

R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
(Established by Govt. of A.P., Act. No. 30 of 2008)
ANANTHAPURAMU – 515 002 (A.P.) INDIA.

Course Structure for B.Tech-R15 Regulations

ELECTRICAL & ELECTRONICS ENGINEERING

I B.Tech. - I Semester

S.No	Course code	Subject	L	T	P	Drg	C
1.	15A52101	Functional English	3	1	-	-	3
2.	15A54101	Mathematics – I	3	1	-	-	3
3.	15A05101	Computer Programming	3	1	-	-	3
4.	15A56101	Engineering Physics	3	1	-	-	3
5.	15A03101	Engineering Drawing	0	-	-	6	3
6.	15A52102	English Language Communication Skills Lab	-	-	4	-	2
7.	15A56102	Engineering Physics Lab	-	-	4	-	2
8.	15A05102	Computer Programming Lab	-	-	4	-	2
Total			12	4	12	6	21

I-II Semester

S.No	Course code	Subject	L	T	P	C
1.	15A54201	Mathematics – II	3	1	-	3
2.	15A52201	English for Professional Communication	3	1	-	3
3.	15A51101	Engineering Chemistry	3	1	-	3
4.	15A01101	Environmental Studies	3	1	-	3
5.	15A02201	Electrical Circuits – I	3	1	-	3
6.	15A51102	Engineering Chemistry Lab	-	-	4	2
7.	15A02202	Electrical Circuits Lab	-	-	4	2
8.	15A99201	Engineering & IT Workshop	-	-	4	2
Total			15	5	12	21

- * L - Lecture hours
- * T - Tutorial hours
- * P - Practical hours
- * Drg - Drawing
- * C - Credits

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 Dept. of Electrical & Electronics Engg.
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II B. Tech (EEE) – I Sem

S. No	Course Code	Subject	L	T	P	C
1	15A54301	Mathematics –III	3	1	-	3
2	15A02301	Electrical Circuits – II	3	1	-	3
3	15A02302	Electrical Machines – I	3	1	-	3
4	15A02303	Control Systems Engineering	3	1	-	3
5	15A04301	Electronic Devices & Circuits	3	1	-	3
6	15A05201	Data Structures	3	1	-	3
7	15A02305	Electric Circuits Simulation Laboratory	-	-	4	2
8	15A04305	Electronic Devices & Circuits Laboratory	-	-	4	2
Total			18	6	8	22

II B. Tech (EEE) – II Sem

S. No	Course Code	Subject	L	T	P	C
1	15A54402	Mathematics – IV	3	1	-	3
2	15A52301	Managerial Economics and Financial Analysis	3	1	-	3
3	15A02401	Electrical Machines – II	3	1	-	3
4	15A02402	Electrical Power Generating Systems	3	1	-	3
5	15A02403	Electromagnetic Fields	3	1	-	3
6	15A04409	Analog Electronic Circuits	3	1	-	3
7	15A02404	Electrical Machines Laboratory – I	-	-	4	2
8	15A02405	Control Systems & Simulation Laboratory	-	-	4	2
9	15A02406	Comprehensive Online Examination – I	-	-	-	1
Total			18	6	8	23


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B.Tech III-I Semester (EEE)

S. No.	Course Code	Subject	L	T	P	C
1.	15A02501	Electrical Measurements	3	1	-	3
2.	15A04509	Linear & Digital IC Applications	3	1	-	3
3.	15A02502	Electrical Power Transmission Systems	3	1	-	3
4.	15A02503	Power Electronics	3	1	-	3
5.	15A02504	Electrical Machines – III	3	1	-	3
6.		MOOCS -I	3	1	-	3
	15A04510	Digital Circuits and Systems				
	15A02505	Networks Signals and Systems				
7.	15A02506	Electrical Machines Laboratory – II	-	-	4	2
8.	15A02507	Electrical Measurements Laboratory	-	-	4	2
9.	15A99501	Audit course – Social Values & Ethics	2	0	2	0
Total			20	6	10	22

B.Tech III-II Semester (EEE)

