	0	0	3
7.	OCS551	Software Engineering	OE	3	3	0	0	3
8.	OME552	Vibration and Noise Control	OE	3	3	0	0	3

**SEMESTER VII**  
**OPEN ELECTIVE - II**

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OAI751	Agricultural Finance, Banking and Co-operation	OE	3	3	0	0	3
2.	OGI751	Climate Change and Its Impact	OE	3	3	0	0	3
3.	OGI752	Fundamentals of Planetary Remote Sensing	OE	3	3	0	0	3
4.	OEN751	Green Building Design	OE	3	3	0	0	3
5.	OME754	Industrial Safety	OE	3	3	0	0	3
6.	OCS752	Introduction to C Programming	OE	3	3	0	0	3
7.	OIE751	Robotics	OE	3	3	0	0	3
8.	OML753	Selection of Materials	OE	3	3	0	0	3
9.	OML751	Testing of Materials	OE	3	3	0	0	3
10.	OTT752	Textile effluent treatments	OE	3	3	0	0	3

**ANNA UNIVERSITY, CHENNAI**  
**AFFILIATED INSTITUTIONS**  
**B.E. COMPUTER SCIENCE AND ENGINEERING**  
**REGULATIONS – 2017**  
**CHOICE BASED CREDIT SYSTEM**  
**I - VIII SEMESTERS CURRICULA AND SYLLABI**

**SEMESTER I**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
<b>PRACTICALS</b>								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

**SEMESTER II**

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8252	Physics for Information Science	BS	3	3	0	0	3
4.	BE8255	Basic Electrical, Electronics and Measurement Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	CS8251	Programming in C	PC	3	3	0	0	3
<b>PRACTICALS</b>								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	CS8261	C Programming Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>28</b>	<b>20</b>	<b>0</b>	<b>8</b>	<b>24</b>

**SEMESTER III**

SI.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8351	Discrete Mathematics	BS	4	4	0	0	4
2.	CS8351	Digital Principles and System Design	ES	4	4	0	0	4
3.	CS8391	Data Structures	PC	3	3	0	0	3
4.	CS8392	Object Oriented Programming	PC	3	3	0	0	3
5.	EC8395	Communication Engineering	ES	3	3	0	0	3
<b>PRACTICALS</b>								
6.	CS8381	Data Structures Laboratory	PC	4	0	0	4	2
7.	CS8383	Object Oriented Programming Laboratory	PC	4	0	0	4	2
8.	CS8382	Digital Systems Laboratory	ES	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>31</b>	<b>17</b>	<b>0</b>	<b>14</b>	<b>24</b>

**SEMESTER IV**

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8402	Probability and Queueing Theory	BS	4	4	0	0	4
2.	CS8491	Computer Architecture	PC	3	3	0	0	3
3.	CS8492	Database Management Systems	PC	3	3	0	0	3
4.	CS8451	Design and Analysis of Algorithms	PC	3	3	0	0	3
5.	CS8493	Operating Systems	PC	3	3	0	0	3
6.	CS8494	Software Engineering	PC	3	3	0	0	3
<b>PRACTICALS</b>								
7.	CS8481	Database Management Systems Laboratory	PC	4	0	0	4	2
8.	CS8461	Operating Systems Laboratory	PC	4	0	0	4	2
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>29</b>	<b>19</b>	<b>0</b>	<b>10</b>	<b>24</b>

**SEMESTER V**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8551	Algebra and Number Theory	BS	4	4	0	0	4
2.	CS8591	Computer Networks	PC	3	3	0	0	3
3.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
4.	CS8501	Theory of Computation	PC	3	3	0	0	3
5.	CS8592	Object Oriented Analysis and Design	PC	3	3	0	0	3
6.		Open Elective I	OE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
8.	CS8582	Object Oriented Analysis and Design Laboratory	PC	4	0	0	4	2
9.	CS8581	Networks Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

**SEMESTER VI**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	CS8651	Internet Programming	PC	3	3	0	0	3
2.	CS8691	Artificial Intelligence	PC	3	3	0	0	3
3.	CS8601	Mobile Computing	PC	3	3	0	0	3
4.	CS8602	Compiler Design	PC	5	3	0	2	4
5.	CS8603	Distributed Systems	PC	3	3	0	0	3
6.		Professional Elective I	PE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	CS8661	Internet Programming Laboratory	PC	4	0	0	4	2
8.	CS8662	Mobile Application Development Laboratory	PC	4	0	0	4	2
9.	CS8611	Mini Project	EEC	2	0	0	2	1
10.	HS8581	Professional Communication	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>32</b>	<b>18</b>	<b>0</b>	<b>14</b>	<b>25</b>

**SEMESTER VII**

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MG8591	Principles of Management	HS	3	3	0	0	3
2.	CS8792	Cryptography and Network Security	PC	3	3	0	0	3
3.	CS8791	Cloud Computing	PC	3	3	0	0	3
4.		Open Elective II	OE	3	3	0	0	3
5.		Professional Elective II	PE	3	3	0	0	3
6.		Professional Elective III	PE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	CS8711	Cloud Computing Laboratory	PC	4	0	0	4	2
8.	IT8761	Security Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>26</b>	<b>18</b>	<b>0</b>	<b>8</b>	<b>22</b>

**SEMESTER VIII**

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
<b>PRACTICALS</b>								
3.	CS8811	Project Work	EEC	20	0	0	20	10
<b>TOTAL</b>				<b>26</b>	<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>

**TOTAL NO. OF CREDITS: 185**

### HUMANITIES AND SOCIAL SCIENCES (HS)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3

### BASIC SCIENCES (BS)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8252	Physics for Information Science	BS	3	3	0	0	3
7.	MA8351	Discrete Mathematics	BS	4	4	0	0	4
8.	MA8402	Probability and Queueing Theory	BS	4	4	0	0	4
9.	MA8551	Algebra and Number Theory	BS	4	4	0	0	4

### ENGINEERING SCIENCES (ES)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8255	Basic Electrical, Electronics and Measurement Engineering	ES	3	3	0	0	3
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	CS8351	Digital Principles and System Design	ES	4	4	0	0	4
7.	EC8395	Communication Engineering	ES	3	3	0	0	3
8.	CS8382	Digital Systems Laboratory	ES	4	0	0	4	2



**PROFESSIONAL CORE (PC)**

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8251	Programming in C	PC	3	3	0	0	3
2.	CS8261	C Programming Laboratory	PC	4	0	0	4	2
3.	CS8391	Data Structures	PC	3	3	0	0	3
4.	CS8392	Object Oriented Programming	PC	3	3	0	0	3
5.	CS8381	Data Structures Laboratory	PC	4	0	0	4	2
6.	CS8383	Object Oriented Programming Laboratory	PC	4	0	0	4	2
7.	CS8491	Computer Architecture	PC	3	3	0	0	3
8.	CS8492	Database Management Systems	PC	3	3	0	0	3
9.	CS8451	Design and Analysis of Algorithms	PC	3	3	0	0	3
10.	CS8493	Operating Systems	PC	3	3	0	0	3
11.	CS8494	Software Engineering	PC	3	3	0	0	3
12.	CS8481	Database Management Systems Laboratory	PC	4	0	0	4	2
13.	CS8461	Operating Systems Laboratory	PC	4	0	0	4	2
14.	CS8591	Computer Networks	PC	3	3	0	0	3
15.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
16.	CS8501	Theory of Computation	PC	3	3	0	0	3
17.	CS8592	Object Oriented Analysis and Design	PC	3	3	0	0	3
18.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
19.	CS8582	Object Oriented Analysis and Design Laboratory	PC	4	0	0	4	2
20.	CS8581	Networks Laboratory	PC	4	0	0	4	2
21.	CS8651	Internet Programming	PC	3	3	0	0	3
22.	CS8691	Artificial Intelligence	PC	3	3	0	0	3
23.	CS8601	Mobile Computing	PC	3	3	0	0	3
24.	CS8602	Compiler Design	PC	5	3	0	2	4
25.	CS8603	Distributed Systems	PC	3	3	0	0	3
26.	CS8661	Internet Programming Laboratory	PC	4	0	0	4	2
27.	CS8662	Mobile Application Development Laboratory	PC	4	0	0	4	2
28.	CS8792	Cryptography and Network Security	PC	3	3	0	0	3
29.	CS8791	Cloud Computing	PC	3	3	0	0	3
30.	CS8711	Cloud Computing Laboratory	PC	4	0	0	4	2
31.	IT8761	Security Laboratory	PC	4	0	0	4	2

**PROFESSIONAL ELECTIVES (PE)****SEMESTER VI  
ELECTIVE - I**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8075	Data Warehousing and Data Mining	PE	3	3	0	0	3
2.	IT8076	Software Testing	PE	3	3	0	0	3
3.	IT8072	Embedded Systems	PE	3	3	0	0	3
4.	CS8072	Agile Methodologies	PE	3	3	0	0	3
5.	CS8077	Graph Theory and Applications-	PE	3	3	0	0	3
6.	IT8071	Digital Signal Processing	PE	3	3	0	0	3
7.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

**SEMESTER VII  
ELECTIVE - II**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8091	Big Data Analytics	PE	3	3	0	0	3
2.	CS8082	Machine Learning Techniques	PE	3	3	0	0	3
3.	CS8092	Computer Graphics and Multimedia	PE	3	3	0	0	3
4.	IT8075	Software Project Management	PE	3	3	0	0	3
5.	CS8081	Internet of Things	PE	3	3	0	0	3
6.	IT8074	Service Oriented Architecture	PE	3	3	0	0	3
7.	GE8077	Total Quality Management	PE	3	3	0	0	3

**SEMESTER VII  
ELECTIVE - III**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8083	Multi-core Architectures and Programming	PE	3	3	0	0	3
2.	CS8079	Human Computer Interaction	PE	3	3	0	0	3
3.	CS8073	C# and .Net Programming	PE	3	3	0	0	3
4.	CS8088	Wireless Adhoc and Sensor Networks	PE	3	3	0	0	3
5.	CS8071	Advanced Topics on Databases	PE	3	3	0	0	3
6.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3
7.	GE8074	Human Rights	PE	3	3	0	0	3
8.	GE8071	Disaster Management	PE	3	3	0	0	3

**SEMESTER VIII  
ELECTIVE - IV**

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8093	Digital Image Processing	PE	3	3	0	0	3
2.	CS8085	Social Network Analysis	PE	3	3	0	0	3
3.	IT8073	Information Security	PE	3	3	0	0	3
4.	CS8087	Software Defined Networks	PE	3	3	0	0	3
5.	CS8074	Cyber Forensics	PE	3	3	0	0	3
6.	CS8086	Soft Computing	PE	3	3	0	0	3
7.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

**SEMESTER VIII  
ELECTIVE - V**

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8080	Information Retrieval Techniques	PE	3	3	0	0	3
2.	CS8078	Green Computing	PE	3	3	0	0	3
3.	CS8076	GPU Architecture and Programming	PE	3	3	0	0	3
4.	CS8084	Natural Language Processing	PE	3	3	0	0	3
5.	CS8001	Parallel Algorithms	PE	3	3	0	0	3
6.	IT8077	Speech Processing	PE	3	3	0	0	3
7.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
2.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
3.	CS8611	Mini Project	EEC	2	0	0	2	1
4.	HS8581	Professional Communication	EEC	2	0	0	2	1
5.	CS8811	Project Work	EEC	20	0	0	20	10

**ANNA UNIVERSITY, CHENNAI**  
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**CHOICE BASED CREDIT SYSTEM**

**OPEN ELECTIVES (Offered by Other Branches)**

**SEMESTER V**  
**OPEN ELECTIVE - I**

SL NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OCE551	Air Pollution and Control Engineering	OE	3	3	0	0	3
2.	OMD551	Basic of Biomedical Instrumentation	OE	3	3	0	0	3
3.	OBT552	Basics of Bioinformatics	OE	3	3	0	0	3
4.	OBM551	Bio Chemistry	OE	3	3	0	0	3
5.	OTL552	Digital Audio Engineering	OE	3	3	0	0	3
6.	OME551	Energy Conservation and Management	OE	3	3	0	0	3
7.	OBT553	Fundamentals of Nutrition	OE	3	3	0	0	3
8.	OCE552	Geographic Information System	OE	3	3	0	0	3
9.	OPY551	Herbal Technology	OE	3	3	0	0	3
10.	OMD552	Hospital Waste Management	OE	3	3	0	0	3
11.	OCH551	Industrial Nanotechnology	OE	3	3	0	0	3
12.	OBT551	Introduction to Bioenergy and Biofuels	OE	3	3	0	0	3
13.	OME553	Industrial Safety Engineering	OE	3	3	0	0	3
14.	OEI551	Logic and Distributed Control Systems	OE	3	3	0	0	3
15.	OBM552	Medical Physics	OE	3	3	0	0	3
16.	OML552	Microscopy	OE	3	3	0	0	3
17.	OBT554	Principles of Food Preservation	OE	3	3	0	0	3
18.	OMF551	Product Design and Development	OE	3	3	0	0	3
19.	OAN551	Sensors and Transducers	OE	3	3	0	0	3
20.	OTL551	Space Time Wireless Communication	OE	3	3	0	0	3
21.	OEC552	Soft Computing	OE	3	3	0	0	3
22.	OTL553	Telecommunication Network Management	OE	3	3	0	0	3
23.	OMD553	Telehealth Technology	OE	3	3	0	0	3
24.	OTL554	Wavelets and its Applications	OE	3	3	0	0	3
25.	OIM551	World Class Manufacturing	OE	3	3	0	0	3

**SEMESTER VII**  
**OPEN ELECTIVE - II**

SL NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OAI751	Agricultural Finance, Banking and Co-operation	OE	3	3	0	0	3
2.	OEE751	Basic Circuit Theory	OE	3	3	0	0	3
3.	OBM751	Basics of Human Anatomy and Physiology	OE	3	3	0	0	3
4.	OGI751	Climate Change and its Impact	OE	3	3	0	0	3
5.	OPY751	Clinical Trials	OE	3	3	0	0	3
6.	OEC751	Electronic Devices	OE	3	3	0	0	3
7.	OML752	Electronic Materials	OE	3	3	0	0	3
8.	OCH752	Energy Technology	OE	3	3	0	0	3
9.	OCE751	Environmental and Social Impact Assessment	OE	3	3	0	0	3
10.	OGI752	Fundamentals of Planetary Remote Sensing	OE	3	3	0	0	3
11.	OEN751	Green Building Design	OE	3	3	0	0	3
12.	OBM752	Hospital Management	OE	3	3	0	0	3
13.	OEE752	Introduction to Renewable Energy Systems	OE	3	3	0	0	3
14.	OBT753	Introduction of Cell Biology	OE	3	3	0	0	3
15.	OMF751	Lean Six Sigma	OE	3	3	0	0	3
16.	OAN751	Low Cost Automation	OE	3	3	0	0	3
17.	OEC754	Medical Electronics	OE	3	3	0	0	3
18.	OEC756	MEMS and NEMS	OE	3	3	0	0	3
19.	OBT752	Microbiology	OE	3	3	0	0	3
20.	OCH751	Process Modeling and Simulation	OE	3	3	0	0	3
21.	OIE751	Robotics	OE	3	3	0	0	3
22.	OEC753	Signals and Systems	OE	4	4	0	0	4
23.	OME752	Supply Chain Management	OE	3	3	0	0	3
24.	OME753	Systems Engineering	OE	3	3	0	0	3
25.	OTL751	Telecommunication System Modeling and Simulation	OE	3	3	0	0	3
26.	OCY751	Waste Water Treatment	OE	3	3	0	0	3

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**REGULATIONS – 2017**  
**CHOICE BASED CREDIT SYSTEM**  
**I TO VIII SEMESTERS CURRICULA & SYLLABI**

**SEMESTER I**

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
<b>PRACTICALS</b>								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

**SEMESTER II**

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8253	Physics for Electronics Engineering	BS	3	3	0	0	3
4.	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5.	EE8251	Circuit Theory	PC	4	2	2	0	3
6.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
<b>PRACTICALS</b>								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	EE8261	Electric Circuits Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>2</b>	<b>8</b>	<b>25</b>

### SEMESTER III

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	EE8351	Digital Logic Circuits	PC	4	2	2	0	3
3.	EE8391	Electromagnetic Theory	PC	4	2	2	0	3
4.	EE8301	Electrical Machines - I	PC	4	2	2	0	3
5.	EC8353	Electron Devices and Circuits	ES	3	3	0	0	3
6.	ME8792	Power Plant Engineering	ES	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8311	Electronics Laboratory	ES	4	0	0	4	2
8.	EE8311	Electrical Machines Laboratory - I	PC	4	0	0	4	2
<b>TOTAL</b>				<b>30</b>	<b>16</b>	<b>6</b>	<b>8</b>	<b>23</b>

