



Course Name: Bachelor of Technology (B. Tech.) in Electrical Engineering (EE)  
with Specialisation (Hons.) in Sustainable Energy

## Course Structure

### First Year:

#### Semester I

Sl. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Credits
1	Theory <b>BSC</b>	<b>SMA41101</b>	Engineering Mathematics – I	3	1	0	4	4
2	Theory <b>BSC</b>		Applied Science (Physics + Chemistry)	3	0	0	3	3
3	Theory <b>ESC</b>	<b>ECS41101/ EEE41102</b>	Introduction to Programming / Electrical and Electronic Technology	3	0	0	3	3
4	Theory <b>HSSM</b>	<b>HEN41117</b>	HSSM – I (English Communication – I)	3	0	0	3	3
5	Theory <b>HSSM/ BSC</b>	<b>HEN41119/ SBT41108</b>	HSSM – II (Professional Ethics, Values and the Laws)/ Life Sciences	3	0	0	3	3
6	Practical <b>BSC</b>		Applied Science Lab (Physics + Chemistry)	0	0	3	3	2
7	Practical <b>ESC</b>	<b>ECS41201/ EEE41202</b>	Programming Lab/ Electrical and Electronic Technology Lab	0	0	3	3	2
8	Practical <b>ESC</b>	<b>ECE41201/ EME41204</b>	Engineering Drawing and CAD/ Engineering Workshop	0	0	3	3	2
9	Practical <b>MC</b>	<b>EMC41201</b>	Communication and Collaboration Skill – I	0	0	2	2	1
10	Practical <b>MC</b>		Avant Garde Project – I	0	0	2	2	1
<b>Total</b>				<b>15</b>	<b>1</b>	<b>13</b>	<b>29</b>	<b>24</b>

**HSSM:** Humanities, Social Sciences & Management

**BSC:** Basic Science

**ESC:** Engg. Science

**MC:** Mandatory Course

**First Year:**

<b>Semester II</b>								
<b>Sl. No.</b>	<b>Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs/Wk</b>	<b>Credits</b>
1	Theory <b>BSC</b>	<b>SMA41102</b>	Engineering Mathematics – II	3	1	0	4	4
2	Theory <b>ESC</b>	<b>EEE41102/ ECS41101</b>	Electrical and Electronic Technology/ Introduction to Programming	3	0	0	3	3
3	Theory <b>BSC/ HSSM</b>	<b>SBT41108/ HEN41119</b>	Life Sciences/ HSSM – II (Professional Ethics, Values and the Laws)	3	0	0	3	3
4	Theory <b>ESC</b>	<b>EME41102</b>	Engineering Mechanics	3	1	0	4	4
5	Theory <b>ESC</b>		Environmental Science	3	0	0	3	3
6	Practical <b>ESC</b>	<b>EEE41202/ ECS41201</b>	Electrical and Electronic Technology Lab/ Programming Lab	0	0	3	3	2
7	Practical <b>ESC</b>	<b>EME41204 / ECE41201</b>	Engineering Workshop/ Engineering Drawing and CAD	0	0	3	3	2
8	Practical <b>MC</b>	<b>EMC41202</b>	Communication and Collaboration Skill – II	0	0	2	2	1
9	Practical <b>MC</b>		Avant Garde Project – II	0	0	2	2	1
<b>Total</b>				<b>15</b>	<b>2</b>	<b>10</b>	<b>27</b>	<b>23</b>

**Total Credits (First Year): 24 + 23 = 47**

**HSSM:** Humanities, Social Sciences & Management

**BSC:** Basic Science

**ESC:** Engg. Science

**MC:** Mandatory Course

**Second Year:**

<b>Semester III</b>
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Sl. No.	Type	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Credits
1	Theory <b>BSC</b>	<b>SMA42109</b>	Engineering Mathematics – III (Transform Calculus and Special Functions)	3	0	0	3	3
2	Theory <b>HSSM</b>	<b>HEC42180</b>	HSSM – IV (Economics for Engineers)	3	0	0	3	3
3	Theory <b>PC</b>	<b>EEE42101</b>	Professional Core – I <b>Electric Circuits</b>	3	1	0	4	4
4	Theory <b>PC</b>	<b>EEE42103</b>	Professional Core – II <b>Electrical and Electronic Measurement</b>	3	0	0	3	3
5	Theory <b>PC</b>	<b>EEE42105</b>	Professional Core – III <b>Electrical Machine – I</b>	3	1	0	4	4
6	Practical <b>PC</b>	<b>EEE42201</b>	Professional Core – I Lab <b>Electric Circuits Lab</b>	0	0	3	3	2
7	Practical <b>PC</b>	<b>EEE42203</b>	Professional Core – II Lab <b>Electrical and Electronic Measurement Lab</b>	0	0	3	3	2
8	Practical <b>PC</b>	<b>EEE42205</b>	Professional Core – III Lab <b>Electrical Machine – I Lab</b>	0	0	3	3	2
9	Practical <b>ESC</b>		Design Thinking – I	0	0	3	3	2
10	Practical <b>MC</b>		Avant Garde Project – III	0	0	2	2	1
<b>Total</b>				<b>15</b>	<b>2</b>	<b>14</b>	<b>30</b>	<b>26</b>