S. No.	Course Code	Subject	L	T	P	C
1.	15A52601	Management Science	3	1	-	3
2.	15A02601	Power Semiconductor Drives	3	1	-	3
3.	15A02602	Power System Protection	3	1	-	3
4.	15A04601	Microprocessors & Microcontrollers	3	1	-	3
5.	15A02603	Power System Analysis	3	1	-	3
6.		CBCC -I				
	15A02604	1) Neural Networks & Fuzzy Logic				
	15A02605	2) Programmable Logic Controller & Its Applications	3	1	-	3
	15A02606	3) Optimization Techniques				
	15A01608	4) Intellectual Property Rights				
7.	15A04607	Microprocessors & Microcontrollers Laboratory	-		4	2
8.	15A02607	Power Electronics & Simulation Laboratory	-		4	2
9.		Advanced English Language				
	15A52602	Communication Skills (AELCS) Laboratory (Audit Course)	-		2	-
10.	15A02608	Comprehensive Online Examination - II	-	-	-	1
Total			18	6	12	23



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Dept. of Electrical & Electronics Engg.

B.Tech IV-I Semester (EEE)

S. No.	Course Code	Subject	L	T	P	C
1.	15A02701	Electrical Distribution Systems	3	1	-	3
2.	15A04603	Digital Signal Processing	3	1	-	3
3.	15A02702	Power System Operation and Control	3	1	-	3
4.	15A02703	Utilization of Electrical Energy	3	1	-	3
5.	15A02704 15A02705 15A02706	CBCC-II a) Modern Control Theory b) Switched Mode Power Converters c) Energy Auditing & Demand Side Management	3	1	-	3
6.	15A02707 15A02708 15A02709	CBCC-III a) Smart Grid b) Flexible AC Transmission Systems c) Power Quality	3	1	-	3
7.	15A04608	Digital Signal Processing Laboratory	-	-	4	2
8.	15A02710	Power Systems & Simulation Laboratory	-	-	4	2
Total			18	6	8	22

B.Tech IV-II Semester (EEE)

S. No.	Course Code	Subject	L	T	P	C
1.	15A02801 15A02802 15A02803	MOOCS - II 1. Instrumentation 2. Power System Dynamics and Control 3. Industrial Automation & Control	3	1	-	3
2.	15A02804 15A04702 15A02805	MOOCS - III 1. HVDC Transmission 2. Embedded Systems 3. Energy Resources & Technology	3	1	-	3
3.	15A02806	Comprehensive Viva Voce	-	-	4	2
4.	15A02807	Technical Seminar	-	-	4	2
5.	15A02808	Project Work	-	-	24	12
Total			6	2	32	22


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Dept. of Electrical & Electronics Engg.

Minor Discipline in EEE

S. No.	Course Code	Subject	L	T	P	C
1	15A02303	Control Systems Engineering	3	1	-	3
2	15A02402	Electrical Power Generating Systems	3	1	-	3
3	15A02502	Electrical Power Transmission Systems	3	1	-	3
4	15A02603	Power System Analysis	3	1	-	3
5	15M02101	Minor Discipline Project	-	-	-	8
		Total	12	4	-	20



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Dept. of Electrical & Electronics Engg.

Annamacharya Institute of Technology & Science

TIRUPATI - 517 507



**ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES, TIRUPATI
(AUTONOMOUS)**

**Course structure for Four Year Regular B.Tech. Degree Program
AK-19 (Effective for the batches admitted from 2019-20)
ELECTRICAL & ELECTRONICS ENGINEERING (EEE)**

INDUCTION PROGRAM (3 weeks duration)	
❖	Physical activity
❖	Creative Arts
❖	Universal Human Values
❖	Literary
❖	Proficiency Modules
❖	Lectures by Eminent People
❖	Visits to local Areas
❖	Familiarization to Dept./Branch & Innovations

I B. Tech - I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
THEORY										
1	BS	19ABS9901	Algebra and Calculus	3	1	0	4	30	70	100
2	BS	19ABS9902	Applied Physics	3	0	0	3	30	70	100
3	ES	19AES0501	Problem Solving and Programming	3	1	0	4	30	70	100
4	HS	19AHS9901	Communicative English I	2	0	0	2	30	70	100
PRACTICAL										
5	LC	19ALC0201	Electrical and Electronics Engineering Workshop	0	0	2	1	30	70	100
6	BS	19ABS9907	Applied Physics Lab	0	0	3	1.5	30	70	100
7	ES	19AES0503	Problem Solving and Programming Lab	0	0	4	2	30	70	100
8	HS	19AHS9902	Communicative English I Lab	0	0	2	1	30	70	100
TOTAL							18.5	240	560	800