### SEMESTER IV

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8491	Numerical Methods	BS	4	4	0	0	4
2.	EE8401	Electrical Machines - II	PC	4	2	2	0	3
3.	EE8402	Transmission and Distribution	PC	3	3	0	0	3
4.	EE8403	Measurements and Instrumentation	PC	3	3	0	0	3
5.	EE8451	Linear Integrated Circuits and Applications	PC	3	3	0	0	3
6.	IC8451	Control Systems	PC	5	3	2	0	4
<b>PRACTICALS</b>								
7.	EE8411	Electrical Machines Laboratory - II	PC	4	0	0	4	2
8.	EE8461	Linear and Digital Integrated Circuits Laboratory	PC	4	0	0	4	2
9.	EE8412	Technical Seminar	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>32</b>	<b>18</b>	<b>4</b>	<b>10</b>	<b>25</b>

### SEMESTER V

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	EE8501	Power System Analysis	PC	3	3	0	0	3
2.	EE8551	Microprocessors and Microcontrollers	PC	3	3	0	0	3
3.	EE8552	Power Electronics	PC	3	3	0	0	3
4.	EE8591	Digital Signal Processing	PC	4	2	2	0	3
5.	CS8392	Object Oriented Programming	ES	3	3	0	0	3
6.		Open Elective I*	OE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EE8511	Control and Instrumentation Laboratory	PC	4	0	0	4	2
8.	HS8581	Professional Communication	EEC	2	0	0	2	1
9.	CS8383	Object Oriented Programming Laboratory	ES	4	0	0	4	2
<b>TOTAL</b>				<b>29</b>	<b>17</b>	<b>2</b>	<b>10</b>	<b>23</b>

### SEMESTER VI

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	EE8601	Solid State Drives	PC	3	3	0	0	3
2.	EE8602	Protection and Switchgear	PC	3	3	0	0	3
3.	EE8691	Embedded Systems	ES	3	3	0	0	3
4.		Professional Elective I	PE	3	3	0	0	3
5.		Professional Elective II	PE	3	3	0	0	3
<b>PRACTICALS</b>								
6.	EE8661	Power Electronics and Drives Laboratory	PC	4	0	0	4	2
7.	EE8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
8.	EE8611	Mini Project	EEC	4	0	0	4	2
<b>TOTAL</b>				<b>27</b>	<b>15</b>	<b>0</b>	<b>12</b>	<b>21</b>



### SEMESTER VII

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	EE8701	High Voltage Engineering	PC	3	3	0	0	3
2.	EE8702	Power System Operation and Control	PC	3	3	0	0	3
3.	EE8703	Renewable Energy Systems	PC	3	3	0	0	3
4.		Open Elective II*	OE	3	3	0	0	3
5.		Professional Elective III	PE	3	3	0	0	3
6.		Professional Elective IV	PE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EE8711	Power System Simulation Laboratory	PC	4	0	0	4	2
8.	EE8712	Renewable Energy Systems Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>26</b>	<b>18</b>	<b>0</b>	<b>8</b>	<b>22</b>

### SEMESTER VIII

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.		Professional Elective V	PE	3	3	0	0	3
2.		Professional Elective VI	PE	3	3	0	0	3
<b>PRACTICALS</b>								
3.	EE8811	Project Work	EEC	20	0	0	20	10
<b>TOTAL</b>				<b>26</b>	<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>

**TOTAL NO. OF CREDITS: 180**

\*Course from the curriculum of other UG Programmes.

**PROFESSIONAL ELECTIVE – I ( VI SEMESTER)**

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	IC8651	Advanced Control System	PE	4	2	2	0	3
2.	EE8001	Visual Languages and Applications	PE	3	3	0	0	3
3.	EE8002	Design of Electrical Apparatus	PE	3	3	0	0	3
4.	EE8003	Power Systems Stability	PE	3	3	0	0	3
5.	EE8004	Modern Power Converters	PE	3	3	0	0	3
6.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

**PROFESSIONAL ELECTIVE – II ( VI SEMESTER)**

1.	RO8591	Principles of Robotics	PE	3	3	0	0	3
2.	EE8005	Special Electrical Machines	PE	3	3	0	0	3
3.	EE8006	Power Quality	PE	3	3	0	0	3
4.	EE8007	EHVAC Transmission	PE	3	3	0	0	3
5.	EC8395	Communication Engineering	PE	3	3	0	0	3

**PROFESSIONAL ELECTIVE – III ( VII SEMESTER)**

1.	GE8071	Disaster Management	PE	3	3	0	0	3
2.	GE8074	Human Rights	PE	3	3	0	0	3
3.	MG8491	Operations Research	PE	3	3	0	0	3
4.	MA8391	Probability and Statistics	PE	4	4	0	0	4
5.	EI8075	Fibre Optics and Laser Instrumentation	PE	3	3	0	0	3
6.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3

**PROFESSIONAL ELECTIVE – IV ( VII SEMESTER)**

1.	EE8008	System Identification and Adaptive Control	PE	3	3	0	0	3
2.	CS8491	Computer Architecture	PE	3	3	0	0	3
3.	EE8009	Control of Electrical Drives	PE	3	3	0	0	3
4.	EC8095	VLSI Design	PE	3	3	0	0	3
5.	EE8010	Power Systems Transients	PE	3	3	0	0	3
6.	GE8077	Total Quality Management	PE	3	3	0	0	3

**PROFESSIONAL ELECTIVE – V ( VIII SEMESTER)**

1.	EE8011	Flexible AC Transmission Systems	PE	3	3	0	0	3
2.	EE8012	Soft Computing Techniques	PE	3	3	0	0	3
3.	EE8013	Power Systems Dynamics	PE	3	3	0	0	3
4.	EE8014	SMPS and UPS	PE	3	3	0	0	3
5.	EE8015	Electric Energy Generation, Utilization and Conservation	PE	3	3	0	0	3
6.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3
7.	MG8591	Principles of Management	PE	3	3	0	0	3

**PROFESSIONAL ELECTIVE – VI ( VIII SEMESTER)**

1.	EE8016	Energy Management and Auditing	PE	3	3	0	0	3
2.	CS8391	Data Structures	PE	3	3	0	0	3
3.	EE8017	High Voltage Direct Current Transmission	PE	3	3	0	0	3
4.	EE8018	Microcontroller Based System Design	PE	3	3	0	0	3
5.	EE8019	Smart Grid	PE	3	3	0	0	3
6.	EI8073	Biomedical Instrumentation	PE	3	3	0	0	3
7.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

**\*Professional Electives are grouped according to elective number as was done previously.**

### HUMANITIES AND SOCIALSCIENCES (HS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3

### BASIC SCIENCES (BS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8253	Physics For Electronics Engineering	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8491	Numerical Methods	BS	4	4	0	0	4

### ENGINEERING SCIENCES (ES)

S.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and	ES		0	0	4	2

		Python programming Laboratory		4				
4.	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	EC8353	Electron Devices and Circuits	ES	3	3	0	0	3
7.	ME8792	Power Plant Engineering	ES	3	3	0	0	3
8.	EC8311	Electronics Laboratory	ES	4	0	0	4	2
9.	CS8392	Object Oriented Programming	ES	3	3	0	0	3
10.	CS8383	Object Oriented Programming Laboratory	ES	4	0	0	4	2
11.	EE8691	Embedded Systems	ES	3	3	0	0	3

#### PROFESSIONAL CORE (PC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EE8251	Circuit Theory	PC	4	2	2	0	3
2.	EE8261	Electric Circuits Laboratory	PC	4	0	0	4	2
3.	EE8351	Digital Logic Circuits	PC	4	2	2	0	3
4.	EE8391	Electromagnetic Theory	PC	4	2	2	0	3
5.	EE8301	Electrical Machines - I	PC	4	2	2	0	3
6.	EE8311	Electrical Machines Laboratory - I	PC	4	0	0	4	2
7.	EE8401	Electrical Machines - II	PC	4	2	2	0	3
8.	EE8402	Transmission and Distribution	PC	3	3	0	0	3
9.	EE8403	Measurements and Instrumentation	PC	3	3	0	0	3
10.	EE8451	Linear Integrated Circuits and Applications	PC	3	3	0	0	3
11.	IC8451	Control Systems	PC	5	3	2	0	4
12.	EE8411	Electrical Machines Laboratory II	PC	4	0	0	4	2

13.	EE8461	Linear and Digital Integrated Circuits Laboratory	PC	4	0	0	4	2
14.	EE8501	Power System Analysis	PC	3	3	0	0	3
15.	EE8551	Microprocessors and Microcontrollers	PC	3	3	0	0	3
16.	EE8552	Power Electronics	PC	3	3	0	0	3
17.	EE8591	Digital Signal Processing	PC	4	2	2	0	3
18.	EE8511	Control and Instrumentation Laboratory	PC	4	0	0	4	2
19.	EE8601	Solid State Drives	PC	3	3	0	0	3
20.	EE8602	Protection and Switchgear	PC	3	3	0	0	3
21.	EE8661	Power Electronics and Drives Laboratory	PC	4	0	0	4	2
22.	EE8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
23.	EE8701	High Voltage Engineering	PC	3	3	0	0	3
24.	EE8702	Power System Operation and Control	PC	3	3	0	0	3
25.	EE8703	Renewable Energy Systems	PC	3	3	0	0	3
26.	EE8711	Power System Simulation Laboratory	PC	4	0	0	4	2
27.	EE8712	Renewable Energy Systems Laboratory	PC	4	0	0	4	2

#### EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EE8412	Technical seminar	EEC	2	0	0	2	1
2.	HS8581	Professional Communication	EEC	2	0	0	2	1
3.	EE8611	Mini Project	EEC	4	0	0	4	2
4.	EE8811	Project work	EEC	20	0	0	20	10

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**OPEN ELECTIVES (Offered by Other Branches)**

**V SEMESTER**  
**OPEN ELECTIVE I**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OCY551	Advanced Engineering Chemistry	OE	3	3	0	0	3
2.	OCE551	Air Pollution and Control Engineering	OE	3	3	0	0	3
3.	OAT551	Automotive Systems	OE	3	3	0	0	3
4.	OIT551	Database Management Systems	OE	3	3	0	0	3
5.	OIT552	Cloud Computing	OE	3	3	0	0	3
6.	OMF551	Product Design and Development	OE	3	3	0	0	3
7.	OAN551	Sensors and Transducers	OE	3	3	0	0	3
8.	OME552	Vibration and Noise Control	OE	3	3	0	0	3
9.	OMD551	Basics of Biomedical Instrumentation	OE	3	3	0	0	3

**VII SEMESTER**  
**OPEN ELECTIVE II**

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OBT751	Analytical Methods and Instrumentation	OE	3	3	0	0	3
2.	OME751	Design of Experiments	OE	3	3	0	0	3
3.	OCS752	Introduction to C Programming	OE	3	3	0	0	3
4.	OCH751	Process Modeling and Simulation	OE	3	3	0	0	3
5.	OEC753	Signals and Systems	OE	4	4	0	0	4
6.	OML751	Testing of Materials	OE	3	3	0	0	3

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**I - VIII SEMESTERS CURRICULA AND SYLLABI**

**SEMESTER I**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
<b>PRACTICALS</b>								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

**SEMESTER II**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8253	Physics for Electronics Engineering	BS	3	3	0	0	3
4.	BE8254	Basic Electrical and Instrumentation Engineering	ES	3	3	0	0	3
5.	EC8251	Circuit Analysis	PC	4	4	0	0	4
6.	EC8252	Electronic Devices	PC	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8261	Circuits and Devices Laboratory	PC	4	0	0	4	2
8.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
<b>TOTAL</b>				<b>29</b>	<b>21</b>	<b>0</b>	<b>8</b>	<b>25</b>



### SEMESTER III

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8352	Linear Algebra and Partial Differential Equations	BS	4	4	0	0	4
2.	EC8393	Fundamentals of Data Structures In C	ES	3	3	0	0	3
3.	EC8351	Electronic Circuits- I	PC	3	3	0	0	3
4.	EC8352	Signals and Systems	PC	4	4	0	0	4
5.	EC8392	Digital Electronics	PC	3	3	0	0	3
6.	EC8391	Control Systems Engineering	PC	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8381	Fundamentals of Data Structures in C Laboratory	ES	4	0	0	4	2
8.	EC8361	Analog and Digital Circuits Laboratory	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening &Speaking	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>0</b>	<b>10</b>	<b>25</b>

### SEMESTER IV

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8451	Probability and Random Processes	BS	4	4	0	0	4
2.	EC8452	Electronic Circuits II	PC	3	3	0	0	3
3.	EC8491	Communication Theory	PC	3	3	0	0	3
4.	EC8451	Electromagnetic Fields	PC	4	4	0	0	4
5.	EC8453	Linear Integrated Circuits	PC	3	3	0	0	3
6.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8461	Circuits Design and Simulation Laboratory	PC	4	0	0	4	2
8.	EC8462	Linear Integrated Circuits Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>28</b>	<b>20</b>	<b>0</b>	<b>8</b>	<b>24</b>

### SEMESTER V

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	EC8501	Digital Communication	PC	3	3	0	0	3
2.	EC8553	Discrete-Time Signal Processing	PC	4	4	0	0	4
3.	EC8552	Computer Architecture and Organization	PC	3	3	0	0	3
4.	EC8551	Communication Networks	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Open Elective I	OE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8562	Digital Signal Processing Laboratory	PC	4	0	0	4	2
8.	EC8561	Communication Systems Laboratory	PC	4	0	0	4	2
9.	EC8563	Communication Networks Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

### SEMESTER VI

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
2.	EC8095	VLSI Design	PC	3	3	0	0	3
3.	EC8652	Wireless Communication	PC	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3
5.	EC8651	Transmission Lines and RF Systems	PC	3	3	0	0	3
6.		Professional Elective -II	PE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
8.	EC8661	VLSI Design Laboratory	PC	4	0	0	4	2
9.	EC8611	Technical Seminar	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>28</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>23</b>

### SEMESTER VII

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	EC8701	Antennas and Microwave Engineering	PC	3	3	0	0	3
2.	EC8751	Optical Communication	PC	3	3	0	0	3
3.	EC8791	Embedded and Real Time Systems	PC	3	3	0	0	3
4.	EC8702	Ad hoc and Wireless Sensor Networks	PC	3	3	0	0	3
5.		Professional Elective -III	PE	3	3	0	0	3
6.		Open Elective - II	OE	3	3	0	0	3
<b>PRACTICALS</b>								
7.	EC8711	Embedded Laboratory	PC	4	0	0	4	2
8.	EC8761	Advanced Communication Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>26</b>	<b>18</b>	<b>0</b>	<b>8</b>	<b>22</b>

### SEMESTER VIII

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
<b>PRACTICALS</b>								
3.	EC8811	Project Work	EEC	20	0	0	20	10
<b>TOTAL</b>				<b>26</b>	<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>

**TOTAL NO. OF CREDITS: 185**

### HUMANITIES AND SOCIALSCIENCES (HS)

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3

### BASIC SCIENCES (BS)

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8253	Physics for Electronics Engineering	BS	3	3	0	0	3
7.	MA8352	Linear Algebra and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8451	Probability and Random Processes	BS	4	4	0	0	4

### ENGINEERING SCIENCES (ES)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8254	Basic Electrical and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	EC8393	Fundamentals of Data Structures In C	ES	3	3	0	0	3
7.	EC8381	Fundamentals of Data Structures in C Laboratory	ES	4	0	0	4	2

**PROFESSIONAL CORE (PC)**

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8251	Circuit Analysis	PC	4	4	0	0	4
2.	EC8252	Electronic Devices	PC	3	3	0	0	3
3.	EC8261	Circuits and Devices Lab	PC	4	0	0	4	2
4.	EC8351	Electronic Circuits- I	PC	3	3	0	0	3
5.	EC8352	Signals and Systems	PC	4	4	0	0	4
6.	EC8392	Digital Electronics	PC	3	3	0	0	3
7.	EC8391	Control System Engineering	PC	3	3	0	0	3
8.	EC8361	Analog and Digital Circuits Laboratory	PC	4	0	0	4	2
9.	EC8452	Electronic Circuits II	PC	3	3	0	0	3
10.	EC8491	Communication Theory	PC	3	3	0	0	3
11.	EC8451	Electromagnetic Fields	PC	4	4	0	0	4
12.	EC8453	Linear Integrated Circuits	PC	3	3	0	0	3
13.	EC8461	Circuits Design and Simulation Laboratory	PC	4	0	0	4	2
14.	EC8462	Linear Integrated Circuits Laboratory	PC	4	0	0	4	2
15.	EC8501	Digital Communication	PC	3	3	0	0	3
16.	EC8553	Discrete-Time Signal Processing	PC	4	4	0	0	4
17.	EC8651	Transmission Lines and RF Systems	PC	3	3	0	0	3
18.	EC8552	Computer Architecture and Organization	PC	3	3	0	0	3
19.	EC8551	Communication Networks	PC	3	3	0	0	3
20.	EC8562	Digital Signal Processing Laboratory	PC	4	0	0	4	2
21.	EC8561	Communication Systems Laboratory	PC	4	0	0	4	2
22.	EC8563	Communication Networks Laboratory	PC	4	0	0	4	2
23.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
24.	EC8095	VLSI Design	PC	3	3	0	0	3
25.	EC8652	Wireless Communication	PC	3	3	0	0	3
26.	EC8661	VLSI Design	PC	4	0	0	4	2

