

PROPOSED PROGRAMME STRUCTURE

Programme Code: **JES**

Master of Technology in Energy Studies Interdisciplinary Programme

The overall credits structure

Category	PC	PE	OE	Total
Credits	30	18	06	54

Programme Core (PC): JES

ESL710	Energy, Ecology and Environment	3-0-0	3
ESL711	Fuel Technology	3-0-0	3
ESL720	Energy Conservation	3-0-0	3
ESL730	Direct Energy Conversion	3-0-0	3
ESL740	Non-conventional Sources of Energy	3-0-0	3
ESL750	Economics and Planning of Energy Systems	3-0-0	3
ESL760	Heat Transfer	3-0-0	3
ESP713	Energy Laboratory	0-0-6	3
JSD801	Major Project Part – 1 (JES)	0-0-12	6
Total PC		21-0-18	30

Programme Electives (PE): JES

ESL714	Power Plant Engineering	3-0-0	3
ESL718	Power Generation, Transmission and Distribution	3-0-0	3
ESL722	Integrated Energy Systems	3-0-0	3
ESL732	Bioconversion and Processing of Waste	3-0-0	3
ESL734	Nuclear Energy	3-0-0	3
ESL737	Plasma Based Materials Processing	3-0-0	3
ESL746	Hydrogen Energy	3-0-0	3
ESL755	Solar Photovoltaic Devices and Systems	3-0-0	3
ESL768	Wind Energy and Hydro Power Systems	3-0-0	3
ESL770	Solar Energy Utilization	3-0-0	3
ESL796	Operation and Control of Electrical Energy Systems	3-0-0	3
ESL810	MHD Power Generation	3-0-0	3
ESL840	Solar Architecture	3-0-0	3
ESL850	Solar Refrigeration and Air Conditioning	3-0-0	3
ESL860	Electrical Power Systems Analysis	3-0-0	3
ESL870	Fusion Energy	3-0-0	3
ESL871	Advanced Fusion Energy	3-0-0	3
ESL880	Solar Thermal Power Generation	3-0-0	3
JSS801	Independent Study (JES)	0-3-0	3
JSD799	Minor Project (JES)	3-0-0	3
JSD802	Major Project Part – 2 (JES)	0-0-24	12
MEL815	Applied Combustion	2-0-4	4
MEL816	Analysis of I.C. Engine Processes	3-0-2	4
EEL748	Power Quality	3-0-0	3
EEL899	Distribution Automation	3-0-0	3
CHL722	Fundamentals of Fuel Cell Technology	3-0-2	4

Proposed Semester wise Course Distribution

JES

SEMESTER	Courses (Number, abbreviated title, L-T-P, Credits)					Lecture Courses	Contact h/week				Credits
							L	T	P	Total	
I	ESL740 Non-Conventional Sources of Energy (3-0-0) 3	ESL711 Fuel Technology (3-0-0) 3	ESL760 Heat Transfer (3-0-0) 3	ESL750 Economics and Planning of Energy systems (3-0-0) 3	PE-1 (3-0-0) 3	5	15	0	0	15	15
II	ESL720 Energy Conservation (3-0-0) 3	ESL710 Energy, Ecology and Environment (3-0-0) 3	ESP713 Energy Laboratory (0-0-6) 3	ESL730 Direct Energy Conversion (3-0-0) 3	PE-2 (3-0-0) 3	4	12	0	6	18	15
SUMMER	JSD801 Major Project Part I (JES)					0					
III	JSD801 Major Project Part-I (JES) (0-0-12) 6	OE-1 (3-0-0) 3	OE-2 (3-0-0) 3			2	6	0	12	18	12
IV	JSD802 Major Project Part-II (JES) (0-0-24) 12					0	0	0	24	24	12
	PE-3 (3-0-0) 3	PE-4 (3-0-0) 3	PE-5 (3-0-0) 3	PE-6 (3-0-0) 3		4	12	0	0	12	
Total 54											

DETAILS OF M.TECH. PROGRAMME IN ENERGY STUDIES

Programme Name: Energy Studies

Duration: 2 years (Total Semesters: 4)

Total: 54 credits (Programme Core Courses: 30 + Programme Elective Courses: 18 + Open Elective Courses: 6)

1. Details of Programme Core (PC) Courses (Total: 30 Credits) for the proposed M. Tech. Programme in Energy Studies are given in Table 1

Table 1: PC Courses

S. No.	Course No.	Course Name	L-T-P	Credits
Core Courses				
1	ESL710	Energy, Ecology and Environment	3-0-0	3
2	ESL711	Fuel Technology	3-0-0	3
3	ESL720	Energy Conservation	3-0-0	3
4	ESL730	Direct Energy Conversion	3-0-0	3
5	ESL740	Non-conventional Sources of Energy	3-0-0	3
6	ESL750	Economics and Planning of Energy Systems	3-0-0	3
7	ESL760	Heat Transfer	3-0-0	3
8	ESP713	Energy Laboratory	0-0-6	3
9	JSD801	Major Project Part – 1 (JES)	0-0-12	6
Total Credits of Core Courses				30

2. A List of Programme Elective (PE) Courses is given in Table 2. Any four courses can be selected by the student.

Table 2: PE Courses

S. No.	Course No.	Course Name	L-T-P	Credits
Electives Courses				
1	ESL714	Power Plant Engineering	3-0-0	3
2	ESL718	Power Generation, Transmission and Distribution	3-0-0	3
3	ESL722	Integrated Energy Systems	3-0-0	3
4	ESL732	Bioconversion and Processing of Waste	3-0-0	3
5	ESL734	Nuclear Energy	3-0-0	3
6	ESL737	Plasma Based Materials Processing	3-0-0	3
7	ESL746	Hydrogen Energy	3-0-0	3
8	ESL755	Solar Photovoltaic Devices and Systems	3-0-0	3
9	ESL768	Wind Energy and Hydro Power Systems	3-0-0	3
10	ESL770	Solar Energy Utilization	3-0-0	3
11	ESL796	Operation and Control of Electrical	3-0-0	3
12	ESL810	MHD Power Generation	3-0-0	3
13	ESL840	Solar Architecture	3-0-0	3
14	ESL850	Solar Refrigeration and Air Conditioning	3-0-0	3
15	ESL860	Electrical Power Systems Analysis	3-0-0	3
16	ESL870	Fusion Energy	3-0-0	3
17	ESL871	Advanced Fusion Energy	3-0-0	3
18	ESL880	Solar Thermal Power Generation	3-0-0	3
19	JSS801	Independent Study (JES)	0-3-0	3
20	JSD799	Minor Project (JES)	3-0-0	3
21	JSD802	Major Project Part – 2 (JES)	0-0-24	12

S. No.	Course No.	Course Name	L-T-P	Credits
22	MEL815	Applied Combustion	2-0-4	4
23	MEL816	Analysis of I.C. Engine Processes	3-0-2	4
24	EEL748	Power Quality	3-0-0	3
25	EEL899	Distribution Automation	3-0-0	3
26	CHL722	Fundamentals of Fuel Cell Technology	3-0-2	4

SEMESTER WISE PLAN

S. No.	Semester	No. of Credits	Distribution of credits
1.	First	15	12 Credits (PC) and 3 Credits (PE)
2.	Second	18	12 Credits (PC), 3 Credits (PE) and 3 Credits (OE)
3.	Third	9	6 Credits (PC), 3 Credits (OE)
4.	Fourth	12	12 Credits (PE)
Total Credits :		54	