I B. Tech - II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
THEORY										
1	ES	19AES0101	Basics of Civil and Mechanical Engineering	3	0	0	3	30	70	100
2	BS	19ABS9906	Differential Equations and Vector Calculus	3	1	0	4	30	70	100
3	BS	19ABS9904	Chemistry	3	0	0	3	30	70	100
4	ES	19AES0502	Data Structures	3	0	0	3	30	70	100
PRACTICAL										
5	LC	19ALC0301	Engineering Workshop	0	0	2	1	30	70	100
6	ES	19AES0301	Engineering Graphics Lab	1	0	4	3	30	70	100
7	ES	19AES0102	Basics of Civil and Mechanical Engineering Lab	0	0	3	1.5	30	70	100
8	BS	19ABS9909	Chemistry Lab	0	0	3	1.5	30	70	100
9	ES	19AES0504	Data Structures Lab	0	0	3	1.5	30	70	100
TOTAL							21.5	270	630	900

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II B. Tech – I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	BS	19ABS9912	Transform Techniques and Complex Variables	3	0	0	3	30	70	100
2	HS	19AHS9903	Communicative English II	2	0	0	2	30	70	100
3	ES	19AES0505	Internet of Things (IoT)	2	0	0	2	30	70	100
4	PC	19APC0201	Electrical Circuit Analysis	3	0	0	3	30	70	100
5	PC	19APC0401	Electronic Devices and Circuits	3	0	0	3	30	70	100
6	PC	19APC0202	Engineering Electromagnetics	3	1	0	4	30	70	100
7	MC	19AMC9903	Environmental Studies	2	0	0	0	30	--	30
PRACTICAL										
8	HS	19AHS9904	Communicative English II Lab	0	0	2	1	30	70	100
9	ES	19AES0506	Internet of Things (IoT) Lab	0	0	2	1	30	70	100
10	PC	19APC0203	Electrical Circuit Analysis Lab	0	0	3	1.5	30	70	100
11	PC	19APC0404	Electronic Devices and Circuits Lab	0	0	2	1	30	70	100
TOTAL							21.5	330	700	1030

II B. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	BS	19ABS9916	Numerical Methods and Probability	3	1	0	4	30	70	100
2	ES	19AES0509	Basics of Python Programming	2	0	0	2	30	70	100
3	ES	19AES0302	Design Thinking and Product Innovation	2	0	0	2	30	70	100
4	PC	19APC0204	Electrical Machines - I	3	1	0	4	30	70	100
5	PC	19APC0406	Analog Electronic Circuits	2	0	0	2	30	70	100
6	PC	19APC0408	Digital Electronic Circuits	2	0	0	2	30	70	100
7	MC	19AMC9901	Biology for Engineers	3	0	0	0	30	--	30
PRACTICAL										
8	PR	19APR0201	Socially Relevant Projects (15 hours / semester)	0	0	0	0.5	50	--	50
9	PC	19APC0205	Electrical Machines - I Lab	0	0	3	1.5	30	70	100
10	ES	19AES0510	Basics of Python Programming Lab	0	0	2	1	30	70	100
11	ES	19AES0303	Design Thinking and Product Innovation Lab	0	0	2	1	30	70	100
12	PC	19APC0409	Analog and Digital Electronic Circuits Lab	0	0	3	1.5	30	70	100
TOTAL							21.5	380	700	1080



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III B. Tech – I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	PC	19APC0206	Power Systems - I	3	0	0	3	30	70	100
2	PC	19APC0207	Electrical Machines - II	2	1	0	3	30	70	100
3	PC	19APC0208	Control Systems	2	1	0	3	30	70	100
4	PC	19APC0209	Power Electronics	3	0	0	3	30	70	100
5	PE	19APC0403	Signals and Systems	3	0	0	3	30	70	100
		19APC0425	Analog and Digital IC Applications							
		19APC0426	Linear System Analysis							
6	OE	19AHEMB01	Managerial Economics and Financial Analysis	3	0	0	3	30	70	100
		19APC0510	Computer Networks							
		19APC0412	Analog and Digital Communications							
7	MC	19AMC9902	Constitution of India	3	0	0	0	30	---	30
PRACTICAL										
8	PC	19APC0210	Electrical Machines - II Lab	0	0	2	1	30	70	100
9	PC	19APC0211	Control Systems Lab	0	0	2	1	30	70	100
10	PC	19APC0212	Power Electronics Lab	0	0	2	1	30	70	100
11	PR	19APR0202	Socially Relevant Projects (15 Hours /Sem)	0	0	0	0.5	50	---	50
TOTAL							21.5	350	630	980