		Laboratory						
27.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
28.	EC8701	Antennas and Microwave Engineering	PC	3	3	0	0	3
29.	EC8751	Optical Communication	PC	3	3	0	0	3
30.	EC8791	Embedded and Real Time Systems	PC	3	3	0	0	3
31.	EC8702	Ad hoc and Wireless Sensor Networks	PC	3	3	0	0	3
32.	EC8711	Embedded Laboratory	PC	4	0	0	4	2
33.	EC8761	Advanced Communication Laboratory	PC	4	0	0	4	2

**PROFESSIONAL ELECTIVES (PE)\*  
SEMESTER V  
ELECTIVE I**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8392	Object Oriented Programming	PE	3	3	0	0	3
2.	EC8073	Medical Electronics	PE	3	3	0	0	3
3.	CS8493	Operating Systems	PE	3	3	0	0	3
4.	EC8074	Robotics and Automation	PE	3	3	0	0	3
5.	EC8075	Nano Technology and Applications	PE	3	3	0	0	3
6.	GE8074	Human Rights	PE	3	3	0	0	3
7.	GE8077	Total Quality Management	PE	3	3	0	0	3

**SEMESTER VI  
ELECTIVE II**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8792	Cryptography and Network Security	PE	3	3	0	0	3
2.	EC8091	<u>Advanced Digital Signal Processing</u>	PE	3	3	0	0	3
3.	EC8001	MEMS and NEMS	PE	3	3	0	0	3
4.	EC8002	Multimedia Compression and Communication	PE	3	3	0	0	3
5.	EC8003	CMOS Analog IC Design	PE	3	3	0	0	3
6.	EC8004	Wireless Networks	PE	3	3	0	0	3
7.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

**SEMESTER VII  
ELECTIVE III**

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8092	Advanced Wireless Communication	PE	3	3	0	0	3
2.	EC8071	Cognitive Radio	PE	3	3	0	0	3
3.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3
4.	CS8082	Machine Learning Techniques	PE	3	3	0	0	3
5.	EC8005	Electronics Packaging and Testing	PE	3	3	0	0	3
6.	EC8006	Mixed Signal IC Design	PE	3	3	0	0	3
7.	GE8071	Disaster Management	PE	3	3	0	0	3

**SEMESTER VIII  
ELECTIVE IV**

SI.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8072	Electro Magnetic Interference and Compatibility	PE	3	3	0	0	3
2.	EC8007	Low power SoC Design	PE	3	3	0	0	3
3.	EC8008	Photonic Networks	PE	3	3	0	0	3
4.	EC8009	Compressive Sensing	PE	3	3	0	0	3
5.	EC8093	Digital Image Processing	PE	3	3	0	0	3
6.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

**SEMESTER VIII  
ELECTIVE V**

SI.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8010	Video Analytics	PE	3	3	0	0	3
2.	EC8011	DSP Architecture and Programming	PE	3	3	0	0	3
3.	EC8094	Satellite Communication	PE	3	3	0	0	3
4.	CS8086	Soft Computing	PE	3	3	0	0	3
5.	IT8006	Principles of Speech Processing	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

**\*Professional Electives are grouped according to elective number as was done previously.**

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

S.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
2.	EC8611	Technical Seminar	EEC	2	0	0	2	1
3.	EC8811	Project Work	EEC	20	0	0	20	10



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**OPEN ELECTIVES(Offered by Other Branches)**  
**SEMESTER V**  
**OPEN ELECTIVE - I**

SL. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OCE551	Air Pollution and Control Engineering	OE	3	3	0	0	3
2.	OMD551	Basic of Biomedical Instrumentation	OE	3	3	0	0	3
3.	OBM551	Bio Chemistry	OE	3	3	0	0	3
4.	OIT552	Cloud Computing	OE	3	3	0	0	3
5.	OIT551	Database Management Systems	OE	3	3	0	0	3
6.	OTL552	Digital Audio Engineering	OE	3	3	0	0	3
7.	OME551	Energy Conservation and Management	OE	3	3	0	0	3
8.	OBT553	Fundamentals of Nutrition	OE	3	3	0	0	3
9.	OCE552	Geographic Information System	OE	3	3	0	0	3
10.	OPY551	Herbal Technology	OE	3	3	0	0	3
11.	OMD552	Hospital Waste Management	OE	3	3	0	0	3
12.	OCH551	Industrial Nanotechnology	OE	3	3	0	0	3
13.	OBT551	Introduction to Bioenergy and Biofuels	OE	3	3	0	0	3
14.	OEI551	Logic and Distributed Control Systems	OE	3	3	0	0	3
15.	OBM552	Medical Physics	OE	3	3	0	0	3
16.	OML552	Microscopy	OE	3	3	0	0	3
17.	OEI552	SCADA System and Applications Management	OE	3	3	0	0	3
18.	OBT554	Principles of Food Preservation	OE	3	3	0	0	3
19.	OMF551	Product Design and Development	OE	3	3	0	0	3
20.	ORO551	Renewable Energy Sources	OE	3	3	0	0	3
21.	OCS551	Software Engineering	OE	3	3	0	0	3
22.	OTL551	Space Time Wireless Communication	OE	3	3	0	0	3
23.	OTL553	Telecommunication Network Management	OE	3	3	0	0	3
24.	OMD553	Telehealth Technology	OE	3	3	0	0	3
25.	OTL554	Wavelets and its Applications	OE	3	3	0	0	3
26.	OIM551	World Class Manufacturing	OE	3	3	0	0	3

**SEMESTER VII****OPEN ELECTIVE - II**

<b>SL. NO.</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>CONTACT PERIODS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1.	OAI751	Agricultural Finance, Banking and Co-operation	OE	3	3	0	0	3
2.	OBM751	Basics of Human Anatomy and Physiology	OE	3	3	0	0	3
3.	OGI751	Climate Change and its Impact	OE	3	3	0	0	3
4.	OPY751	Clinical Trials	OE	3	3	0	0	3
5.	OCS751	Data Structures and Algorithms	OE	3	3	0	0	3
6.	OME751	Design of Experiments	OE	3	3	0	0	3
7.	OCH752	Energy Technology	OE	3	3	0	0	3
8.	OCE751	Environmental and Social Impact Assessment	OE	3	3	0	0	3
9.	OGI752	Fundamentals of Planetary Remote Sensing	OE	3	3	0	0	3
10.	OEN751	Green Building Design	OE	3	3	0	0	3
11.	OBM752	Hospital Management	OE	3	3	0	0	3
12.	OME754	Industrial Safety	OE	3	3	0	0	3
13.	OCS752	Introduction to C Programming	OE	3	3	0	0	3
14.	OBT753	Introduction of Cell Biology	OE	3	3	0	0	3
15.	OMF751	Lean Six Sigma	OE	3	3	0	0	3
16.	OAN751	Low Cost Automation	OE	3	3	0	0	3
17.	OBT752	Microbiology	OE	3	3	0	0	3
18.	OMV751	Marine Vehicles	OE	3	3	0	0	3
19.	OAE752	Principles of Flight Mechanics	OE	3	3	0	0	3
20.	OIE751	Robotics	OE	3	3	0	0	3
21.	OME752	Supply Chain Management	OE	3	3	0	0	3
22.	OME753	Systems Engineering	OE	3	3	0	0	3
23.	OTL751	Telecommunication System Modeling and Simulation	OE	3	3	0	0	3
24.	OML751	Testing of Materials	OE	3	3	0	0	3
25.	OIC751	Transducer Engineering	OE	3	3	0	0	3
26.	OCY751	Waste Water Treatment	OE	3	3	0	0	3

**ANNA UNIVERSITY, CHENNAI**  
**AFFILIATED INSTITUTIONS**  
**B.E. MECHANICAL ENGINEERING**  
**REGULATIONS - 2017**  
**CHOICE BASED CREDIT SYSTEM**  
**I TO VIII SEMESTERS CURRICULA AND SYLLABI**

**SEMESTER I**

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
<b>PRACTICALS</b>								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
<b>TOTAL</b>				<b>31</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>25</b>

**SEMESTER II**

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8251	Materials Science	BS	3	3	0	0	3
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
<b>PRACTICALS</b>								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>2</b>	<b>8</b>	<b>25</b>

### SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
3.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
4.	ME8351	Manufacturing Technology - I	PC	3	3	0	0	3
5.	EE8353	Electrical Drives and Controls	ES	3	3	0	0	3
<b>PRACTICAL</b>								
6.	ME8361	Manufacturing Technology Laboratory - I	PC	4	0	0	4	2
7.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
8.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
9.	HS8381	Interpersonal Skills / Listening & Speaking	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>33</b>	<b>17</b>	<b>2</b>	<b>14</b>	<b>25</b>

### SEMESTER IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4
2.	ME8492	Kinematics of Machinery	PC	3	3	0	0	3
3.	ME8451	Manufacturing Technology – II	PC	3	3	0	0	3
4.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
5.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
6.	ME8493	Thermal Engineering- I	PC	3	3	0	0	3
<b>PRACTICAL</b>								
7.	ME8462	Manufacturing Technology Laboratory – II	PC	4	0	0	4	2
8.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>29</b>	<b>19</b>	<b>0</b>	<b>10</b>	<b>24</b>

### SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	ME8595	Thermal Engineering- II	PC	3	3	0	0	3
2.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
3.	ME8501	Metrology and Measurements	PC	3	3	0	0	3
4.	ME8594	Dynamics of Machines	PC	4	4	0	0	4
5.		Open Elective I	OE	3	3	0	0	3
<b>PRACTICAL</b>								
6.	ME8511	Kinematics and Dynamics Laboratory	PC	4	0	0	4	2
7.	ME8512	Thermal Engineering Laboratory	PC	4	0	0	4	2
8.	ME8513	Metrology and Measurements Laboratory	PC	4	0	0	4	2
<b>TOTAL</b>				<b>28</b>	<b>16</b>	<b>0</b>	<b>12</b>	<b>22</b>

### SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	ME8651	Design of Transmission Systems	PC	3	3	0	0	3
2.	ME8691	Computer Aided Design and Manufacturing	PC	3	3	0	0	3
3.	ME8693	Heat and Mass Transfer	PC	5	3	2	0	4
4.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
5.	ME8694	Hydraulics and Pneumatics	PC	3	3	0	0	3
6.		Professional Elective - I	PE	3	3	0	0	3
<b>PRACTICAL</b>								
7.	ME8681	CAD / CAM Laboratory	PC	4	0	0	4	2
8.	ME8682	Design and Fabrication Project	EEC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>30</b>	<b>18</b>	<b>2</b>	<b>10</b>	<b>24</b>

### SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	ME8792	Power Plant Engineering	PC	3	3	0	0	3
2.	ME8793	Process Planning and Cost Estimation	PC	3	3	0	0	3
3.	ME8791	Mechatronics	PC	3	3	0	0	3
4.		Open Elective - II	OE	3	3	0	0	3
5.		Professional Elective – II	PE	3	3	0	0	3
6.		Professional Elective – III	PE	3	3	0	0	3
<b>PRACTICAL</b>								
7.	ME8711	Simulation and Analysis Laboratory	PC	4	0	0	4	2
8.	ME8781	Mechatronics Laboratory	PC	4	0	0	4	2
9.	ME8712	Technical Seminar	EEC	2	0	0	2	1
<b>TOTAL</b>				<b>28</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>23</b>

### SEMESTER VIII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
<b>THEORY</b>								
1.	MG8591	Principles of Management	HS	3	3	0	0	3
2.		Professional Elective– IV	PE	3	3	0	0	3
<b>PRACTICAL</b>								
3.	ME8811	Project Work	EEC	20	0	0	20	10
<b>TOTAL</b>				<b>29</b>	<b>9</b>	<b>0</b>	<b>20</b>	<b>16</b>

**TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE = 184**

### HUMANITIES AND SOCIAL SCIENCES (HS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3

### BASIC SCIENCE (BS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics - I	BS	5	3	2	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8251	Materials Science	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4

### ENGINEERING SCIENCES (ES)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
7.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
8.	CE8394	Fluid Mechanics and Machinery	ES	5	3	2	0	4
9.	EE8353	Electrical Drives and Controls	ES	3	3	0	0	3
10.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
11.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
12.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2

**PROFESSIONAL CORE (PC)**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
2.	ME8351	Manufacturing Technology - I	PC	3	3	0	0	3
3.	ME8361	Manufacturing Technology Laboratory - I	PC	4	0	0	4	2
4.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
5.	ME8492	Kinematics of Machinery	PC	3	3	0	0	3
6.	ME8451	Manufacturing Technology– II	PC	3	3	0	0	3
7.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
8.	ME8493	Thermal Engineering- I	PC	3	3	0	0	3
9.	ME8462	Manufacturing Technology Laboratory–II	PC	4	0	0	4	2
10.	ME8595	Thermal Engineering- II	PC	3	3	0	0	3
11.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
12.	ME8501	Metrology and Measurements	PC	3	3	0	0	3
13.	ME8594	Dynamics of Machines	PC	4	4	0	0	4
14.	ME8511	Kinematics and Dynamics Laboratory	PC	4	0	0	4	2
15.	ME8512	Thermal Engineering Laboratory	PC	4	0	0	4	2
16.	ME8513	Metrology and Measurements Laboratory	PC	4	0	0	4	2
17.	ME8651	Design of Transmission Systems	PC	3	3	0	0	3
18.	ME8691	Computer Aided Design and Manufacturing	PC	3	3	0	0	3
19.	ME8693	Heat and Mass Transfer	PC	5	3	2	0	4
20.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
21.	ME8694	Hydraulics and Pneumatics	PC	3	3	0	0	3
22.	ME8681	C.A.D. / C.A.M. Laboratory	PC	4	0	0	4	2
23.	ME8682	Design and Fabrication Project	PC	4	0	0	4	2
24.	ME8792	Power Plant Engineering	PC	3	3	0	0	3
25.	ME8791	Mechatronics	PC	3	3	0	0	3
26.	ME8793	Process Planning and Cost Estimation	PC	3	3	0	0	3
27.	ME8711	Simulation and Analysis Laboratory	PC	4	0	0	4	2
28.	ME8781	Mechatronics Laboratory	PC	4	0	0	4	2



**PROFESSIONAL ELECTIVES FOR B.E. MECHANICAL ENGINEERING****SEMESTER VI, ELECTIVE I**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8091	Automobile Engineering	PE	3	3	0	0	3
2.	PR8592	Welding Technology	PE	3	3	0	0	3
3.	ME8096	Gas Dynamics and Jet Propulsion	PE	3	3	0	0	3
4.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3
5.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

**SEMESTER VII, ELECTIVE II**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8071	Refrigeration and Air conditioning	PE	3	3	0	0	3
2.	ME8072	Renewable Sources of Energy	PE	3	3	0	0	3
3.	ME8098	Quality Control and Reliability Engineering	PE	3	3	0	0	3
4.	ME8073	Unconventional Machining Processes	PE	3	3	0	0	3
5.	MG8491	Operations Research	PE	3	3	0	0	3
6.	MF8071	Additive Manufacturing	PE	3	3	0	0	3
7.	GE8077	Total Quality Management	PE	3	3	0	0	3

**SEMESTER VII, ELECTIVE III**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8099	Robotics	PE	3	3	0	0	3
2.	ME8095	Design of Jigs, Fixtures and Press Tools	PE	3	3	0	0	3
3.	ME8093	Computational Fluid Dynamics	PE	3	3	0	0	3
4.	ME8097	Non Destructive Testing and Evaluation	PE	3	3	0	0	3
5.	ME8092	Composite Materials and Mechanics	PE	3	3	0	0	3
6.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3
7.	GE8074	Human Rights	PE	3	3	0	0	3
8.	GE8071	Disaster Management	PE	3	3	0	0	3

**SEMESTER VIII, ELECTIVE IV**

<b>SL. NO.</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>CONTACT PERIODS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1.	IE8693	Production Planning and Control	PE	3	3	0	0	3
2.	MG8091	Entrepreneurship Development	PE	3	3	0	0	3
3.	ME8094	Computer Integrated Manufacturing Systems	PE	3	3	0	0	3
4.	ME8074	Vibration and Noise Control	PE	3	3	0	0	3
5.	EE8091	Micro Electro Mechanical Systems	PE	3	3	0	0	3
6.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

