ADHIYAMAAN COLLEGE OF ENGINEERING

[An Autonomous Institution Affiliated to Anna University, Chennai]
[Accredited by NAAC]
Dr.M.G.R NAGAR, HOSUR, KRISHNAGIRI (DT) – 635 130, TAMILNADU, INDIA
REGULATION 2022
CHOICE BASED CREDIT SYSTEM

M.E - POWER SYSTEMS ENGINEERING

VISION

The Department of Electrical and Electronics Engineering is focused to produce competent Electrical Engineers by imparting effective teaching learning process to meet the rapidly changing technical scenario.

MISSION

- To produce exemplary Electrical Engineers with sound knowledge on fundamentals.
- To inculcate the students with innovative technical skills, entrepreneurial expertise and research capabilities.
- To promote leadership qualities and ethical attitude.

The Programme defines Programme Educational Objectives, Programme Outcomes and Programme Specific Outcomes as follows:

I. PROGRAMME EDUCATIONAL OBJECTIVES [PEOs]

PEO 1: To enrich the analytical and technical proficiency to remain competitive enough in the field of power systems engineering.
PEO 2: To prepare the students for successful career in the various domains of the power systems.
PEO 3: To inculcate research attitude and lifelong learning abilities.

II. PROGRAMME OUTCOMES [POs]

The Engineering Postgraduates will have

PO1: An ability to independently carry out research /investigation and development work to solve practical problems.

PO2: An ability to write and present a substantial technical report/document.

PO3: An ability to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

III. PROGRAM SPECIFIC OUTCOMES [PSOs]

The Engineering Postgraduates will be able to

PSO1: Apply the logical, analytical and technical skills to design, model and build the projects and appliances for societal needs.

PSO2: Demonstrate proficiency in the planning, operation and control of Energy sector.

PSO3: Apply research-based knowledge and ethical values for the power systems profession.

Correlation of PEOs with POs and PSOs

Program Educational Objectives (PEOs)	Program Outcomes (POs)			Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PSO1	PSO2	PSO3
PEO I	3	2	3	3	3	2
PEO II	3	2	3	3	3	3
PEO III	3	2	3	2	3	3

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REGULATIONS 2022 CHOICE BASED CREDIT SYSTEM
M.E- POWER SYSTEMS ENGINEERING
CURRICULA AND SYLLABI FOR SEMESTERS I TO IV

CURRICULUM FOR SEMESTER – I

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	122PST01	Applied Mathematics for Power System Engineers	FC	3	1	0	4	4
2.	122PST02	Computer Aided Power System Analysis	PC	3	1	0	4	4
3.	122PST03	Power System Operation and Control	PC	3	0	0	3	3
4.	122PST04	System Theory	PC	3	0	0	3	3
5.	122PST05	Analysis of Power Converters	PC	3	0	0	3	3
6.	122PST06	Research Methodology and IPR	RMC	3	0	0	3	3
7	122PSAXX	Audit course -I	AC	3	0	0	3	0
PRACTICALS								
8.	122PSP07	Power System Laboratory -I	PC	0	0	2	2	1
9.	122PSP08	Power Converters Laboratory	PC	0	0	2	2	1
			TOTAL	**21**	**2**	**4**	**27**	**22**

CURRICULUM FOR SEMESTER- II

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	222PST01	Power System Dynamics and Stability	PC	3	1	0	4	4
2.	222PST02	Advanced Power System Protection	PC	3	0	0	3	3

3.	222PST03	Restructured Power System	PC	3	0	0	3	3
4.	222PSEXX	Professional Elective-I	PE	3	0	0	3	3
5.	222PSEXX	Professional Elective-II	PE	3	0	0	3	3
6.	222XXOXX	Open Elective	OE	3	0	0	3	3
7.	222PSAXX	Audit Course-II	AC	3	0	0	3	0
PRACTICALS								
8.	222PSP07	Power System Simulation Laboratory – II	PC	0	0	2	2	1
9.	222PSP08	Technical Seminar	EEC	0	0	2	2	1
			TOTAL	**21**	**1**	**4**	**26**	**21**