III B. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	PC	19APC0213	Power Systems - II	3	0	0	3	30	70	100
2	PC	19APC0214	Electrical Measurements and Instrumentation	3	0	0	3	30	70	100
3	PC	19APC0215	Power System Analysis	3	0	0	3	30	70	100
4	PC	19APC0216	Neural Networks and Fuzzy Logic	3	0	0	3	30	70	100
5	OE	19APC0417	Microprocessors and Microcontrollers	3	0	0	3	30	70	100
		19APE0306	Renewable energy technologies							
		19AOE0511	Business Data Analytics							
6	HE	19AHE9902	Principles of Effective Public Speaking	3	0	0	3	30	70	100
		19AHE9907	Optics							
		19AHE9909	Quantum Mechanics							
7	MC	19AMC9904	Professional Ethics and Human values	3	0	0	0	30	--	30
PRACTICAL										
8	PC	19APC0217	Power Systems Lab	0	0	2	1	30	70	100
9	PC	19APC0420	Microprocessors and Microcontrollers Lab	0	0	2	1	30	70	100
10	PC	19APC0218	Electrical Measurements Lab	0	0	2	1	30	70	100
11	PR	19APR0203	Socially Relevant Projects (15 hours / semester)	0	0	0	0.5	50	--	50
12	PR	19APR0204	Industrial Training/ Internship/ Research Projects in National Laboratories/Academic Institutions	0	0	0	0	--	--	--
TOTAL							21.5	350	630	980


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IV B. Tech – I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	PC	19APC0219	Switch Gear and Protection	3	0	0	3	30	70	100
2	PC	19APC0220	High Voltage Engineering	2	0	0	2	30	70	100
3	OE	19APE0411	Embedded Systems	3	0	0	3	30	70	100
		19APC0502	Data Base Management Systems							
		19APC0101	Mechanics of materials							
4	PE	19APE0201	Electrical Distribution Systems	3	0	0	3	30	70	100
		19APE0202	Power Semi-conductor Drives							
		19APE0203	Advanced Control Systems							
5	PE	19APE0204	Power System Operation and Control	3	0	0	3	30	70	100
		19APE0205	Flexible AC Transmission Systems							
		19APC0418	Digital Signal Processing							
6	HE	19AHE9901	Technical Writing	2	0	0	2	30	70	100
		19AHE9906	Effective technical Communication							
		19ASA0501	Soft skills							
PRACTICAL										
8	PC	19APC0221	Switchgear and Protection Lab	0	0	2	1	30	70	100
9	PR	19APR0205	Socially Relevant Projects (15 hours / semester)	0	0	0	0.5	50	--	50
10	PR	19APR0206	Industrial Training/Internship/Research Projects in National Laboratories/Academic Institutions	0	0	0	1.5	50	--	50
TOTAL							19	310	490	800

IV B. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	MOOCS	19AOE0515	The joy of computing using Python (MOOCS-NPTEL)	3	0	0	3	-	-	100
		19AOE0516	Principles of Management (MOOCS-NPTEL)							
		19AOE0517	Introduction to Industry 4.0 and Industrial internet of things (MOOCS-NPTEL)							
2	MOOCS	19APE0206	Design of photovoltaic systems (MOOCS-NPTEL)	3	0	0	3	-	-	100
		19APE0207	Solar Energy Engineering and Technology (MOOCS-NPTEL)							
		19APE0208	Physics of Renewable Energy Systems (MOOCS-NPTEL)							
PRACTICAL										
3	PR	19APR0207	Technical Paper Presentation/Seminar	0	0	0	0	50	0	50
4	PR	19APR0208	Project	3	0	0	9	60	140	200
TOTAL							15	110	140	450
Grand Total of all semesters							160	2340	4480	7020



ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES, TIRUPATI

(Autonomous)

Course structure for Four Year Regular B.Tech. Degree Program

AK-20 (Effective for the batches admitted from 2020-21)

ELECTRICAL & ELECTRONICS ENGINEERING (EEE)

INDUCTION PROGRAM (3 weeks duration)	
❖	Physical activity
❖	Creative Arts
❖	Universal Human Values
❖	Literary
❖	Proficiency Modules
❖	Lectures by Eminent People
❖	Visits to local Areas
❖	Familiarization to Dept./Branch & Innovations