<b>SL. NO.</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>CONTACT PERIODS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1.	HS8381	Interpersonal Skills/Listening &	EEC	4	0	0	4	2
2.	ME8712	Technical Seminar	EEC	2	0	0	2	1
3.	ME8811	Project Work	EEC	20	0	0	20	12
4.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
5.	ME8682	Design and Fabrication Project	EEC	4	0	0	4	2
6.	HS8581	Professional Communication	EEC	2	0	0	2	1

**ANNA UNIVERSITY, CHENNAI**  
**AFFILIATED INSTITUTIONS**  
**B.E. MECHANICAL ENGINEERING**  
**REGULATIONS – 2017**  
**CHOICE BASED CREDIT SYSTEM**  
**OPEN ELECTIVES (Offered by Other Branches)**

**V SEMESTER**  
**OPEN ELECTIVE - I**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OCE551	Air Pollution and Control Engineering	OE	3	3	0	0	3
2.	OAT551	Automotive Systems	OE	3	3	0	0	3
3.	OIC551	Biomedical Instrumentation	OE	3	3	0	0	3
4.	OIT552	Cloud Computing	OE	3	3	0	0	3
5.	OIT551	Database Management Systems	OE	3	3	0	0	3
6.	OAI551	Environment and Agriculture	OE	3	3	0	0	3
7.	OPT551	Fibre Reinforced Plastics	OE	3	3	0	0	3
8.	OCE552	Geographic Information System	OE	3	3	0	0	3
9.	OAT552	Internal Combustion Engines	OE	3	3	0	0	3
10.	OML551	Introduction To Nanotechnology	OE	3	3	0	0	3
11.	OIM552	Lean Manufacturing	OE	3	3	0	0	3
12.	OBM552	Medical Physics	OE	3	3	0	0	3
13.	OML552	Microscopy	OE	3	3	0	0	3
14.	OAI552	Participatory Water Resources Management	OE	3	3	0	0	3
15.	OCH552	Principles of Chemical Engineering	OE	3	3	0	0	3
16.	OBT554	Principles of Food Preservation	OE	3	3	0	0	3
17.	OMF551	Product Design and Development	OE	3	3	0	0	3
18.	OAI553	Production Technology of Agricultural machinery	OE	3	3	0	0	3
19.	ORO551	Renewable Energy Sources	OE	3	3	0	0	3
20.	OAN551	Sensors and Transducers	OE	3	3	0	0	3
21.	OIC552	State Variable Analysis and Design	OE	3	3	0	0	3
22.	OTL553	Telecommunication Network Management	OE	3	3	0	0	3
23.	OIM551	World Class Manufacturing	OE	3	3	0	0	3

**VII SEMESTER**  
**OPEN ELECTIVE - II**

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OAI751	Agricultural Finance, Banking and Co-operation	OE	3	3	0	0	3
2.	OEE751	Basic Circuit Theory	OE	3	3	0	0	3
3.	OGI751	Climate Change and its Impact	OE	3	3	0	0	3
4.	OCS751	Data Structures and Algorithms	OE	3	3	0	0	3
5.	OML752	Electronic Materials	OE	3	3	0	0	3
6.	OCE751	Environmental and Social Impact Assessment	OE	3	3	0	0	3
7.	OAE751	Fundamentals of Combustion	OE	3	3	0	0	3
8.	OGI752	Fundamentals of Planetary Remote Sensing	OE	3	3	0	0	3
9.	OEN751	Green Building Design	OE	3	3	0	0	3
10.	OAI752	Integrated Water Resources Management	OE	3	3	0	0	3
11.	OEI 751	Introduction to Embedded Systems	OE	3	3	0	0	3
12.	OMF751	Lean Six Sigma	OE	3	3	0	0	3
13.	OAN751	Low Cost Automation	OE	3	3	0	0	3
14.	OMT751	MEMS and NEMS	OE	3	3	0	0	3
15.	ORO751	Nano Computing	OE	3	3	0	0	3
16.	OAE752	Principles of Flight Mechanics	OE	3	3	0	0	3
17.	OCH751	Process Modeling and Simulation	OE	3	3	0	0	3
18.	OAT751	Production of Automotive Components	OE	3	3	0	0	3
19.	OIE751	Robotics	OE	3	3	0	0	3
20.	OML753	Selection of Materials	OE	3	3	0	0	3
21.	OML751	Testing of Materials	OE	3	3	0	0	3
22.	OAT752	Vehicle Styling and Design	OE	3	3	0	0	3
23.	OTT751	Weaving Mechanisms	OE	3	3	0	0	3
24.	OMV751	Marine Vehicles	OE	3	3	0	0	3



**ANNA UNIVERSITY, CHENNAI**  
**NON-AUTONOMOUS COLLEGES AFFILIATED TO ANNA UNIVERSITY**  
**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**

**B.E. AERONAUTICAL ENGINEERING**

**PROGRAM EDUCATIONAL OBJECTIVES (PEOs):**

<b>I.</b>	To employ comprehensive knowledge in Aeronautical Engineering and analytical skills to work towards solving complex problems to excel in the professional career.
<b>II.</b>	To design, analyze and produce cutting edge engineering solutions by employing modern techniques and adhering to moral values for sustainable development.
<b>III.</b>	To assume global careers and leadership responsibilities through consistent learning with idealistic managerial practices.

**PROGRAM OUTCOMES (POs):**

PO#	Graduate Attribute
1	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3	<b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4	<b>Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6	<b>The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10	<b>Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11	<b>Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### PROGRAM SPECIFIC OUTCOMES (PSOs):

1.	To gather data using modern tools and apply design techniques to develop solutions for challenges in the domain of Aerodynamics, Propulsion, Aircraft Structures and Aircraft Maintenance with professional ethics.
2.	To function as engineering solution providers or entrepreneurs, who are able to manage, innovate, communicate, train and lead a team for continuous improvement.
3.	Graduate will be able to work as a team member which will be a main requirement in industry or research organisation or in any business enterprise. This will pave the way for successful career for the graduate and also play a role for the success of the organisation in which the graduate is employed

### PEO's – PO's & PSO's MAPPING:

PEO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
I.	3	3	3	3	2	-	-	-	-	1	1	-	3	2	-
II.	3	3	3	2	3	2	1	2	-	1	2	2	3	2	-
III.	1	2	3	-	-	3	3	3	3	3	2	3	-	2	3

## PROGRAM ARTICULATION MATRIX

Year	Sem	Course name	PO												PSO		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
I	I	Professional English- I	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	-
		Matrices and Calculus	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
		Engineering Physics	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	-
		Engineering Chemistry	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	1.5	-	-	-
		Problem Solving and Python Programming	2	3	3	3	2	-	-	-	-	-	2	2	3	3	-
		Problem Solving and Python Programming Laboratory	2	3	3	3	2	-	-	-	-	-	2	2	3	3	-
		Physics and Chemistry Laboratory	3	2.4	2.6	1	1	-	-	-	-	-	-	-	-	-	-
	II	English Laboratory <sup>§</sup>	2.6	1.3	1.6	1	1	1.4	1.8	-	-	-	-	1.3	-	-	-
		Professional English - II	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-	-
		Statistics and Numerical Methods	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
		Applied Physics															
		Basic Electrical and Electronics Engineering	2	1.8	1					1				2			1
		Engineering Graphics	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
		Engineering Practices Laboratory	3	2			1	1	1					2	2	1	1
	III	Basic Electrical and Electronics Engineering Laboratory	3	3	2	1	1			1.5	2						1
		Communication Laboratory / Foreign Language <sup>§</sup>	2.4	2.8	3	3	1.8	3	3	3	3	3	3	3	-	-	-
		Transforms and Partial Differential Equations	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
		Aero Engineering Thermodynamics	3	2.2	2.2	1.2	1.2	1	1	1	-	1	1	1.8	3	1.2	1
		Solid Mechanics	3	2.6	2.1	2.7	-	-	-	-	-	-	1	3	3	1	1
		Fluid Mechanics and Machines	3	3	2.0	1.6	1.4	-	-	-	-	-	1.0	-	3	1	1
Elements of Aeronautical Engineering		1	2	2	2	2	-	-	-	-	-	1		2	1	-	
IV	Aircraft Systems and Instruments	3	2.8	2.4	2	2.2	1.8	2	1	1.8	3	1	1.2	3	1	1	
	Thermodynamics and Strength of Materials Laboratory	3.00	2.00	2.00	1.00	2.00	1.00	1.00	1.33	2.00	2.00	1.33	1.33	2.67	1.33	1.33	
	Fluid Mechanics And Machines Laboratory	3.00	2.00	2.00	1.00	2.00	1.00	1.00	2.00	3.00	3.00	2.00	1.67	3.00	1.67	2.00	
	Vector Calculus and Complex Functions	3	3	3	2	1.2	0.6	0	0.2	0	0	1.2	1.2	1.6	1.2	1.6	
	Low Speed Aerodynamics	3	2.3	1.3	1	2	1	1	2	-	1	1	1.5	2.6	1.8	2	
	Air Breathing Propulsion	3	2.4	2.2	2.4	2.8	1.4	1.8	1.2	2	2	1.2	1	3	1	1	
	Mechanics of Machines	3	2.7	2.9	2.7	2	0.8	1	-	-	-	0.8	3	3	1	1	
V	Aircraft Structures-I	2.8	2.2	1.8	1.6	2.5	-	-	-	-	2.0	2	2.8	1.4	1		
	Environmental Science and Sustainability	2.8	1.8	1	1	-	2.2	2.4	-	-	-	1.8	-	-	-		
	Aerodynamics Laboratory	3	1.667	1.667	1	2.667	1		1.333	2.667	2.333	3	1.333	3	2	2	
	Propulsion Laboratory	3.00	2.33	2.67	1.67	1.33	1.50	1.50	1.00		1.67		1.33	3.00	2.00	2.33	
	Aircraft Structures-II	3	2.9	2.1	2.6	2.1	0.4	1	-	-	-	0.8	3	3	1	1	
	Aerodynamics II	2	2.8	2.8	2.8	2.8	-	-	-	-	-	-	-	3	1	1	
	Professional Elective I																
VI	Professional Elective II																
	Professional Elective III																
	Aircraft Structures Laboratory	3	2.3	2.3	1	1	1	1	1.00		1	1	1	2	1	1	
	CAD Laboratory	2.3	2.3	2.3	1	1	1	1	1.00		1		1	2	1	1	
	Flight Dynamics	3	2.6	1.6	1	1.6	1	1	2.4	1	1	1.6	1.6	2.4	1.6	1.6	
	Aircraft Design	1.6	3	1.8	1.8	2.0	0.0	2.0	1.0	0.0	2.0	0.0	1.0	2.6	1.5	2.5	
	Open Elective – I*																
VII	Professional Elective IV																
	Professional Elective V																
	Professional Elective VI																
	Aircraft Design Project	3.00	2.33	1.00	1.33	1.00	1.50	1.00	1.00		1.67		1.33	3.00	1.67	1.67	
	Flight Training / Flight Simulation Laboratory	3	3	2.4	1.4	1.6	1.0	1.2	1.8	2.8	2.8	1.8	1.6	3	1.8	2	
	Wind Tunnel Techniques	1.0	2.2	1.0	1.5	2.3	-	-	-	-	-	-	-	2.6	1	1	
	Human Values and Ethics																
VIII	Elective – Management																
	Open Elective – II*																
	Open Elective – III**																
	Open Elective – IV**																
	Aero Engine and Airframe Laboratory	2.67	3	1.33	1	1.33	1.0	2	2.00	2.33	2.33	1.33	1.67	2.33	1.33	2.33	
	Aircraft Systems Lab	3.0	2.67	1.67	1	1.00	1.0	1.00	2.00	2.67	2.67	1.67	1.67	2.33	1.67	2	
	Computational Analysis Lab	2	2	1	1	1	1	1	1		1		1	2	1.67	1.67	
Project Work/ Internship	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		

**ANNA UNIVERSITY, CHENNAI**  
**NON-AUTONOMOUS COLLEGES AFFILIATED TO ANNA UNIVERSITY**  
**B. E. AERONAUTICAL ENGINEERING**  
**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**  
**CURRICULUM AND SYLLABI FOR I TO VIII SEMESTERS**

**SEMESTER I**

SL. NO.	COURSE CODE	COURSE TITLE	CATE - GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	IP3151	Induction Programme	-	-	-	-	-	0
<b>THEORY</b>								
2.	HS3152	Professional English - I	HSMC	3	0	0	3	3
3.	MA3151	Matrices and Calculus	BSC	3	1	0	4	4
4.	PH3151	Engineering Physics	BSC	3	0	0	3	3
5.	CY3151	Engineering Chemistry	BSC	3	0	0	3	3
6.	GE3151	Problem Solving and Python Programming	ESC	3	0	0	3	3
7.	GE3152	தமிழர் மரபு/Heritage of Tamils	HSMC	1	0	0	1	1
<b>PRACTICAL</b>								
7.	GE3171	Problem Solving and Python Programming Laboratory	ESC	0	0	4	4	2
8.	BS3171	Physics and Chemistry Laboratory	BSC	0	0	4	4	2
9.	GE3172	English Laboratory <sup>§</sup>	HSMC	0	0	2	2	1
<b>TOTAL</b>				<b>16</b>	<b>1</b>	<b>10</b>	<b>27</b>	<b>22</b>

<sup>§</sup> Skill Based Course

**SEMESTER II**

SL. NO.	COURSE CODE	COURSE TITLE	CATE - GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	HS3252	Professional English - II	HSMC	2	0	0	2	2
2.	MA3251	Statistics and Numerical Methods	BSC	3	1	0	4	4
3.	PH3205	Applied Physics	BSC	3	0	0	3	3
4.	BE3251	Basic Electrical and Electronics Engineering	ESC	3	0	0	3	3
5.	GE3251	Engineering Graphics	ESC	2	0	4	6	4
6.		NCC Credit Course Level 1 <sup>#</sup>	-	2	0	0	2	2
7.	GE3252	தமிழரும் தொழில்நுட்பமும்/ Tamils and Technology	HSMC	1	0	0	1	1
<b>PRACTICAL</b>								
8.	GE3271	Engineering Practices Laboratory	ESC	0	0	4	4	2
9.	BE3271	Basic Electrical and Electronics Engineering Laboratory	ESC	0	0	4	4	2
10.	GE3272	Communication Laboratory / Foreign Language <sup>§</sup>	EEC	0	0	4	4	2
<b>TOTAL</b>				<b>14</b>	<b>1</b>	<b>16</b>	<b>31</b>	<b>23</b>

<sup>#</sup> NCC Credit Course level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

<sup>§</sup> Skill Based Course



### SEMESTER III

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	MA3351	Transforms and Partial Differential Equations	BSC	3	1	0	4	4
2.	AE3351	Aero Engineering Thermodynamics	PCC	3	0	0	3	3
3.	AE3352	Solid Mechanics	ESC	4	0	0	4	4
4.	CE3391	Fluid Mechanics and Machinery	ESC	3	1	0	4	4
5.	AE3301	Elements of Aeronautical Engineering	PCC	3	0	0	3	3
6.	AE3302	Aircraft Systems and Instruments	PCC	3	0	0	3	3
<b>PRACTICALS</b>								
7.	AS3361	Thermodynamics and Strength of Materials Laboratory	PCC	0	0	4	4	2
8.	CE3362	Fluid Mechanics and Machinery Laboratory	PCC	0	0	4	4	2
9.	GE3361	Professional Development <sup>§</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>19</b>	<b>2</b>	<b>10</b>	<b>31</b>	<b>26</b>

<sup>§</sup> Skill Based Course

### SEMESTER IV

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	MA3452	Vector Calculus and Complex Functions	BSC	3	1	0	4	4
2.	AE3401	Aerodynamics I	PCC	3	0	0	3	3
3.	AE3402	Air Breathing Propulsion	PCC	3	1	0	4	4
4.	AE3491	Mechanics of Machines	PCC	3	0	0	3	3
5.	AE3403	Aircraft Structures-I	PCC	3	0	0	3	3
6.	GE3451	Environmental Sciences and Sustainability	BSC	2	0	0	2	2
7.		NCC Credit Course Level 2 <sup>#</sup>		3	0	0	3	3
<b>PRACTICALS</b>								
8.	AE3411	Aerodynamics Laboratory	PCC	0	0	4	4	2
9.	AE3412	Propulsion Laboratory	PCC	0	0	4	4	2
<b>TOTAL</b>				<b>17</b>	<b>2</b>	<b>8</b>	<b>27</b>	<b>23</b>

<sup>#</sup> NCC Credit Course level 2 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.