PROFESSIONAL ELECTIVE –I

Sub. Code	Course Name	Category	L	T	P	C
222PSE01	Power System Economics and Control	PE	3	0	0	3
222PSE02	Electrical Transients in Power Systems	PE	3	0	0	3
222PSE03	Power System Optimization Techniques	PE	3	0	0	3
222PSE04	Computational Intelligence Techniques to Power Systems	PE	3	0	0	3
222PSE05	IoT for Smart Systems	PE	3	0	0	3
222PSE06	Renewable Energy and Grid Integration	PE	3	0	0	3

PROFESSIONAL ELECTIVE –II

Sub. Code	Course Name	Category	L	T	P	C
222PSE07	Demand Side Energy Management	PE	3	0	0	3
222PSE08	Energy Storage and Technologies	PE	3	0	0	3
222PSE09	Electromagnetic Interference and capability	PE	3	0	0	3
222PSE10	Power Electronics for Renewable Energy Systems	PE	3	0	0	3
222PSE11	Electrical Power Distribution System	PE	3	0	0	3
222PSE12	Machine Learning and Deep Learning	PE	3	0	0	3

CURRICULUM FOR SEMESTER –III

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	322PST01	Power System Planning and Reliability	PC	3	0	0	3	3
2.	322PST02	HVDC and FACTS	PC	3	0	0	3	3

3.	322PSEXX	Professional Elective-III	PE	3	0	0	3	3
4.	322PSEXX	Professional Elective-IV	PE	3	0	0	3	3
PRACTICALS								
5.	322PSP01	Project Work (Phase – I)	EEC	0	0	12	12	6
			TOTAL	**12**	**0**	**12**	**24**	**18**

PROFESSIONAL ELECTIVE- III

Sub. Code	Course Name	Category	L	T	P	C
322PSE01	Design of Wind and Solar Energy Systems	PE	3	0	0	3
322PSE02	Power system deregulation	PE	3	0	0	3
322PSE03	Smart Grid Design and Analysis	PE	3	0	0	3
322PSE04	Insulation Technology and High Voltage Engineering	PE	3	0	0	3
322PSE05	EHV Power Transmission	PE	3	0	0	3
322PSE06	Python Programming for Machine Learning	PE	3	0	0	3

PROFESSIONAL ELECTIVE- I V

Sub. Code	Course Name	Category	L	T	P	C
322PSE07	Design of Controllers in Power Applications	PE	3	0	0	3
322PSE08	Electric Power Distribution System	PE	3	0	0	3
322PSE09	Computer Relaying and Wide Area Measurement Systems	PE	3	0	0	3
322PSE10	Application of DSP To Power System Protection	PE	3	0	0	3
322PSE11	Electric Vehicles and Power Management	PE	3	0	0	3
322PSE12	High Voltage Technology	PE	3	0	0	3

CURRICULUM FOR SEMESTER – IV

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
PRACTICALS								
1.	422PSP01	Project Work (Phase - II)	EEC	0	0	24	24	12
			TOTAL	**0**	**0**	**24**	**24**	**12**

AUDIT COURSES (AC)

SL.No.	Course Code	Course Title	Category	Periods / Week & Credits			Credits
				L	T	P	
1	X22PSA01	English for Research Paper Writing	AC	2	0	0	0
2	X22PSA02	Disaster Management	AC	2	0	0	0
3	X22PSA03	Constitution of India	AC	2	0	0	0
4	X22PSA04	□□□□□□□□ □□□□□□□□□	AC	2	0	0	0

OPEN ELECTIVE (OE)

SL.No.	Course Code	Course Title	Category	Periods / Week & Credits			Credits
				L	T	P	
1	222PSO01	Network Routing Algorithms	OE	3	0	0	0
2	222PSO02	Cyber security	OE	3	0	0	0
3	222PSO03	Advanced radiation systems	OE	3	0	0	0
4	222PSO04	Advanced digital communication techniques	OE	3	0	0	0
5	222PSO05	Software requirement engineering	OE	3	0	0	0

ALLOCATION OF CREDITS

Semester	I	II	III	IV
Credits	22	21	18	12
Total	73			

Foundation Course(FC)