Semester I (First year)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		C	CIE	SEE
1	Basic Science course	20ABS9901	Algebra and Calculus	3	0	0	3	30	70	100
2	Basic Science course	20ABS9902	Applied Physics	3	0	0	3	30	70	100
3	Humanities and Social science	20AHS9901	Communicative English	3	0	0	3	30	70	100
4	Engineering Science Courses	20AES0304	Engineering Workshop Practice	1	0	4	3	30	70	100
5	Engineering Science Courses	20AES0501	Problem Solving and Programming	3	0	0	3	30	70	100
6	Humanities and Social science LAB	20AHS9902	Communicative English Lab	0	0	3	1.5	30	70	100
7	Basic Science course (LAB)	20ABS9907	Applied Physics Lab	0	0	3	1.5	30	70	100
8	Engineering Science Courses (LAB)	20AES0503	Problem Solving and Programming Lab	0	0	3	1.5	30	70	100
Total credits							19.5	240	560	800

Semester II (First year)

Sl.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		C	CIE	SEE
1	Basic Science courses	20ABS9906	Differential Equations and Vector Calculus	3	0	0	3	30	70	100
2	Basic Science courses	20ABS9904	Chemistry	3	0	0	3	30	70	100
3	Engineering Science Courses	20AES0101	Basics of Civil and Mechanical Engineering	3	0	0	3	30	70	100
4	Engineering Science Courses	20AES0505	Internet of Things (IoT)	3	0	0	3	30	70	100
5	Engineering Science Courses	20AES0301	Engineering Graphics	1	0	4	3	30	70	100
6	Engineering Science Courses (LAB)	20AES0102	Basics of Civil and Mechanical Engineering Lab	0	0	3	1.5	30	70	100
7	Basic Science course (LAB)	20ABS9909	Chemistry Lab	0	0	3	1.5	30	70	100
8	Engineering Science Courses (LAB)	20AES0506	Internet of Things (IoT) Lab	0	0	3	1.5	30	70	100
9	Mandatory course (AICTE suggested)	20AMC9902	Constitution of India	2	0	0	0	30	-	30
Total credits							19.5	270	560	830

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Semester III (Second year)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	Basic Science courses	20ABS9912	Transform Techniques and Complex Variables	3	0	0	3	30	70	100
2	Professional Core Course	20APC0201	Electrical Circuits - I	3	0	0	3	30	70	100
3	Professional Core courses	20APC0401	Electronic devices and circuits	3	0	0	3	30	70	100
4	Professional Core courses	20APC0202	Power Systems - I	3	0	0	3	30	70	100
5	Professional Core courses	20APC0203	Electrical Machines-I	3	0	0	3	30	70	100
6	Professional Core courses (LAB)	20APC0204	Electrical Circuits-I Lab	0	0	3	1.5	30	70	100
7	Professional Core courses (LAB)	20APC0404	Electronic Devices and Circuits Lab	0	0	3	1.5	30	70	100
8	Professional Core courses (LAB)	20APC0205	Electrical Machines-I Lab	0	0	3	1.5	30	70	100
9	Skill oriented course	20AHE9902	Principles of Effective Public Speaking	2	0	0	2	100	-	100
10	Mandatory course (AICTE suggested)	20AMC9903	Environmental Studies	3	0	0	0	30	-	30
Total credits							21.5	370	560	930

Semester IV (Second year)

Sl. No	Category	Code	Course Title	Hours			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	Engineering Science Courses	20AES0509	Basics of Python Programming	3	0	0	3	30	70	100
2	Basic Science Course /Prof core course	20APC0206	Electrical Circuits-II	3	0	0	3	30	70	100
3	Professional Core courses	20APC0207	Electrical Machines-II	3	0	0	3	30	70	100
4	Professional Core courses	20APC0208	Engineering Electromagnetics	3	0	0	3	30	70	100
5	Humanities and Social Sciences	20AHSMB01	Managerial Economics and financial analysis	3	0	0	3	30	70	100
6	Humanities and Social Sciences	20AHS9905	Universal Human Values	3	0	0	3	30	70	100
7	Engineering Science Courses/Prof Core (Interdisciplinary) (LAB)	20AES0510	Basics of Python Programming Lab	0	0	3	1.5	30	70	100
8	Professional Core courses (LAB)	20APC0209	Electrical circuits-II Lab	0	0	3	1.5	30	70	100
9	Professional Core courses (LAB)	20APC0210	Electrical Machines-II Lab	0	0	3	1.5	30	70	100
10	Skill oriented course	20ASC0201	Simulation of circuits using PSPICE	1	0	2	2	100	-	100
Total credits							24.5	370	630	1000
Community service project										
[To visit the selected Community to conduct survey (Socio-economic and Domain survey) and conduct sensitization / awareness program / activities at the end of IV semester and before commencement of V semester and complete immersion program also during V semester and submit report in V semester. Assessment will be done at the end of V semester]										
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4	0	0	4	100		100