ANNA UNIVERSITY, CHENNAI  
NON AUTONOMOUS AFFILIATED COLLEGES  
REGULATIONS 2021

**B. E. CIVIL ENGINEERING**

**CHOICE BASED CREDIT SYSTEM**

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

**Graduates of the programme B E Civil Engineering will**

- I. Gain knowledge and skills in Civil engineering which will enable them to have a career and professional accomplishment in the public or private sector organizations
- II. Become consultants on complex real life Civil Engineering problems related to Infrastructure development especially housing, construction, water supply, sewerage, transport, spatial planning.
- III. Become entrepreneurs and develop processes and technologies to meet desired infrastructure needs of society and formulate solutions that are technically sound, Economically feasible, and socially acceptable.
- IV. Perform investigation for solving Civil Engineering problems by conducting research using modern equipment and software tools.
- V. Function in multi-disciplinary teams and advocate policies, systems, processes and equipment to support civil engineering

**PROGRAM OUTCOMES (POs)**

**PO# Graduate Attribute**

- 1 **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2 **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of Mathematics, natural sciences, and engineering sciences.
- 3 **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4 **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5 **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6 **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

- 7 **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9 **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10 **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- 11 **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12 **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**PROGRAM SPECIFIC OUTCOMES (PSOs)**

On successful completion of the Civil Engineering Degree programme, the Graduates shall exhibit the following:

- PSO1** Knowledge of Civil Engineering discipline  
 Demonstrate in-depth knowledge of Civil Engineering discipline, with an ability to evaluate, analyze and synthesize existing and new knowledge.
- PSO2** Critical analysis of Civil Engineering problems and innovation  
 Critically analyze complex Civil Engineering problems, apply independent judgment for synthesizing information and make innovative advances in a theoretical, practical and policy context.
- PSO3** Conceptualization and evaluation of engineering solutions to Civil Engineering  
 Issues Conceptualize and solve Civil Engineering problems, evaluate potential solutions and arrive at technically feasible, economically viable and environmentally sound solutions with due consideration of health, safety, and socio cultural factors

**PEO / PO Mapping:**

PEOs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
I	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
II	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
III	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
IV	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
V	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

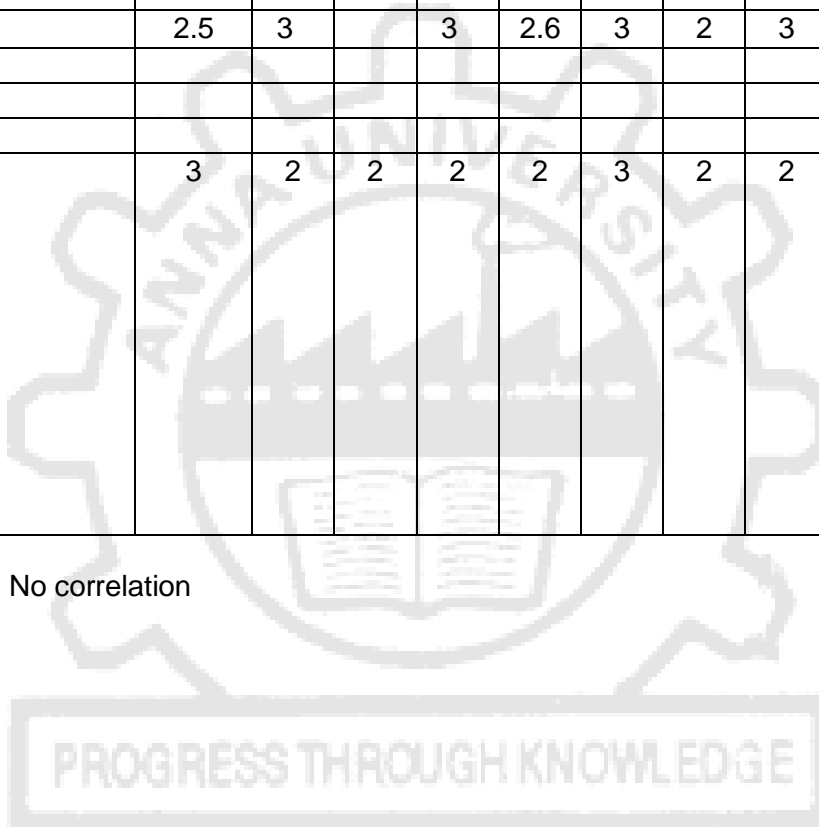
**Mapping of Course Outcome and Programme Outcome**

		Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
YEAR I	SEMESTER I	Professional English - I	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	-	
		Matrices and Calculus	3	3	1	1	0	0	0	0	0	2	0	2	3	-	-	-
		Engineering Physics	3	3	1.6	1.2	1.8	1	-	-	-	-	-	-	1	-	-	-
		Engineering Chemistry	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	-	1.5	-	-	-
		Problem Solving and Python Programming	2	3	3	3	2	-	-	-	-	-	-	2	2	3	3	
		தமிழர் மரபு /Heritage of Tamils																
		Problem Solving and Python Programming Laboratory	2	3	3	3	2	-	-	-	-	-	-	2	2	3	3	
		Physics and Chemistry Laboratory	3	2.4	2.6	1	1											
			2.6	1.3	1.6	1	1	1.4	1.8	-	-	-	-	-	1.3	-	-	-
	English Laboratory <sup>s</sup>	3	3	3	3	1	3	3	3	3	3	3	3	3	3	-	-	-
	SEMESTER II	Professional English - II	3	3	3	3	2.75	3	3	3	3	2.2	3	3	3	-	-	-
		Statistics and Numerical Methods	3	3	1	1	1	0	0	0	0	2	0	2	3	-	-	-
		Physics for Civil Engineering	3	1.75	2	2	1.2	1.4										
		Basic Electrical, Electronics and Instrumentation Engineering	2	1	1						1					-	-	-
		Engineering Graphics	3	1	2		2						3		2	2	2	
		தமிழரும் தொழில்நுட்பமும் / Tamils and Technology																
		NCC Credit Course Level 1 <sup>#</sup>																
		Engineering Practices Laboratory	3	2			1	1	1						2	2	1	1
Basic Electrical, Electronics and Instrumentation Engineering Laboratory		1.6	1.4	0.8	1.6					1.2	1.6							
Communication Laboratory / Foreign Language <sup>s</sup>	2.4	2.8	3	3	1.8	3	3	3	3	3	3	3	3	-	-	-		
YEAR II	SEMESTER III	Transforms and Partial Differential Equations	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-	
		Engineering Mechanics	3	2	3	1	2							2	3	1	2	
		Fluid Mechanics	3	2	3	2	1	2	2	1	1	1	1	2	3	3	3	
		Surveying and Levelling	3	2	3	2	3	3	2	2	2		2	2	3	3	3	
		Construction Materials and Technology	2	2	1	2	1	1	2		1		2	2	3	2	2	
		Water Supply and Waste Water Engineering	3	3	3	2	2	3	3	2	2	2	2	3	3	2	2	
		Surveying and Levelling Laboratory	3	2	3	3	3	3	3	3	3	3	3	3	1	3	3	3
		Water and Waste Water Analysis Laboratory	2	2	2	2	2	2	2	3	2	2	2	3	2	2	2	
		Professional Development																

YEAR II	SEMESTER IV	Applied Hydraulics Engineering	3	3	2	3	1	2	2	1	2	1	1	3	3	2	3	
		Strength of Materials	3	3	3	3	2	3	1	3	2	3	1	3	3	3	3	3
		Concrete Technology	3	1	2	2	1	3	3	2	1	1	1	2	3	2	2	3
		Soil Mechanics	3	3	2	2	2	1	1	1	2	1	2	3	2	2	2	3
		Highway and Railway Engineering	2	3	3	2	2	3	2	3	2	1	3	3	3	3	3	2
		Environmental Sciences and Sustainability**	2.8	1.8	1	1	-	2.2	2.4	-	-	-	-	-	1.8	-	-	-
		NCC Credit Course Level 2 <sup>#</sup>																
		Hydraulic Engineering Laboratory	3	3	2	3	1	2	2	1	2	1	1	2	3	2	2	1
		Materials Testing Laboratory	3	3	2	3	1	2	2	1	3	1	1	2	3	2	2	2
		Soil Mechanics Laboratory	1	2	3	3	1	1	1	1	3	1	1	3	2	3	3	3
YEAR III	SEMESTER V	Design of Reinforced Concrete Structural Elements	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3	
		Structural Analysis I	3	3	3	3	1	3	1	1	3	2	1	1	3	3	3	
		Foundation Engineering	2	3	3	3	1	2	1	1	1	1	2	3	2	3	3	
		Professional Elective I																
		Professional Elective II																
		Professional Elective III																
		Mandatory Course-I <sup>&amp;</sup>																
		Highway Engineering Laboratory	3	1	3	2	1	1	1	1	3	3	1	3	3	3	3	2
	Survey Camp (2 weeks)	3	3	2	3	3	2	2	2	2	2	2	3	3	3	3	3	
	SEMESTER VI	Design of Steel Structural Elements	2	2	3	2	2	2	2	2	2	1	2	2	2	2	2	3
		Structural Analysis II	3	3	3	3	1	3	1	1	3	2	1	1	3	3	3	
		Engineering Geology	2	2	3	3	2	2	1	2	2	2	2	2	2	2	2	
		Professional Elective IV																
		Professional Elective V																
Professional Elective VI																		
Open Elective – I*																		
Mandatory Course-II <sup>&amp;</sup>																		
NCC Credit Course Level 3 <sup>#</sup>																		
Building Drawing and Detailing Laboratory	3	2		2	2	3		2	3	2		2	3	2	2			

		Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
YEAR IV	SEMESTER VII	Estimation, Costing and Valuation Engineering	3	2	3	3	3	3	2	2	3	2	2	3	3	3	3	
		Hydrology and Water Resources Engineering	2	2	1	2	1	2	2	2	1	2	2	1	2	2	2	3
		Human Values and Ethics																
		Total Quality Management	2.5	3		3	2.6	3	2	3				3	2.5	2	3	
		Open Elective – II**																
		Open Elective – III***																
		Open Elective – IV***																
	SEMESTER VIII	Project Work/Internship	3	2	2	2	2	3	2	2	2	2	2	2	3	3	3	3

1 – Low; 2 – Medium; 3 – High; ‘-’ – No correlation



**PROFESSIONAL ELECTIVE COURSES : VERTICALS**

S. No.	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1.	Concrete Structures	3	3	2	3	3	1	2	3	1	2	1	2	3	3	3
2.	Steel Structures	3	2	2	1	2	1	1	2	1	1	1	2	3	3	3
3.	Prefabricated Structures	3	2	3	2	2	3	1	3	2	2	1	2	3	2	2
4.	Prestressed Concrete Structures	3	2	3	1	1	1	1	2	1	1	1	2	3	1	2
5.	Rehabilitation/Heritage Restoration	3	2	3				1	1	1			1	1	1	2
6.	Dynamics and Earthquake Resistant Structures	3	3	3	2	2	2	2	1	1	1	1	2	3	3	3
7.	Introduction to Finite Element Method	3	3	2	2	2	1			3		1	2	3	2	2
8.	Formwork Engineering	2	3	3	2	1	1	2		3		2	2	3	2	2
9.	Construction Equipment And Machinery	2	2	3	2	2	3	3	2	3	2	2	2	2	2	3
10.	Sustainable Construction and Lean Construction	3	1	3	2	2	2	3	1	1	1	3	2	3	3	3
11.	Digitalized Construction Laboratory	2	2	3	2	3	3	3	2	3	2	3	3	2	2	3
12.	Construction Management and Safety	2	3	2	2	3	2	1	2	2	3	3	1	2	2	3
13.	Advanced Construction Techniques	2	3	3	3	2	2	2	1	1	1	2	1	3	3	3
14.	Energy Efficient Buildings	3	2	3	2	1	1	1	3	2	3		3	3	3	3
15.	Geoenvironmental Engineering	1	1	2	2	1	2	3	2	3	2	1	3	2	2	3
16.	Ground Improvement Techniques	2	3	3	2	3	3	2	1	2	1	1	3	3	3	3
17.	Soil Dynamics and Machine Foundations	2	3	3	3	2	3	2	3	2	1	1	3	3	3	3
18.	Rock Mechanics	3	3	3	2	3	3	3	2	2	1	3	3	3	2	3

19.	Earth and Earth Retaining Structures	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3
20.	Pile Foundation	2	3	3	2	2	1	1	1	2	2	1	3	3	2	3
21.	Tunneling Engineering	2	2	2	1	1	2	1	1	1	1	1	3	2	3	3
22.	Total Station and GPS Surveying	3	3	3	3	3	3	3	3	3	2	2	3	3	3	3
23.	Remote Sensing concepts	2	3	2	3	3	3	3	3	3	3	1	2	3	3	3
24.	Satellite Image Processing	3	3	3	3	3	3	2	2	2	2	3	2	3	3	3
25.	Cartography and GIS	3	1	2	2	3	3	3	3	3	3	3	2	3	3	3
26.	Photogrammetry	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3
27.	Airborne and Terrestrial Laser mapping	3	3	3	3	3	3					3	3	3	3	3
28.	Hydrographic Surveying	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3
29.	Airports and Harbours	3	3	3	2	2	3	2	3	2		1	2	3	3	3
30.	Traffic Engineering and Management	3	2	3	2	2	2	1	2	2	2	3	1	2	2	3
31.	Urban Planning and Development	3	2	2	2	2	3	2	2	2	2	3	2	2	2	2
32.	Smart cities	3	2	3	2	2	2	3	2	2	2	3	2	3	3	3
33.	Intelligent Transportation Systems	2	2	2	3	3	2	2	2	3	2	3	2	3	2	3
34.	Pavement Engineering	3	3	3	2	2	3	2	3	2	1	3	3	3	3	2
35.	Transportation Planning Process	2	3	3	2	2	2	1	3	3	2	3	3	3	3	2
36.	Climate Change Adaptation and Mitigation	2	3	2	2	3	2	3		3	1	3	2	2	2	3
37.	Air and Noise Pollution Control Engineering	2	3	3	3	3	2	2	1	2	1	2	2	2	2	2
38.	Environmental Impact Assessment	3	2	3	2	2	2	2	3	3	2	1	1	2	2	2
39.	Industrial Wastewater Management	2	3	3	2	2	1	2	3	3	2	3	2	2	2	3
40.	Solid and Hazardous Waste Management	3	2	3	2	2	2	2	2	2	1	2	1	3	2	3
41.	Environmental Policy and Legislations	2	3	2	3	3	2	3	3		1	1	2	3	2	2
42.	Environment Health and	2	2	2	2	2	3	2	1	3	2	3	2	3	3	2



	Safety															
43.	Irrigation Engineering and Drawing	2	2	2	2	2	3	2	1	3	2	3	2	3	3	2
44.	Groundwater Engineering	2	2	3	3	3	3	3	3	3	2	2	2	3	3	3
45.	Water Resources Systems Engineering	3	3	3	3	3	3	2	2	3	2	3	3	3	3	3
46.	Watershed Conservation and Management	2	2	2	2	1	2	2	1	2	2	1	2	2	2	2
47.	Integrated Water Resources Management	2	1	2	2	1	3	3	2	3	3	3	3	2	2	2
48.	Urban Water Infrastructure	3	3	2	3	2	2	2	3	1	3	2	2	3	2	2
49.	Water Quality and Management	3	3	3	3	3	2	2	3	2	3	2	3	3	3	3
50.	Ocean Wave Dynamics	3	3	3	3	3	3	2	3	2	2	3	3	3	3	2
51.	Marine Geotechnical Engineering	3	2	2	1	1	2	1	2	2	1	2	2	3	2	2
52.	Coastal Engineering	3	3	3	3	3	3	2	3	3	3	3	3	3	3	2
53.	Off shore Structures	3	2	2	1	2	2	2	1	2	1	1	2	3	2	2
54.	Port and Harbour Engineering	3	3	3	2	2	2	1	3	3	2	1	2	3	3	3
55.	Coastal Hazards and Mitigation	2	3	3	2	3	3	2	2	2	3	2	2	3	2	2
56.	Coastal Zone Management and Remote Sensing	2	3	3	2	3	3	2	2		3	1	2		3	3
57.	Steel Concrete Composite Structures	3	3	3	2	2	2	1	2	2	2	1	2	2	3	3
58.	Finance For Engineers	2	3	1	2	1	1	1	1	1	1	3	1	1	1	1
59.	Earth and Rockfill Dams	3	3	3	2	3	3	3	2	2	1	3	3	3	2	3
60.	Computational Fluid Dynamics	3	2	3	2	2	2	1	1	2	2	2	1	2	2	3
61.	Rainwater Harvesting	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2
62.	Transport and Environment	3	3	3	2	2	3	2	3	2	1	2		3	2	3
63.	Environmental Quality Monitoring	3	2	2	2	3	3	2	2		2	2	2	2	2	2

**ANNA UNIVERSITY, CHENNAI**  
**NON-AUTONOMOUS AFFILIATED COLLEGES**  
**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**  
**B. E. CIVIL ENGINEERING**  
**CURRICULUM AND SYLLABI FOR SEMESTERS I TO VIII**