**HSSM:** Humanities, Social Sciences & Management

**BSC:** Basic Science

**ESC:** Engg. Science

**PC:** Professional Core

**MC:** Mandatory Course

**Second Year:**

<b>Semester IV</b>								
Sl. No.	Type	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Credits
1	Theory <b>BSC</b>	<b>SMA42116</b>	Engineering Mathematics – IV (Numerical Techniques)	3	0	0	3	3

2	Theory <b>BSC</b>		Psychology	2	0	0	2	2
3	Theory <b>PC</b>	<b>EEE4210 2</b>	Professional Core – IV <b>Electrical Machine – II</b>	3	0	0	3	3
4	Theory <b>PC</b>	<b>EEE4210 4</b>	Professional Core – V <b>Microprocessor and Microcontroller</b>	3	0	0	3	3
5	Theory <b>PC</b>	<b>EEE4210 6</b>	Professional Core – VI <b>Analog and Digital Electronics</b>	3	0	0	3	3
6	Practical <b>BSC</b>	<b>SMA4221 1</b>	Numerical Techniques Lab	0	0	3	3	2
7	Practical <b>PC</b>	<b>EEE4220 2</b>	Professional Core – IV Lab <b>Electrical Machine – II Lab</b>	0	0	3	3	2
8	Practical <b>PC</b>	<b>EEE4220 4</b>	Professional Core – V Lab <b>Microprocessor and Microcontroller Lab</b>	0	0	3	3	2
9	Practical <b>PC</b>	<b>EEE4220 6</b>	Professional Core – VI Lab <b>Analog and Digital Electronics Lab</b>	0	0	3	3	2
10	Practical <b>MC</b>		Design Thinking – II	0	0	3	3	2
11	Practical <b>MC</b>		Avant Garde Project – IV	0	0	2	2	1
<b>Total</b>				<b>14</b>	<b>0</b>	<b>17</b>	<b>31</b>	<b>25</b>

**Total Credits (Second Year): 26 + 25 = 51**

**BSC:** Basic Science; **ESC:** Engg. Science; **PC:** Professional Core; **MC:** Mandatory Course

### Third Year:

Semester V								
Sl. No.	Type	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Credits
1	Theory <b>PC</b>	<b>EEE4310 1</b>	Professional Core – VII <b>Power System – I</b>	3	0	0	3	3
2	Theory <b>PC</b>	<b>EEE4310 3</b>	Professional Core – VIII <b>Control Systems</b>	3	0	0	3	3
3	Theory <b>PC</b>	<b>EEE4310 5</b>	Professional Core – IX <b>Power Electronics</b>	3	0	0	3	3

4	Theory <b>SC</b>	<b>EEE4310 7</b>	Specialization Course – I <b>Solar Energy Engineering</b>	3	1	0	4	4
5	Theory <b>PE</b>	<b>EEE4311 1/ EEE4311 3/ EEE4311 5</b>	Professional Elective – I A. Special Electrical Machines B. Electromagnetic Field Theory C. Electric Vehicle	3	0	0	3	3
6	Practical <b>PC</b>	<b>EEE4320 1</b>	Professional Core – VII Lab <b>Power System – I Lab</b>	0	0	3	3	2
7	Practical <b>PC</b>	<b>EEE4320 3</b>	Professional Core – VIII Lab <b>Control Systems Lab</b>	0	0	3	3	2
8	Practical <b>PC</b>	<b>EEE4320 5</b>	Professional Core – IX Lab <b>Power Electronics Lab</b>	0	0	3	3	2
9	Practical <b>SC</b>	<b>EEE4320 7</b>	Specialization Lab – I <b>Solar Energy Engineering Lab</b>	0	0	3	3	2
10	Practical <b>MC</b>		Venture Ideation	0	0	2	2	1
11	Practical <b>MC</b>		Avant Garde Project – V	0	0	2	2	1
12	Practical <b>MC</b>		# Adamas Foundation (CSR Activity)	0	0	--	--	1
<b>Total</b>				<b>15</b>	<b>1</b>	<b>16</b>	<b>32</b>	<b>27</b>

**PC:** Professional Core; **PE:** Professional Elective; **SC:** Specialization Course

**MC:** Mandatory Course

### Third Year:

Semester VI								
Sl. No.	Type	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Credits
1	Theory <b>PC</b>	<b>EEE4310 2</b>	Professional Core – X <b>Power System – II</b>	3	0	0	3	3
2	Theory <b>PC</b>	<b>EEE4310 4</b>	Professional Core – XI <b>Modern Control Systems</b>	3	0	0	3	3