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Semester V (Third year)

S. No	Category	Code	Course Title	Hours			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	Professional Core courses	20APC0211	Electrical Machines-III	3	0	0	3	30	70	100
2	Professional Core courses	20APC0212	Power Electronics	3	0	0	3	30	70	100
3	Professional Core courses	20APC0213	Control Systems	3	0	0	3	30	70	100
4	Open Elective Course /Job oriented elective	20APC0425	Analog and Digital IC Applications	3	1	0	3	30	70	100
5	Professional Elective courses	20APE0201	Power Systems-II	3	0	0	3	30	70	100
6	Professional Core courses Lab	20APC0214	Control Systems Lab	0	0	3	1.5	30	70	100
7	Professional Core courses Lab	20APC0215	Power Electronics Lab	0	0	3	1.5	30	70	100
8	Skill advanced course/ soft skill course	20ASC0202	Introduction to Programming with MATLAB	1	0	2	2	100	-	100
9	Mandatory course (AICTE suggested)	20AMC9901	Biology for Engineers	3	0	0	0	30	-	30
10	Community service project	20CSP0201	Community service project	0	0	0	1.5	100	-	100
Total credits							21.5	440	490	930
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4	0	0	4	100		100

Semester VI (Third year)

S. No	Category	Code	Course Title	Hours			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	Professional Core courses	20APC0216	Electrical Measurements and Instrumentation	3	0	0	3	30	70	100
2	Professional Core courses	20APC0217	Power System Analysis	3	0	0	3	30	70	100
3	Professional Core courses	20APC0218	Switch Gear and Protection	3	0	0	3	30	70	100
4	Professional Elective courses	20APC0418	Microprocessors and Microcontrollers	3	0	0	3	30	70	100
5	Open Elective Course/Job oriented elective (MOOCS-NPTEL COURSES)	20AOE0515	The joy of computing using Python	-	-	-	3	-	-	100
		20AOEMB01	Principles of Management							
		20AOEMB02	Entrepreneurship							
6	Professional Core courses Lab	20APC0219	Electrical Measurements Lab	0	0	3	1.5	30	70	100
7	Professional Core courses Lab	20APC0220	Power System Analysis Lab	0	0	3	1.5	30	70	100
8	Professional Core courses Lab	20APC0221	Power systems protection lab	0	0	3	1.5	30	70	100
9	Skill advanced course/ soft skill course	20ASC0203	Numerical techniques using MATLAB	1	0	2	2	100	-	100
10	Mandatory course (AICTE)	20AMC9904	Professional Ethics and Human values	3	0	0	0	30	-	30
Total credits							21.5	340	490	930
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4	0	0	4	100		100
Industrial/Research Internship (Mandatory) 2 Months during summer vacation										



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Semester VII (Fourth year)

S. No	Category	Code	Course Title	Hours			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	Professional Elective courses	20APE0203	Flexible AC Transmission Systems	3	0	0	3	30	70	100
2	Professional Elective courses	20APE0204	Neural networks and fuzzy logic	3	0	0	3	30	70	100
3	Professional Elective courses (MOOCS-NPTEL COURSES)	20APE0205	Design of photovoltaic systems	-	-	-	3	-	-	100
		20APE0206	Solar Energy Engineering and Technology							
		20APE0207	Physics of Renewable Energy Systems							
4	Open Elective Courses/ Job oriented elective	20APC0427	Embedded systems	3	0	0	3	30	70	100
5	Open Elective Courses/ Job oriented elective	20APE0306	Renewable energy technologies	3	0	0	3	30	70	100
6	Humanities and Social Science Elective	20AHE9903	Professional Communication	3	0	0	3	30	70	100
7	Skill advanced course/ soft skill course	20ASC0204	Electrical CAD	1	0	2	2	100		100
Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)				0	0	0	3	100		100
Total credits							23	350	350	800
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4		0	4	100		100