**SEMESTER I**

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	IP3151	Induction Programme	-	-	-	-	-	0
<b>THEORY</b>								
2.	HS3152	Professional English - I	HSMC	3	0	0	3	3
3.	MA3151	Matrices and Calculus	BSC	3	1	0	4	4
4.	PH3151	Engineering Physics	BSC	3	0	0	3	3
5.	CY3151	Engineering Chemistry	BSC	3	0	0	3	3
6.	GE3151	Problem Solving and Python Programming	ESC	3	0	0	3	3
7.	GE3152	தமிழர் மரபு /Heritage of Tamils	HSMC	1	0	0	1	1
<b>PRACTICALS</b>								
8.	GE3171	Problem Solving and Python Programming Laboratory	ESC	0	0	4	4	2
9.	BS3171	Physics and Chemistry Laboratory	BSC	0	0	4	4	2
10.	GE3172	English Laboratory <sup>§</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>16</b>	<b>1</b>	<b>10</b>	<b>27</b>	<b>22</b>

<sup>§</sup> Skill Based Course

**SEMESTER II**

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	HS3252	Professional English - II	HSMC	2	0	0	2	2
2.	MA3251	Statistics and Numerical Methods	BSC	3	1	0	4	4
3.	PH3201	Physics for Civil Engineering	BSC	3	0	0	3	3
4.	BE3252	Basic Electrical, Electronics and Instrumentation Engineering	ESC	3	0	0	3	3
5.	GE3251	Engineering Graphics	ESC	2	0	4	6	4
6.		NCC Credit Course Level 1 <sup>#</sup>	-	2	0	0	2	2 <sup>#</sup>
7.	GE3252	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	HSMC	1	0	0	1	1
<b>PRACTICALS</b>								
8.	GE3271	Engineering Practices Laboratory	ESC	0	0	4	4	2
9.	BE3272	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ESC	0	0	4	4	2
10.	GE3272	Communication Laboratory / Foreign Language <sup>§</sup>	EEC	0	0	4	4	2
<b>TOTAL</b>				<b>14</b>	<b>1</b>	<b>16</b>	<b>31</b>	<b>23</b>

<sup>#</sup> NCC Credit Course level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA

<sup>§</sup> Skill Based Course

### SEMESTER III

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	MA3351	Transforms and Partial Differential Equations	BSC	3	1	0	4	4
2.	ME3351	Engineering Mechanics	ESC	3	0	0	3	3
3.	CE3301	Fluid Mechanics	PCC	3	0	0	3	3
4.	CE3302	Construction Materials and Technology	PCC	3	0	0	3	3
5.	CE3303	Water Supply and Wastewater Engineering	PCC	4	0	0	4	4
6.	CE3351	Surveying and Levelling	PCC	3	0	0	3	3
<b>PRACTICALS</b>								
7.	CE3361	Surveying and Levelling Laboratory	PCC	0	0	3	3	1.5
8.	CE3311	Water and Wastewater Analysis Laboratory	PCC	0	0	3	3	1.5
9.	GE3361	Professional Development §	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>19</b>	<b>1</b>	<b>8</b>	<b>28</b>	<b>24</b>

§ Skill Based Course

### SEMESTER IV

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	CE3401	Applied Hydraulics Engineering	PCC	3	1	0	4	4
2.	CE3402	Strength of Materials	PCC	3	0	0	3	3
3.	CE3403	Concrete Technology	PCC	3	0	0	3	3
4.	CE3404	Soil Mechanics	PCC	3	0	0	3	3
5.	CE3405	Highway and Railway Engineering	PCC	3	0	0	3	3
6.	GE3451	Environmental Sciences and Sustainability	BSC	2	0	0	2	2
7.		NCC Credit Course Level 2 <sup>#</sup>		3	0	0	3	3 <sup>#</sup>
<b>PRACTICALS</b>								
8.	CE3411	Hydraulic Engineering Laboratory	PCC	0	0	3	3	1.5
9.	CE3412	Materials Testing Laboratory	PCC	0	0	4	4	2
10.	CE3413	Soil Mechanics Laboratory	PCC	0	0	3	3	1.5
<b>TOTAL</b>				<b>17</b>	<b>1</b>	<b>10</b>	<b>28</b>	<b>23</b>

<sup>#</sup> NCC Credit Course level 2 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA



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**B.E. COMPUTER SCIENCE AND ENGINEERING**

**I. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

**Graduates can**

- Apply their technical competence in computer science to solve real world problems, with technical and people leadership.
- Conduct cutting edge research and develop solutions on problems of social relevance.
- Work in a business environment, exhibiting team skills, work ethics, adaptability and lifelong learning.

**II. PROGRAM OUTCOMES (POs)**

- 1 **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2 **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3 **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4 **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5 **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6 **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7 **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9 **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10 **Communication:** Communicate effectively on complex engineering activities with the

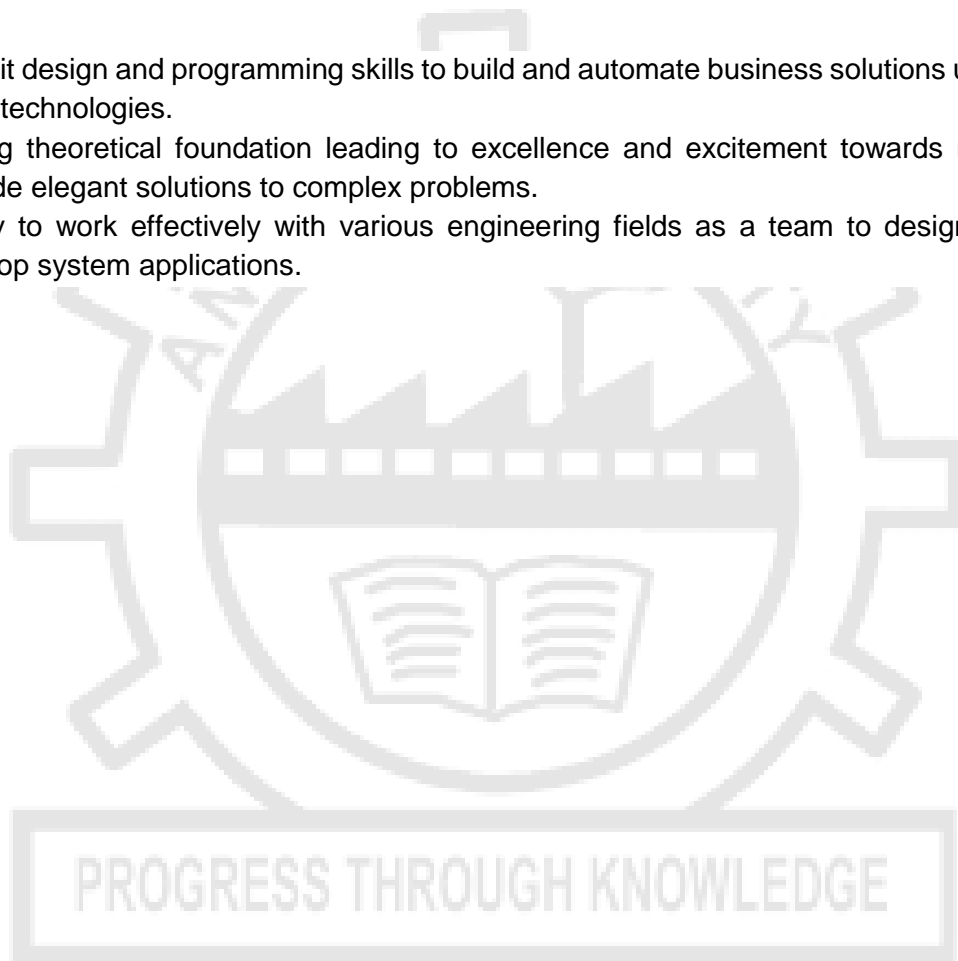
engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- 11 **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12 **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### III. PROGRAM SPECIFIC OUTCOMES (PSOs)

The Students will be able to

- Exhibit design and programming skills to build and automate business solutions using cutting edge technologies.
- Strong theoretical foundation leading to excellence and excitement towards research, to provide elegant solutions to complex problems.
- Ability to work effectively with various engineering fields as a team to design, build and develop system applications.



Mapping of Course Outcome and Programme Outcome																		
Year	Sem	Course name	PO												PSO			
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
I	I	Induction Programme																
		Professional English - I	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	-	
		Matrices and Calculus	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-	
		Engineering Physics	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	-	
		Engineering Chemistry	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	1.5	-	-	-	
		Problem Solving and Python Programming	2	3	3	3	2	-	-	-	-	-	-	2	2	3	3	
		தமிழர் மரபு /Heritage of Tamils																
		Problem Solving and Python Programming Laboratory	2	3	3	3	2	-	-	-	-	-	-	2	2	3	3	-
		Physics and Chemistry Laboratory	3	2.4	2.6	1	1											
		2.6	1.3	1.6	1	1	1.4	1.8	-	-	-	-	1.3	-	-	-		
	English Laboratory §	3	3	3	3	1	3	3	3	3	3	3	3	3	-	-	-	
	II	Professional English - II	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-	-	
		Statistics and Numerical Methods	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-	
		Physics for Information Science	3	1.3	2	1.3	2.3	1	1.3	-	-	-	-	2	-	-	-	
	Basic Electrical and Electronics Engineering	2	1.8	1	-	-	-	-	1	-	-	-	2	-	-	1		
	Engineering Graphics	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-		
	Programming in C	2	2	2	1	2	1	1	1	2	-	3	2	2	2	-		
	தமிழரும் தொழில்நுட்பமும் /Tamils and Technology																	
	Engineering Practices Laboratory	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1		
	Programming in C Laboratory	2	2	3	2	1	2	-	-	2	1	2	2	2	2			
	Communication Laboratory / Foreign Language §	2.4	2.8	3	3	1.8	3	3	3	3	3	3	3	-	-	-		
II	III	Discrete Mathematics	1	3	2	1	-	-	-	-	-	1	-	-	-	-		
		Digital Principles and Computer Organization	3	3	3	3	1.8	1.6	1	1	1	1	1.6	2.6	1.4	2.6	1.6	
		Foundations of Data Science	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2	
		Data Structures	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2	

		Object Oriented Programming	2	1	2	2	2	-	-	-	2	2	1	2	3	2	2
		Data Structures Laboratory	2	2	2	1	2	-	-	-	2	2	2	2	2	2	3
		Object Oriented Programming Laboratory	2	2	2	2	2	-	-	-	2	2	2	2	2	2	2
		Data Science Laboratory	2	2	2	2	1	-	-	-	2	2	2	2	2	3	2
		Professional Development <sup>§</sup>															
	<b>IV</b>	Theory of Computation	2	2	2	2	1	-	-	-	1	2	2	2	2	2	2
		Artificial Intelligence and Machine Learning	2	1	2	2	1	-	-	-	2	2	2	3	2	2	2
		Database Management Systems	2	2	3	2	1	-	-	-	2	2	2	2	2	2	3
		Algorithms	2.67	1.8	3	1				1.33				1		1	1
		Introduction to Operating Systems	2	2	2	2	1	-	-	-	2	2	2	2	1	2	2
		Environmental Sciences and Sustainability	2.8	1.8	1	1	-	2.2	2.4	-	-	-	-	1.8	-	-	-
		Operating Systems Laboratory	2	2	2	2	2	-	-	-	2	2	2	2	2	2	2
		Database Management Systems Laboratory	2	3	2	2	1	-	-	-	2	1	3	2	2	2	2
<b>III</b>	<b>V</b>	Computer Networks	-	1	-	-	1	-	-	-	-	1	-	-	-	1	1
		Compiler Design	3.00	2.80	2.60	2.20	2.00	-	-	-	2.60	2.00	1.60	2.40	1.80	1.80	2.00
		Cryptography and Cyber Security	3	2.6	2.6	2.6	2.8	-	-	-	2	-	-	1.2	2.8	2.8	3
		Distributed Computing	1.8	2.4	1.8	2.4	2	-	-	-	2.6	2.2	2.2	1.6	2	1.8	1.6
	<b>VI</b>	Object Oriented Software Engineering	2	2	1	2	2	-	-	-	-	1	1	2	2	2	1
		Embedded Systems and IoT	2.6	2	3	2.4	1.5	-	-	-	1	2.2	2.2	2.4	2.2	1.6	2.6
<b>IV</b>	<b>VII</b>	Human Values and Ethics															
		Summer internship															
	<b>VIII</b>	Project Work Internship															

1 - low, 2 - medium, 3 - high, '-' - no correlation

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**REGULATIONS 2021**  
**B. E. COMPUTER SCIENCE AND ENGINEERING**  
**CHOICE BASED CREDIT SYSTEM**  
**CURRICULUM AND SYLLABI FOR SEMESTERS I TO VIII**  
**SEMESTER I**

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	IP3151	Induction Programme	-	-	-	-	-	0
<b>THEORY</b>								
2.	HS3152	Professional English - I	HSMC	3	0	0	3	3
3.	MA3151	Matrices and Calculus	BSC	3	1	0	4	4
4.	PH3151	Engineering Physics	BSC	3	0	0	3	3
5.	CY3151	Engineering Chemistry	BSC	3	0	0	3	3
6.	GE3151	Problem Solving and Python Programming	ESC	3	0	0	3	3
7.	GE3152	தமிழர் மரபு /Heritage of Tamils	HSMC	1	0	0	1	1
<b>PRACTICALS</b>								
8.	GE3171	Problem Solving and Python Programming Laboratory	ESC	0	0	4	4	2
9.	BS3171	Physics and Chemistry Laboratory	BSC	0	0	4	4	2
10.	GE3172	English Laboratory §	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>16</b>	<b>1</b>	<b>10</b>	<b>27</b>	<b>22</b>

§ Skill Based Course

**SEMESTER II**

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	HS3252	Professional English - II	HSMC	2	0	0	2	2
2.	MA3251	Statistics and Numerical Methods	BSC	3	1	0	4	4
3.	PH3256	Physics for Information Science	BSC	3	0	0	3	3
4.	BE3251	Basic Electrical and Electronics Engineering	ESC	3	0	0	3	3
5.	GE3251	Engineering Graphics	ESC	2	0	4	6	4
6.	CS3251	Programming in C	PCC	3	0	0	3	3
7.	GE3252	தமிழரும் தொழில்நுட்பமும் /Tamils and Technology	HSMC	1	0	0	1	1
8.		NCC Credit Course Level 1#	-	2	0	0	2	2#
<b>PRACTICALS</b>								
9.	GE3271	Engineering Practices Laboratory	ESC	0	0	4	4	2
10.	CS3271	Programming in C Laboratory	PCC	0	0	4	4	2
11.	GE3272	Communication Laboratory / Foreign Language §	EEC	0	0	4	4	2
<b>TOTAL</b>				<b>17</b>	<b>1</b>	<b>16</b>	<b>34</b>	<b>26</b>

# NCC Credit Course level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

§ Skill Based Course



**SEMESTER III**

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	MA3354	Discrete Mathematics	BSC	3	1	0	4	4
2.	CS3351	Digital Principles and Computer Organization	ESC	3	0	2	5	4
3.	CS3352	Foundations of Data Science	PCC	3	0	0	3	3
4.	CS3301	Data Structures	PCC	3	0	0	3	3
5.	CS3391	Object Oriented Programming	PCC	3	0	0	3	3
<b>PRACTICALS</b>								
6.	CS3311	Data Structures Laboratory	PCC	0	0	3	3	1.5
7.	CS3381	Object Oriented Programming Laboratory	PCC	0	0	3	3	1.5
8.	CS3361	Data Science Laboratory	PCC	0	0	4	4	2
9.	GE3361	Professional Development <sup>§</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>15</b>	<b>1</b>	<b>14</b>	<b>30</b>	<b>23</b>

<sup>§</sup> Skill Based Course

**SEMESTER IV**

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	CS3452	Theory of Computation	PCC	3	0	0	3	3
2.	CS3491	Artificial Intelligence and Machine Learning	PCC	3	0	2	5	4
3.	CS3492	Database Management Systems	PCC	3	0	0	3	3
4.	CS3401	Algorithms	PCC	3	0	2	5	4
5.	CS3451	Introduction to Operating Systems	PCC	3	0	0	3	3
6.	GE3451	Environmental Sciences and Sustainability	BSC	2	0	0	2	2
7.		NCC Credit Course Level 2 <sup>#</sup>		3	0	0	3	3 <sup>#</sup>
<b>PRACTICALS</b>								
8.	CS3461	Operating Systems Laboratory	PCC	0	0	3	3	1.5
9.	CS3481	Database Management Systems Laboratory	PCC	0	0	3	3	1.5
<b>TOTAL</b>				<b>20</b>	<b>0</b>	<b>10</b>	<b>30</b>	<b>22</b>

<sup>#</sup> NCC Credit Course level 2 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.