SL. No.	Course Code	Course Title	Periods / Week & Credits				Preferred Semester
			L	T	P	C	
1.	122PST01	Applied Mathematics for Power System Engineers	3	1	0	4	1

Professional Elective (PE)

SL. No.	Course Code	Course Title	Periods / Week & Credits				Preferred Semester
			L	T	P	C	
1.	222PSE01	Power System Economics and Control	3	0	0	3	2
2.	222PSE02	Electrical Transients in Power Systems	3	0	0	3	2
3.	222PSE03	Power System Optimization Techniques	3	0	0	3	2
4.	222PSE04	Computational Intelligence Techniques to Power Systems	3	0	0	3	2
5.	222PSE07	Demand Side Energy Management	3	0	0	3	2
6.	222PSE08	Energy Storage and Technologies	3	0	0	3	2
7.	222PSE09	Electromagnetic Interference and capability	3	0	0	3	2
8.	222PSE10	Power Electronics for Renewable Energy Systems	3	0	0	3	2
9.	222PSE11	Electrical Power Distribution System	3	0	0	3	2
10.	222PSE12	Machine Learning and Deep Learning	3	0	0	3	2
11.	322PSE01	Wind and Solar Energy Systems	3	0	0	3	3
12.	322PSE02	Power system deregulation	3	0	0	3	3
13.	322PSE03	Smart Grid Design and Analysis	3	0	0	3	3
14.	322PSE04	Insulation Technology and High Voltage Engineering	3	0	0	3	3
15.	322PSE05	EHV Power Transmission	3	0	0	3	3
16.	322PSE06	Python Programming for Machine Learning	3	0	0	3	3
17.	322PSE07	Design of Controllers in Power Application	3	0	0	3	3
18.	322PSE08	Electric Power Distribution System	3	0	0	3	3
19.	322PSE09	Computer Relaying and Wide Area Measurement Systems	3	0	0	3	3
20.	322PSE10	Application of DSP To Power System Protection	3	0	0	3	3
21.	322PSE11	Electric Vehicles and Power Management	3	0	0	3	3
22.	322PSE12	High Voltage Technology	3	0	0	3	3

Professional Core (PC)

SL. No.	Course Code	Course Title	Periods / Week & Credits				Preferred Semester
			L	T	P	C	
1.	122PST02	Computer Aided Power System Analysis	3	1	0	4	1
2.	122PST03	Power System Operation and Control	3	1	0	3	1
3.	122PST04	System Theory	3	0	0	3	1
4.	122PST05	Analysis of Power Converters	3	0	0	3	1
5.	122PSP07	Power System Laboratory -I	3	0	0	3	1
6.	122PSP08	Power Converters Laboratory	3	0	0	3	1
7.	222PST01	Power System Dynamics and Stability	3	0	0	4	2
8.	222PST02	Advanced Power System Protection	3	0	0	3	2
9.	222PST03	Restructured Power System	3	0	0	3	2
10.	222PSP08	Power System Simulation Laboratory - II	3	0	0	3	2

Research Methodology and IPR Courses (RMC)

SL. No.	Course Code	Course Title	Periods / Week & Credits				Preferred Semester
			L	T	P	C	
1.	122PST06	Research Methodology and IPR	3	0	0	3	1

Employability Enhancement Courses (EEC)

SL.No.	Course Code	Course Title	Periods / Week & Credits				Preferred Semester
			L	T	P	C	
1	222PSP07	Technical Seminar	0	0	2	1	2
2	322PSP01	Project Work (Phase – I)	0	0	12	6	3
3	422PSP01	Project Work (Phase - II)	0	0	24	12	4

SUMMARY						
Name of the Programme : M.E – Power Systems Engineering						
Sl No.	Subject Area	Credits Per Semester				Total Credits
		I	II	III	IV	
1	FC	4				4
2	RMC	3				3
3	PC	15	11	6		32
4	OE		3			3
5	PE		6	6		12
6	EEC		1	6	12	19
7	Non Credit / Audit Course	□	□			
	Total	22	21	18	12	73