Semester VIII (Fourth year)

Sl. No	Category	Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	Major Project	20APR0201	Project work, seminar and internship in industry	0	0	0	12	60	140	200
INTERNSHIP (6 MONTHS)										
Total credits							12	60	140	200
Grand Total							163	2440	3780	6420



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**ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES, TIRUPATI
(AUTONOMOUS)**

**Course structure for Two Year Regular M.Tech. Degree Programme
(Effective from the batch admitted in 2019-20)
POWER SYSTEMS (EEE)**

I M. Tech – I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
THEORY										
1.	PC	19DPC8201	Power Systems Analysis	3	0	0	3	40	60	100
2.	PC	19DPC8202	Power Systems Dynamics-I	3	0	0	3	40	60	100
3.	PE	19DPE8201	Renewable Energy Systems	3	0	0	3	40	60	100
		19DPE8202	Smart Grids	3	0	0				
		19DPE8203	High Power Converter	3	0	0				
		19DPE8204	Wind & Solar Systems	3	0	0				
4.	PE	19DPE8205	Electrical Power Distribution System	3	0	0	3	40	60	100
		19DPE8206	Mathematical Methods For Power Engineering	3	0	0				
		19DPE8207	Pulse Width Modulation for PE Converters	3	0	0				
		19DPE8208	Electric and Hybrid Vehicles	3	0	0				
5.	PC	19MBA0410	Research Methodology and IPR	2	0	0	2	40	60	100
6.	MC	19DMC9901	English for Research Paper Writing	2	0	0	0	40	--	40
		19DMC0101	Disaster Management	2	0	0				
		19DMC9902	Sanskrit for technical knowledge	2	0	0				
PRACTICAL										
7.	PC	19DPC8203	Power System Steady State Analysis Lab	0	0	4	2	40	60	100
8.	PC	19DPC8204	Renewable Energy Lab	0	0	4	2	40	60	100
TOTAL							18	320	420	740


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I M. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
THEORY										
1.	PC	19DPC8205	Digital Protection of Power System	3	0	0	3	40	60	100
2.	PC	19DPC8206	Power System Dynamics-II	3	0	0	3	40	60	100
3.	PE	19DPE8209	Restructured Power Systems	3	0	0	3	40	60	100
		19DPE8210	Advanced Digital Signal Processing	3	0	0				
		19DPE8211	Dynamics of Electrical Machines	3	0	0				
		19DPE8212	Power Apparatus Design	3	0	0				
4.	PE	19DPE8213	Advanced Micro-Controller Based Systems	3	0	0	3	40	60	100
		19DPE8214	SCADA Systems and Applications	3	0	0				
		19DPE8215	Artificial Intelligence Techniques	3	0	0				
		19DPE8216	Power Quality	3	0	0				
5.	PR	19DPR8201	Mini Project	2	0	0	2	40	60	100
6.	MC	19DMC9903	Value Education	2	0	0	0	40	--	40
		19DMC5801	Pedagogy Studies	2	0	0				
		19DMC9905	Stress management by yoga	2	0	0				
		19DMC9906	Personality Development through Life Enlightenment Skills	2	0	0				
PRACTICAL										
7.	PC	19DPC8207	Power System Protection Lab	0	0	4	2	40	60	100
		19DPC8208	Power Quality Lab	0	0	4	2	40	60	100
8.	PC	19DPC8209	Artificial Intelligence Lab	0	0	4	2	40	60	100
TOTAL							18	320	420	740



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II M. Tech – I Semester (III-Semester)

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1.	PE	19DPE8217	Power System Transients	3	0	0	3	40	60	100
		19DPE8218	FACTS and Custom Power Devices	3	0	0				
		19DPE8219	Industrial Load Modeling & Control	3	0	0				
		19DPE8220	Dynamics Of Linear Systems	3	0	0				
2.	OE	19DOE5801	Business Analytics	3	0	0	3	40	60	100
		19DOE9001	Industrial Safety	3	0	0				
		19DOE9002	Operations Research	3	0	0				
		19DOE2002	Project Management	3	0	0				
		19DOE9004	Composite Materials	3	0	0				
		19DOE2001	Waste to Energy	3	0	0				
3.	PR	19DPR8202	Dissertation-1/Industry oriented project	0	0	20	10	40	60	100
TOTAL							16	120	180	300