**ANNA UNIVERSITY, CHENNAI  
NON-AUTONOMOUS AFFILIATED COLLEGES  
REGULATIONS 2021  
CHOICE BASED CREDIT SYSTEM**

**B.E. ELECTRICAL AND ELECTRONICS ENGINEERING**

**1. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):**

- I. Find employment in Core Electrical and Electronics Engineering and service sectors.
- II. Get elevated to technical lead position and lead the organization competitively.
- III. Enter into higher studies leading to post-graduate and research degrees.  
Become consultant and provide solutions to the practical problems of core organization.
- IV. Become an entrepreneur and be part of electrical and electronics product and service industries.

**2. PROGRAMME OUTCOMES (POs):**

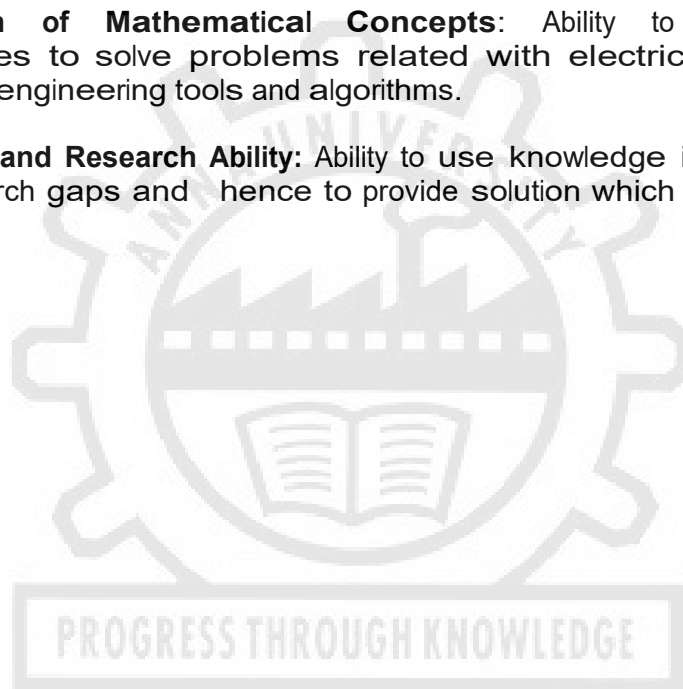
After going through the four years of study, our Electrical and Electronics Engineering Graduates will exhibit ability to:

<b>PO#</b>	<b>Graduate Attribute</b>	<b>Programme Outcome</b>
1	Engineering knowledge	Apply knowledge of mathematics, basic science and engineering science.
2	Problem analysis	Identify, formulate and solve engineering problems.
3	Design/development of solutions	Design an electrical system or process to improve its performance, satisfying its constraints.
4	Conduct investigations of complex problems	Conduct experiments in electrical and electronics systems and interpret the data.
5	Modern tool usage	Apply various tools and techniques to improve the efficiency of the system.
6	The Engineer and society	Conduct themselves to uphold the professional and social obligations.
7	Environment and sustainability	Design the system with environment consciousness and sustainable development.
8	Ethics	Interacting industry, business and society in a professional and ethical manner.
9	Individual and team work	Function in a multidisciplinary team.
10	Communication	Proficiency in oral and written Communication.
11	Project management and finance	Implement Cost effective and improved system.
12	Life-long learning	Continue professional development and learning as a life-long activity.

### 3. PROGRAM SPECIFIC OUTCOMES (PSOs):

On completion of Electrical and Electronics Engineering program, the student will have the following Program Specific Outcomes.

1. **Foundation of Electrical Engineering:** Ability to understand the principles and working of electrical components, circuits, systems and control that are forming a part of power generation, transmission, distribution, utilization, conservation and energy saving. Students can assess the power management, auditing, crisis and energy saving aspects.
2. **Foundation of Mathematical Concepts:** Ability to apply mathematical methodologies to solve problems related with electrical engineering using appropriate engineering tools and algorithms.
3. **Computing and Research Ability:** Ability to use knowledge in various domains to identify research gaps and hence to provide solution which leads to new ideas and innovations.



EMESTER	COURSE CODE	PROGRAM OUTCOMES												PROGRAM SPECIFIC OUTCOMES		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
I	Induction Programme															
	Professional English - I	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	-
	Matrices and Calculus	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
	Engineering Physics	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	-
	Engineering Chemistry	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	1.5	-	-	-
	Problem Solving and Python Programming	2	3	3	3	2	c	-	-	-	-	2	2	3	3	
	தமிழர் மரபு / Heritage of Tamils	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Problem Solving and Python Programming Laboratory	2	3	3	3	2	-	-	-	-	-	2	2	3	3	
	Physics and Chemistry Laboratory	3	2.4	2.6	1	1	-	-	-	-	-	-	-	-	-	-
		2.6	1.3	1.6	1	1	1.4	1.8	-	-	-	-	1.3	-	-	-
English Laboratory <sup>s</sup>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-	
II	Professional English - II	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-	-
	Statistics and Numerical Methods	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
	Physics for Electrical Engineering	3	2	1			1	-	-	-	-	-	-	-	-	-
	Basic Civil and Mechanical Engineering	2	-	-	0.2	-	-	1	2	1.2	2	-	-	-	-	-
	Engineering Graphics	3	1	2		2	-	-	-	-	3		2	2	2	
	Electric Circuit Analysis	3	3	3	2.8	2		2	1				3	3	3	3
	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Engineering Practices Laboratory	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1
	Electric Circuits Laboratory	3	3	3	3	3		2	1.5	3			3	3	3	2
	Communication Laboratory / Foreign Language <sup>s</sup>	2.4	2.8	3	3	1.8	3	3	3	3	3	3	3	-	-	-
III	Probability and Complex Functions	3	3	0	0	0	0	0	0	2	0	0	2	-	-	-
	Electromagnetic Fields	3	2	1	2	-	-	1.4	1	-	-	-	1	3	2	1
	Digital Logic Circuits	3	3	3	1	3	-	-	1	-	-	-	1	3		1
	Electron Devices and Circuits	2	2	3	2	2	-	-	1	-	-	-	1	3		1

	Electrical Machines - I	3	3	1	1	1	-	-	1	-	-	-	1	3	3	3
	C Programming and Data Structures	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2
	Electronic Devices and Circuits Laboratory	-	3	2.7	3	3	-	-	1.5	-	-	3	-	-	3	
	Electrical Machines Laboratory – I	3	3	1	1		-	-		1				2.5	2.6	1.6
	C Programming and Data Structures Laboratory	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2
	Professional Development <sup>s</sup>															
IV	Environmental Sciences and Sustainability	2.8	1.8	1	1	-	2.2	2.4	-	-	-	-	1.8	-	-	-
	Transmission and Distribution	2.8	1.8	1	1		1	-	1.8	-	-	-		3	2.4	1
	Linear Integrated Circuits	2	2	3	2	2			1	-	-	-	1	3	2	1
	Measurements and Instrumentation	3	2	3	2	3	2		2	-	3	-	3	3	3	3
	Microprocessor and Microcontroller	2	1	2	3		-		1	-	-	-	3	3	1	3
	Electrical Machines - II	3	3	1.6	2.3	2.6	-		1	-	-	-		3	3	2
	Electrical Machines Laboratory - II	3	3	1	1		-		1.5	1	-	-	2.8	3	3	1.6
	Linear and Digital Circuits Laboratory		3	1.6	3	3	-		1.5		-	3	3	2	1	2
	Microprocessor and Microcontroller laboratory	2	1	2	3		-		1.5		-	-	3	3	1	3
V	Power System Analysis	3	2.6	2.4	1.8	1.4	-			1	-		1	1	1	1.4
	Power Electronics	3	3	3	3		-	1.5	1		-	2.25	3	3	3	3
	Control Systems	3	3	3	3	3	-		1		-		3	3	3	3
	Power Electronics Laboratory	3	3	3	3	3	-		1.5		-		3	3	3	3
	Control and Instrumentation Laboratory	3	3	3	3	3	-		1.5		-		2	3	3	3
VI	Protection and Switchgear	3	1	1	2	1.2	2	1	1	1	1	2		3	1.4	1
	Power System Operation and Control	2	1.6	1	1		1		1.6		2		2	3	2.2	2.86
	Power System Laboratory	3	3	2	2	3	-		2	1	2		3	3	3	3
VII	High Voltage Engineering	2	2	2.33	1		2		1	1		2	3	3	2	2
	Human Values and Ethics															
VIII	Project Work / Internship	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

1-low, 2-medium, 3-high, ‘-‘- no correlation

**ANNA UNIVERSITY, CHENNAI**  
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**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**  
**B.E. ELECTRICAL AND ELECTRONICS ENGINEERING**  
**CURRICULUM AND SYLLABI FOR SEMESTERS I TO VIII**  
**SEMESTER – I**

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	IP3151	Induction Programme	-	-	-	-	-	0
<b>THEORY</b>								
2.	HS3152	Professional English - I	HSMC	3	0	0	3	3
3.	MA3151	Matrices and Calculus	BSC	3	1	0	4	4
4.	PH3151	Engineering Physics	BSC	3	0	0	3	3
5.	CY3151	Engineering Chemistry	BSC	3	0	0	3	3
6.	GE3151	Problem Solving and Python Programming	ESC	3	0	0	3	3
7.	GE3152	தமிழர் மரபு / Heritage of Tamils	HSMC	1	0	0	1	1
<b>PRACTICALS</b>								
8.	GE3171	Problem Solving and Python Programming Laboratory	ESC	0	0	4	4	2
9.	BS3171	Physics and Chemistry Laboratory	BSC	0	0	4	4	2
10.	GE3172	English Laboratory <sup>§</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>16</b>	<b>1</b>	<b>10</b>	<b>27</b>	<b>22</b>

<sup>§</sup> Skill Based Course

**SEMESTER – II**

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	HS3252	Professional English - II	HSMC	2	0	0	2	2
2.	MA3251	Statistics and Numerical Methods	BSC	3	1	0	4	4
3.	PH3202	Physics for Electrical Engineering	BSC	3	0	0	3	3
4.	BE3255	Basic Civil and Mechanical Engineering	ESC	3	0	0	3	3
5.	GE3251	Engineering Graphics	ESC	2	0	4	6	4
6.	EE3251	Electric Circuit Analysis	PCC	3	1	0	4	4
7.		NCC Credit Course Level1 <sup>#</sup>	-	2	0	0	2	2 <sup>#</sup>
8.	GE3252	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	HSMC	1	0	0	1	1
<b>PRACTICALS</b>								
8.	GE3271	Engineering Practices Laboratory	ESC	0	0	4	4	2
9.	EE3271	Electric Circuits Laboratory	PCC	0	0	4	4	2
	GE3272	Communication Laboratory / Foreign Language <sup>§</sup>	EEC	0	0	4	4	2
<b>TOTAL</b>				<b>17</b>	<b>2</b>	<b>16</b>	<b>35</b>	<b>27</b>

<sup>#</sup> NCC Credit Course level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

<sup>§</sup> Skill Based Course

**SEMESTER III**

S. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	MA3303	Probability and Complex Functions	BSC	3	1	0	4	4
2.	EE3301	Electromagnetic Fields	PCC	3	1	0	4	4
3.	EE3302	Digital Logic Circuits	PCC	3	0	0	3	3
4.	EC3301	Electron Devices and Circuits	PCC	3	0	0	3	3
5.	EE3303	Electrical Machines - I	PCC	3	0	0	3	3
6.	CS3353	C Programming and Data Structures	PCC	3	0	0	3	3
<b>PRACTICALS</b>								
7.	EC3311	Electronic Devices and Circuits Laboratory	PCC	0	0	3	3	1.5
8.	EE3311	Electrical Machines Laboratory – I	PCC	0	0	3	3	1.5
9.	CS3362	C Programming and Data Structures Laboratory	PCC	0	0	3	3	1.5
10.	GE3361	Professional Development <sup>\$</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>11</b>	<b>31</b>	<b>25.5</b>

**\$ Skill Based Course**

**SEMESTER IV**

S. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	GE3451	Environmental Sciences and Sustainability	BSC	2	0	0	2	2
2.	EE3401	Transmission and Distribution	PCC	3	0	0	3	3
3.	EE3402	Linear Integrated Circuits	PCC	3	0	0	3	3
4.	EE3403	Measurements and Instrumentation	PCC	3	0	0	3	3
5.	EE3404	Microprocessor and Microcontroller	PCC	3	0	0	3	3
6.	EE3405	Electrical Machines - II	PCC	3	0	0	3	3
7.		NCC Credit Course Level 2 <sup>#</sup>		3	0	0	3	3 <sup>#</sup>
<b>PRACTICALS</b>								
8.	EE3411	Electrical Machines Laboratory - II	PCC	0	0	3	3	1.5
9.	EE3412	Linear and Digital Circuits Laboratory	PCC	0	0	3	3	1.5
10.	EE3413	Microprocessor and Microcontroller laboratory	PCC	0	0	3	3	1.5
<b>TOTAL</b>				<b>17</b>	<b>0</b>	<b>9</b>	<b>26</b>	<b>21.5</b>

**# NCC Credit Course level 2 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.**



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**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**

**B. E. ELECTRONICS AND COMMUNICATION ENGINEERING**

**I. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

1. To provide the students with a strong foundation in the required sciences in order to pursue studies in Electronics and Communication Engineering.
2. To gain adequate knowledge to become good professional in electronic and communication engineering associated industries, higher education and research.
3. To develop attitude in lifelong learning, applying and adapting new ideas and technologies as their field evolves.
4. To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research oriented methodologies to solve the problems identified.
5. To inculcate in the students a professional and ethical attitude and an ability to visualize the engineering issues in a broader social context.

**II. PROGRAM OUTCOMES (POs)**

- 1 **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2 **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3 **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4 **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5 **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6 **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.



7 **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9 **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10 **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11 **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12 **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**III. PROGRAM SPECIFIC OUTCOMES (PSOs)**

PSO1: Design, develop and analyze electronic systems through application of relevant electronics, mathematics and engineering principles

PSO2: Design, develop and analyze communication systems through application of fundamentals from communication principles, signal processing, and RF System Design & Electromagnetics.

PSO3: Adapt to emerging electronics and communication technologies and develop innovative solutions for existing and newer problems

**PEOs(1 to 5) mapped with POs and PSOs**

PEO	PO												PSO		
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
I.	3	3	2	2	2	2	-	-	-	-	-	3	3	2	3
II.	3	3	3	3	2	-	-	-	2	1	2	3	3	3	3
III.	3	2	3	3	3	-	-	-	2	2	-	3	3	3	3
IV.	3	3	3	3	2	-	-	3	-	-	-	2	2	2	2
V.	-	-	-	-	2	2	2	2	-	-	-	-	1	1	1

1 - low, 2 - medium, 3 - high, '-' - no correlation

Mapping of Course Outcome and Programme Outcome																	
Year	Sem	Course name	PO												PSO		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
I		Induction Programme															
		Professional English - I	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	
		Matrices and Calculus	3	3	1	1	0	0	0	0	2	0	2	3	-	-	
		Engineering Physics	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	
		Engineering Chemistry	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	1.5	-	-	
		Problem Solving and Python Programming	2	3	3	3	2	-	-	-	-	-	2	2	3	3	
		தமிழர் மரபு /Heritage of Tamils															
		Problem Solving and Python Programming Laboratory	2	3	3	3	2	-	-	-	-	-	2	2	3	3	
		Physics and Chemistry Laboratory	3	2.4	2.6	1	1										
			2.6	1.3	1.6	1	1	1.4	1.8	-	-	-	-	1.3	-	-	
English Laboratory §	3	3	3	3	1	3	3	3	3	3	3	3	3	-	-		
II		Professional English - II	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-	-
		Statistics and Numerical Methods	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
		Physics for Electronics Engineering	3	2	1.4	1.5	2.5	2	3				1				
		Electrical and Instrumentation Engineering	2	1	1					1				-	-	-	
		Engineering Graphics	3	1	2	-	2	-	-	-	-	3	-	2	2	-	
		Circuit Analysis	3	3	3	2	-	-	-	1	-	1	-	-	-	-	
		தமிழரும் தொழில்நுட்பமும் /Tamils and Technology															
		Engineering Practices Laboratory	3	2			1	1	1				2	2	1	1	
		Circuits Analysis Laboratory	3	3	3	2	-	-	-	1	-	1	-	-	-	-	
		Communication Laboratory / Foreign Language §	2.4	2.8	3	3	1.8	3	3	3	3	3	3	-	-	-	
II	iii	Random Processes and Linear Algebra	3	3	0	0	0	0	0	0	3	0	0	2	-	-	-
		C Programming and Data Structures	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2
		Signals and Systems	3	3	3	3	3	2	-	-	-	-	3	2	3	1	
		Electronic Devices and Circuits	3	3	3	3	2	2	-	-	-	-	1	2	1	1	