3	Theory <b>PE</b>	<b>EEE4311</b> 2/ <b>EEE4311</b> 4/ <b>EEE4311</b> 6	Professional Elective – II A. Power Generation Economics B. Digital Signal Processing C. Sensors and Transducers	3	0	0	3	3
4	Theory <b>OE</b>		Open Elective – I	2	0	0	2	2
5	Theory <b>SC</b>	<b>EEE4310</b> 6	Specialization Course – II <b>Sustainable Energy</b>	3	1	0	4	4
6	Theory <b>SC</b>	<b>EEE4310</b> 8	Specialization Course – III <b>Energy Storage from Renewable Resource</b>	3	0	0	3	3
7	Practical <b>PC</b>	<b>EEE4320</b> 2	Professional Core – X Lab <b>Power System – II Lab</b>	0	0	3	3	2
8	Practical <b>PC</b>	<b>EEE4320</b> 4	Professional Core – XI Lab <b>Modern Control Systems Lab</b>	0	0	3	3	2
9	Practical <b>PE</b>	<b>EEE4321</b> 2/ <b>EEE4321</b> 4/ <b>EEE4321</b> 6	Professional Elective – II Lab A. Power Generation Economics B. Digital Signal Processing C. Sensors and Transducers	0	0	3	3	2
10	Practical <b>SC</b>	<b>EEE4320</b> 6	Specialization Lab – II <b>Sustainable Energy Lab</b>	0	0	3	3	2
11	Practical <b>SC</b>	<b>EEE4330</b> 2	Technical Seminar	0	0	2	2	1
<b>Total</b>				<b>17</b>	<b>1</b>	<b>14</b>	<b>32</b>	<b>27</b>

**Total Credits (Third Year): 27 + 27 = 54**

**PC:** Professional Core; **PE:** Professional Elective; **OE:** Open Elective

**SC:** Specialization Course

**Forth Year:**

<b>Semester VII</b>								
<b>Sl. No.</b>	<b>Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs/Wk</b>	<b>Credits</b>
1	Theory <b>HSSM</b>	<b>MBA43144</b>	HSSM – V <b>(Industrial Management)</b>	3	0	0	3	3
2	Theory <b>PC</b>	<b>EEE44101</b>	Professional Core – XII <b>Electric Drives</b>	3	0	0	3	3

3	Theory <b>PE</b>	<b>EEE44111/ EEE44113/ EEE44115</b>	Professional Elective – III A. HVDC Transmission Systems B. Power System Dynamics C. High Voltage Engineering	3	0	0	3	3
4	Theory <b>SC</b>	<b>EEE44103</b>	Specialization Course – IV <b>Solar Photovoltaic System Design</b>	3	0	0	3	3
5	Theory <b>OE</b>		Open Elective – II	3	0	0	3	3
6	Practical <b>PC</b>	<b>EEE44201</b>	Professional Core – XII Lab <b>Electric Drives Lab</b>	0	0	3	3	2
7	Practical <b>SC</b>	<b>EEE44203</b>	Specialization Lab – III <b>Photovoltaic Lab</b>	0	0	3	3	2
8	Practical <b>PC</b>	<b>EEE44205</b>	Professional Core – XII Lab <b>Electrical Machine Design Lab</b>	0	0	3	3	2
9	Practical <b>PC</b>	<b>EEE44601</b>	Summer Internship	--	--	--	--	2
10	Practical <b>PC</b>	<b>EEE44401</b>	Minor Project	0	0	6	6	3
<b>Total</b>				<b>15</b>	<b>0</b>	<b>15</b>	<b>30</b>	<b>26</b>

**HSSM:** Humanities, Social Sciences & Management

**PC:** Professional Core

**PE:** Professional Elective

**OE:** Open Elective

**SC:** Specialization Course

**Forth Year:**

<b>Semester VIII</b>								
<b>Sl. No.</b>	<b>Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs/Wk</b>	<b>Credits</b>
1	<b>MC</b>		Specialization Course – V (Offline/ Online mode)	3	0	0	3 (For Offline mode only)	3
2	<b>PC</b>		Industry Work Experience/ SIRE*/ Major Project	0	0	12	12 (For Major Project only)	5

3	PC	EEE4450 2	Comprehensive Viva Voce	---	---	2
4	SC		Specialization Viva Voce	---	---	2
<b>Total</b>				<b>3</b>	<b>0</b>	<b>12</b>
				<b>15</b>	<b>12</b>	

**\*SIRE: Scientific Investigation & Research Experience**

**Total Credits (Fourth Year): 26 + 12 = 38**

**PC:** Professional Core; **MC:** Mandatory Course; **SC:** Specialization Course

**Total Credits (Over FOUR Years): 47 + 51 + 54 + 38 = 190**  
**= 165 + 25 (Specialization/ Hons.)**

**Open Electives:** (For students of other departments)

1. Introduction to Automatic Control
2. Fundamentals of Electrical Machines
3. Elements of Measurement and Instruments
4. Sensors and Transducers
5. Renewable Energy Sources.