II M. Tech – II Semester (IV-Semester)

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1.	PR	19DPR8203	Dissertation-2	0	0	32	16	60	140	200
TOTAL							16	60	140	200



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**ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES: TIRUPATI
(AUTONOMOUS)**

Department of Electrical & Electronics Engineering

Specialization: Power Systems (PS)

Effective for the batches admitted from 2022-23

M. Tech – I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
THEORY										
1	PC	22DPC8201	Power Systems Analysis	3	0	0	3	40	60	100
2	PC	22DPC8202	Power Systems Dynamics-I	3	0	0	3	40	60	100
3	PE	Professional Elective I		3	0	0	3	40	60	100
		22DPE8201	Renewable Energy Systems							
		22DPE8202	Smart Grids							
		22DPE8203	High Power Converter							
		22DPE8204	Wind & Solar Systems							
4	PE	Professional Elective II		3	0	0	3	40	60	100
		22DPE8205	Electrical Power Distribution System							
		22DPE8206	Mathematical Methods for Power Engineering							
		22DPE8207	Pulse Width Modulation for PE Converters							
		22DPE8208	Electric and Hybrid Vehicles							
5	ML	22MBA0110	Research Methodology and IPR	2	0	0	2	40	60	100
6	MC	Audit course I		2	0	0	0	40	-	40
		22DMC9901	1. English for Research Paper Writing							
		22DMC2001	2. Disaster Management							
		22DMC9902	3. Sanskrit for Technical Knowledge							
		22DMC9903	4. Value Education							
PRACTICAL										
7	PC	22DPC8203	Power System Steady State Analysis Lab	0	0	4	2	40	60	100
8	PC	22DPC8204	Renewable Energy Lab	0	0	4	2	40	60	100
Total							18	320	420	740



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M. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
THEORY										
1	PC	22DPC8205	Digital Protection of Power System	3	0	0	3	40	60	100
2	PC	22DPC8206	Power System Dynamics-II	3	0	0	3	40	60	100
Professional Elective III										
3	PE	22DPE8209	Restructured Power Systems	3	0	0	3	40	60	100
		22DPE8210	Advanced Digital Signal Processing							
		22DPE8211	Dynamics of Electrical Machines							
		22DPE8212	Power Apparatus Design							
Professional Elective IV										
4	PE	22DPE8213	Advanced Micro-Controller Based Systems	3	0	0	3	40	60	100
		22DPE8214	SCADA Systems and Applications							
		22DPE8215	Artificial Intelligence Techniques							
		22DPE8216	Power Quality							
Audit course II										
5	MC	22DMC9904	1. Constitution of India	2	0	0	0	40	-	40
		22DMC5801	2. Pedagogy Studies							
		22DMC9905	3. Stress Management by Yoga							
		22DMC9906	4. Personality Development through Life Enlightenment Skills.							
PRACTICAL										
6	PC	22DPC8207	Power System Protection Lab	0	0	4	2	40	60	100
7	PC	22DPC8208	Artificial Intelligence Lab	0	0	4	2	40	60	100
PROJECT										
8	PR	22DPR8201	Technical Seminar	0	0	4	2	100	00	100
Total							18	380	360	740



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M. Tech –III Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
THEORY										
1	PE		Professional Elective IV	3	0	0	3	40	60	100
		22DPE8217	Power System Transients							
		22DPE8218	FACTS and Custom Power Devices							
		22DPE8219	Industrial Load Modeling & Control							
		22DPE8220	Dynamics Of Linear Systems							
2	OE		Open Elective I	3	0	0	3	40	60	100
		22DOE2001	1. Waste to Energy							
		22DOE2002	2. Project Management							
		22DOE9001	3. Industrial Safety							
		22DOE9002	4. Operations Research							
		22DOE5801	5. Business Analytics							
		22DOE9004	6. Composite Materials							
PROJECT										
3	PR	22DPR8202	Dissertation Phase – I	0	0	20	10	100	00	100
4	PR	22DPR8203	Co-curricular Activities	0	0	0	2			
TOTAL							18	180	120	300

M. Tech – IV Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
PROJECT										
1	PR	22DPR8204	Dissertation Phase – II	0	0	32	16	100	100	200
TOTAL							16	100	100	200



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