		Control Systems	3	3	3	3	2	2	-	-	-	-	2	3	3	3	3
		Digital Systems Design	3	2.6	2.6	2.3	-	2	-	-	-	-	2	2	3	3	2
		Electronic Devices and Circuits Laboratory	2	2	2.6	3	-	-	-	-	-	-	-	-	2	1	1
		C Programming and Data Structures Laboratory	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2
		Professional Development <sup>s</sup>															
<b>IV</b>		Electromagnetic Fields	2	2	2	2	2	2	1	-	-	1	1	2			
		Embedded Systems and IOT Design	3	3	2.6	2.2	2.2	-	-	-	-	-	-	-	2.8	2.2	1.4
		Linear Integrated Circuits	1.4	2.5	3	2.2	-	-	-	-	-	-	1	3	2	1	1
		Digital Signal Processing	3	3	2	2	2	2	-	-	-	-	1	1	2	2	2
		Communication Systems	3	3	3	3	2.5	1	1	-	-	-	1	1			
		Environmental Sciences and Sustainability	2.8	1.8	1	1	-	2.2	2.4	-	-	-	-	1.8	-	-	-
		Communication Systems Laboratory	3	3	3	3	3	2.5	-	-	-	1	1	1			
		Linear Integrated Circuits Laboratory	2	3	3	3	2	-	-	-	-	-	1	1			
<b>III</b>	<b>V</b>	Wireless Communication	3	3	2	2	2	2	-	-	-	-	-	1	3	1	2
		VLSI and Chip Design	2	2	2	2	1	1.5	-	-	-	-	1	2	3	3	3
		Transmission lines and RF Systems	3	3	3	3	2	1	-	-	-	1	-	1	2	1	1
		VLSI Laboratory	2.2	2.2	2.2	2.2	1	-	-	-	-	-	1	1	2	2	2
<b>VI</b>		Telecommunication Switching and Transmission	3	2.6	2.8	2.2	1.2	-	-	-	-	-	-	2	2.8	2.4	2.2
		Artificial Intelligence and Machine Learning	2	1	2	2	1	-	-	-	2	2	2	3	2	2	2
<b>IV</b>	<b>VII</b>	Human Values and Ethics															
		Summer internship															
<b>VIII</b>		Project Work Internship															

1 - low, 2 - medium, 3 - high, '-' - no correlation

**ANNA UNIVERSITY, CHENNAI**  
**NON- AUTONOMOUS AFFILIATED COLLEGES**  
**REGULATIONS 2021**  
**B. E. ELECTRONICS AND COMMUNICATION ENGINEERING**  
**CHOICE BASED CREDIT SYSTEM**  
**CURRICULUM AND SYLLABI FOR SEMESTERS I TO VIII**  
**SEMESTER I**

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	IP3151	Induction Programme	-	-	-	-	-	0
<b>THEORY</b>								
2.	HS3152	Professional English - I	HSMC	3	0	0	3	3
3.	MA3151	Matrices and Calculus	BSC	3	1	0	4	4
4.	PH3151	Engineering Physics	BSC	3	0	0	3	3
5.	CY3151	Engineering Chemistry	BSC	3	0	0	3	3
6.	GE3151	Problem Solving and Python Programming	ESC	3	0	0	3	3
7.	GE3152	தமிழர் மரபு /Heritage of Tamils	HSMC	1	0	0	1	1
<b>PRACTICALS</b>								
8.	GE3171	Problem Solving and Python Programming Laboratory	ESC	0	0	4	4	2
9.	BS3171	Physics and Chemistry Laboratory	BSC	0	0	4	4	2
10.	GE3172	English Laboratory <sup>§</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>16</b>	<b>1</b>	<b>10</b>	<b>27</b>	<b>22</b>

<sup>§</sup> Skill Based Course

**SEMESTER II**

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	HS3252	Professional English - II	HSMC	2	0	0	2	2
2.	MA3251	Statistics and Numerical Methods	BSC	3	1	0	4	4
3.	PH3254	Physics for Electronics Engineering	BSC	3	0	0	3	3
4.	BE3254	Electrical and Instrumentation Engineering	ESC	3	0	0	3	3
5.	GE3251	Engineering Graphics	ESC	2	0	4	6	4
6.	EC3251	Circuit Analysis	PCC	3	1	0	4	4
7.	GE3252	தமிழரும் தொழில்நுட்பமும் /Tamils and Technology	HSMC	1	0	0	1	1
8.		NCC Credit Course Level 1 <sup>#</sup>	-	2	0	0	2	2*
<b>PRACTICALS</b>								
9.	GE3271	Engineering Practices Laboratory	ESC	0	0	4	4	2
10.	EC3271	Circuits Analysis Laboratory	PCC	0	0	2	2	1
11.	GE3272	Communication Laboratory / Foreign Language <sup>§</sup>	EEC	0	0	4	4	2
<b>TOTAL</b>				<b>17</b>	<b>1</b>	<b>14</b>	<b>33</b>	<b>26</b>

<sup>#</sup> NCC Credit Course level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

<sup>§</sup> Skill Based Course

**SEMESTER III**

S. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	MA3355	Random Processes and Linear Algebra	BSC	3	1	0	4	4
2.	CS3353	C Programming and Data Structures	ESC	3	0	0	3	3
3.	EC3354	Signals and Systems	PCC	3	1	0	4	4
4.	EC3353	Electronic Devices and Circuits	PCC	3	0	0	3	3
5.	EC3351	Control Systems	PCC	3	0	0	3	3
6.	EC3352	Digital Systems Design	PCC	3	0	2	5	4
<b>PRACTICALS</b>								
7.	EC3361	Electronic Devices and Circuits Laboratory	PCC	0	0	3	3	1.5
8.	CS3362	C Programming and Data Structures Laboratory	PCC	0	0	3	3	1.5
9.	GE3361	Professional Development <sup>§</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>10</b>	<b>30</b>	<b>25</b>

<sup>§</sup> Skill Based Course

**SEMESTER IV**

S. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	EC3452	Electromagnetic Fields	PCC	3	0	0	3	3
2.	EC3401	Networks and Security	PCC	3	0	2	5	4
3.	EC3451	Linear Integrated Circuits	PCC	3	0	0	3	3
4.	EC3492	Digital Signal Processing	PCC	3	0	2	5	4
5.	EC3491	Communication Systems	PCC	3	0	0	3	3
6.	GE3451	Environmental Sciences and Sustainability	BSC	2	0	0	2	2
7.		NCC Credit Course Level 2 <sup>#</sup>		3	0	0	3	3 <sup>#</sup>
<b>PRACTICALS</b>								
8.	EC3461	Communication Systems Laboratory	PCC	0	0	3	3	1.5
9.	EC3462	Linear Integrated Circuits Laboratory	PCC	0	0	3	3	1.5
<b>TOTAL</b>				<b>17</b>	<b>0</b>	<b>10</b>	<b>27</b>	<b>22</b>

<sup>#</sup> NCC Credit Course level 2 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.



**ANNA UNIVERSITY, CHENNAI**  
**NON-AUTONOMOUS AFFILIATED COLLEGES**  
**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**

**B. E. MECHANICAL ENGINEERING**

**PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

- I. Effectuating success in careers by exploring with the design, digital and computational analysis of engineering systems, experimentation and teCsting, smart manufacturing, technical services, and research.
- II. Amalgamating effectively with stakeholders to update and improve their core competencies and abilities to ethically compete in the ever-changing multicultural global enterprise.
- III. To encourage multi-disciplinary research and development to foster advanced technology, and to nurture innovation and entrepreneurship in order to compete successfully in the global economy.
- IV. To globally share and apply technical knowledge to create new opportunities that proactively advances our society through team efforts and to solve various challenging technical, environmental and societal problems.
- V. To create world class mechanical engineers capable of practice engineering ethically with a solid vision to become great leaders in academia, industries and society.

**PROGRAM OUTCOMES (POs)**

**PO**

**GRADUATE ATTRIBUTE**

- 1 **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2 **Problem analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3 **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4 **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5 **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- 6 **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

- 7 **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9 **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10 **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- 11 **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12 **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### PROGRAM SPECIFIC OUTCOMES (PSOs)

On successful completion of the Mechanical Engineering Degree programme, the Graduates shall exhibit the following:

1. Apply the knowledge gained in Mechanical Engineering for design and development and manufacture of engineering systems.
2. Apply the knowledge acquired to investigate research-oriented problems in mechanical engineering with due consideration for environmental and social impacts.
3. Use the engineering analysis and data management tools for effective management of multidisciplinary projects.

### PEO / PO MAPPING:

PEOs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
I.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
II.	3	2	2	2	2	1	1	1	3		2	1	2	3	3
III.	3	1	2	1	2	2	1		1	2		3	3	2	2
IV.	2	2	2	2	2	2	2				1	2	2	3	3
V.	3	2	2	2	1	3	2	2	2	1	1	3	3	2	2

## Mapping of Course Outcome and Programme Outcome

Year	Semester	Course name	PO												PSO				
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		
I	I	Professional English- I	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	-		
		Matrices and Calculus	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-		
		Engineering Physics	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	-		
		Engineering Chemistry	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	1.5	-	-	-		
		Problem Solving and Python Programming	2	3	3	3	2	-	-	-	-	-	-	2	2	3	3	-	
		தமிழர் மரபு /Heritage of Tamils	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Problem Solving and Python Programming Laboratory	2	3	3	3	2	-	-	-	-	-	-	2	2	3	3	-	
		Physics and Chemistry Laboratory	3	2.4	2.6	1	1	-	-	-	-	-	-	-	-	-	-	-	
			2.6	1.3	1.6	1	1	1.4	1.	-	-	-	-	-	1.3	-	-	-	
	English Laboratory <sup>s</sup>	3	3	3	3	1	3	3	3	3	3	3	3	3	-	-	-		
	II	Professional English- II	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-	-		
		Statistics and Numerical Methods	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-		
		Materials Science	3	2	1.6	1.4	1.8	1.2	1	-	-	-	-	1	-	-	-		
		Basic Electrical and Electronics Engineering	2	1.8	1	-	-	-	1	-	-	-	-	2	-	-	1		
		Engineering Graphics	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-		
		தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Engineering Practices Laboratory	3	2	-	1	1	1	-	-	-	-	-	2	2	1	1		
		Basic Electrical and Electronics Engineering Laboratory	3	3	2	1	1	-	-	1.5	2	-	-	-	-	-	-		
Communication Laboratory / Foreign Language <sup>s</sup>		2.4	2.8	3	3	1.8	3	3	3	3	3	3	3	-	-	-			
II	III	Transforms and Partial Differential Equations	3	3	2	2	1	-	-	-	1	-	-	1	3	3	1		
		Engineering Mechanics	3	2	3	1	2	-	-	-	-	-	-	2	3	1	2		
		Engineering Thermodynamics	3	3	2	-	1	-	-	-	1	-	1	2	3	2	3		
		Fluid Mechanics and Machinery	3	2	3	2	2	2	2	1	-	-	-	2	2	2	2		
		Engineering Materials and Metallurgy	3	1	3	2	2	2	2	1	-	-	-	2	2	1	2		
		Manufacturing Processes	3	-	2	-	2	2	2	1	1	-	-	1	3	1	2		
		Professional Development	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	IV	Theory of Machines	3	2	2	-	2	-	-	1	-	-	-	1	3	-	1		
		Thermal Engineering	3	2	1	1	-	-	-	-	-	-	-	1	2	1	1		
		Hydraulics and Pneumatics	2	1	1	1	-	-	-	-	-	-	-	1	2	1	1		
		Manufacturing Technology	3	3	3	1	1	1	3	-	-	3	-	-	3	2	2		
		Strength of Materials	3	3	3	3	2	3	1	3	2	3	1	3	2	1	1		
		Environmental Sciences and Sustainability	1	1	1	-	-	3	-	1	-	2	1	2	2	1	-		
		III	V	Design of Machine Elements	2	2	3	-	-	-	-	1	1	-	-	2	3	2	2
				Metrology and Measurements	3	2	2	2	-	-	-	-	1	-	-	1	3	2	1



	<b>VI</b>	Heat and Mass Transfer	3	3	3	2	-	-	-	-	1	-	-	1	3	2	1	
<b>IV</b>	<b>VII</b>	Mechatronics and IoT	3	2	2	2	2	-	1	-	1	-	-	2	1	2	3	
		Computer Integrated Manufacturing	3	2	2	1	2	-	-	-	1	-	-	1	2	1	3	
		Human Values and Ethics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Industrial Management	-	-	1	1	-	3	2	3	2	3	2	3	1	1	1	



**ANNA UNIVERSITY, CHENNAI**  
**NON-AUTONOMOUS AFFILIATED COLLEGES**  
**REGULATIONS 2021**  
**CHOICE BASED CREDIT SYSTEM**  
**B. E. MECHANICAL ENGINEERING**  
**CURRICULUM AND SYLLABI FOR I TO VIII SEMESTERS**  
**SEMESTER I**

SL. NO.	COURSE CODE	COURSE TITLE	CATE - GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	IP3151	Induction Programme	-	-	-	-	-	0
<b>THEORY</b>								
2.	HS3152	Professional English - I	HSMC	3	0	0	3	3
3.	MA3151	Matrices and Calculus	BSC	3	1	0	4	4
4.	PH3151	Engineering Physics	BSC	3	0	0	3	3
5.	CY3151	Engineering Chemistry	BSC	3	0	0	3	3
6.	GE3151	Problem Solving and Python Programming	ESC	3	0	0	3	3
7.	GE3152	தமிழர் மரபு/Heritage of Tamils	HSMC	1	0	0	1	1
<b>PRACTICAL</b>								
7	GE3171	Problem Solving and Python Programming Laboratory	ESC	0	0	4	4	2
8	BS3171	Physics and Chemistry Laboratory	BSC	0	0	4	4	2
9	GE3172	English Laboratory §	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>16</b>	<b>1</b>	<b>10</b>	<b>27</b>	<b>22</b>

§ Skill Based Course

**SEMESTER II**

SL. NO.	COURSE CODE	COURSE TITLE	CATE - GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	HS3252	Professional English - II	HSMC	2	0	0	2	2
2.	MA3251	Statistics and Numerical Methods	BSC	3	1	0	4	4
3.	PH3251	Materials Science	BSC	3	0	0	3	3
4.	BE3251	Basic Electrical and Electronics Engineering	ESC	3	0	0	3	3
5.	GE3251	Engineering Graphics	ESC	2	0	4	6	4
6.	GE3252	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	HSMC	1	0	0	1	1
7.		NCC Credit Course Level 1#	-	2	0	0	2	2
<b>PRACTICAL</b>								
8.	GE3271	Engineering Practices Laboratory	ESC	0	0	4	4	2
9.	BE3271	Basic Electrical and Electronics Engineering Laboratory	ESC	0	0	4	4	2
10.	GE3272	Communication Laboratory / Foreign Language §	EEC	0	0	4	4	2
<b>TOTAL</b>				<b>14</b>	<b>1</b>	<b>16</b>	<b>31</b>	<b>23</b>

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§ Skill Based Course

**SEMESTER III**

SL. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	MA3351	Transforms and Partial Differential Equations	BSC	3	1	0	4	4
2.	ME3351	Engineering Mechanics	ESC	3	0	0	3	3
3.	ME3391	Engineering Thermodynamics	PCC	3	0	0	3	3
4.	CE3391	Fluid Mechanics and Machinery	ESC	3	1	0	4	4
5.	ME3392	Engineering Materials and Metallurgy	PCC	3	0	0	3	3
6.	ME3393	Manufacturing Processes	PCC	3	0	0	3	3
<b>PRACTICALS</b>								
7.	ME3381	Computer Aided Machine Drawing	ESC	0	0	4	4	2
8.	ME3382	Manufacturing Technology Laboratory	PCC	0	0	4	4	2
9.	GE3361	Professional Development <sup>§</sup>	EEC	0	0	2	2	1
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>10</b>	<b>30</b>	<b>25</b>

§ Skill Based Course

**SEMESTER IV**

SL. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
<b>THEORY</b>								
1.	ME3491	Theory of Machines	PCC	3	0	0	3	3
2.	ME3451	Thermal Engineering	PCC	4	0	0	4	4
3.	ME3492	Hydraulics and Pneumatics	PCC	3	0	0	3	3
4.	ME3493	Manufacturing Technology	PCC	3	0	0	3	3
5.	CE3491	Strength of Materials	PCC	3	0	0	3	3
6.	GE3451	Environmental Sciences and Sustainability	BSC	2	0	0	2	2
7.		NCC Credit Course Level 2 <sup>#</sup>		3	0	0	3	3 <sup>#</sup>
<b>PRACTICALS</b>								
8.	CE3481	Strength of Materials and Fluid Machinery Laboratory	PCC	0	0	4	4	2
9.	ME3461	Thermal Engineering Laboratory	PCC	0	0	4	4	2
<b>TOTAL</b>				<b>18</b>	<b>0</b>	<b>8</b>	<b>26</b>	<b>22</b>

**# NCC Credit Course level 2 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.**

  
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