

**Kolhapur Institute of Technology's
College of Engineering (Autonomous),
Kolhapur**



KOLHAPUR INSTITUTE
OF TECHNOLOGY'S
**COLLEGE OF
ENGINEERING**
(AUTONOMOUS)
KOLHAPUR



Department of Technology
Faculty of Engineering & Technology
University of London



Department of Electrical Engineering
Curriculum and Syllabus for
B. Tech. Electrical Engineering
Scheme: 2024-25 (As Per NEP)

Sl. No.	Semester	Course Code	Course Name	L	T	P	Practical	Credits	Evaluation Scheme	
									Continuous	Examination
1	PC	UELPC0301	DC Machines & Transformers	4	1	1		4	10	10
2	PC	UELPC0302	Electrical Circuit Analysis	4	1	1		4	10	10
3	PC	UELPC0303	Computational Techniques	4	1	1		4	10	10
4	PC	UELPC0304	Power Electronics & Drives	4	1	1		4	10	10
5	PC	UELPC0305	Control Systems	4	1	1		4	10	10
6	PC	UELPC0306	Power Quality	4	1	1		4	10	10
7	PC	UELPC0307	Renewable Energy Sources	4	1	1		4	10	10
8	PC	UELPC0308	Smart Grids	4	1	1		4	10	10
9	PC	UELPC0309	Energy Storage Systems	4	1	1		4	10	10
10	CVT (PBL)	UELPC0310	Innovative Projects	1	1	1		1	10	10
11	MM	UELMM0301	Mini-Project	1	1	1		1	10	10
Total				27	7	7		27	100	100



SEMESTER III

Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs. / Week	Credits	Evaluation Scheme			
									Component			
1	PC	UELPC0301	DC Machines & Transformers	3	1	-	4	4	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
2	PC	UELPC0302	Electrical Circuit Analysis	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
3	PC	UELPC0303	Computational Mathematics	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
4	PC	UELPC0304	Analog Electronics Engineering	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
5	VEC	UELVE0301	Environmental Studies	2	-	-	2	2	ISE	50	20	2
6	HSSM	UELHS0301	Project Management	2	-	-	2	2	ESE	50	20	2
7	PC	UELPC0331	DC Machines & Transformers Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	50	20	
8	PC	UELPC0332	Electrical Circuit Analysis Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (OE)	25	10	
9	PC	UELPC0333	Analog Electronics Engineering Laboratory	-	-	2	2	1	ISE	25	10	
10	OJT (PBL)	UELIL0371	Innovative Practices	-	-	2	2	1	ISE	50	20	
11	MM	U**MM0***	Multi Disciplinary Minor-I	2	-	-	2	2	ESE	100	40	
Total:							27	23	Total Marks: 800 Total Credit: 23			

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SEMESTER IV												
									Component			
1	PC	UELPC0401	Electrical Power Systems	2	-	-	2	2	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
2	PC	UELPC0402	AC Machines	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
3	PC	UELPC0403	Power Electronics	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
4	PC	UELPC0404	Electrical Measurements & Instrumentation	2	-	-	2	2	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
5	PC	UELPC0405	Electromagnetic Field Theory	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
6	VEC	UELVE0401	Constitution of India	2	-	-	2	2	ISE	50	20	20
7	PC	UELPC0431	AC Machines Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
8	PC	UELPC0432	Power Electronics Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
9	OJT (PBL)	UELIL0471	Mini Project-I	-	-	2	2	1	ISE	25	10	
10	VSEC	UELVS0431	Electrical Wiring Practices	-	-	2	2	1	ISE	25	10	
11	CC	UELCC0431	Co -Curricular Activities-II	-	-	2	2	1	ISE	50	20	
12	MM	U**MM0***	Multi Disciplinary Minor -II	3	-	-	3	3	ESE	100	40	40
Total:							28	23	Total Marks: 850 Total Credit: 23			

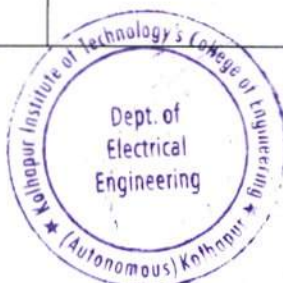

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SEMESTER V													
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs. / Week	Credits	Evaluation Scheme				
									Component				
1	PC	UELPC0501	Control Systems	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
2	PC	UELPC0502	Electrical Utilization & Traction	2	-	-	2	2	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
3	PC	UELPC0503	Power System Analysis	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
4	PEC	UELPE051X	Program Elective-I	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
5	OE	UELOE052X	Open Elective -I	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
6	HSSM	UELHS0501	Business Planning & Strategy	2	-	-	2	2	ESE	50	20	20	
7	PC	UELPC0531	Control System Laboratory	-	-	2	2	1	ISE	25	10		
									ESE (POE)	25	10		
8	PC	UELPC0532	Power System Analysis Laboratory	-	-	2	2	1	ISE	25	10		
									ESE (OE)	25	10		
9	VSEC	UELVS0531	Python For Electrical Engineering	-	-	2	2	1	ISE	25	10		
10	CEP	UELIL0531	Community Engagement Project	-	-	2	2	1	ISE	25	10		
11	MM	U**MM0***	Multi Disciplinary Minor -III	3	-	-	3	3	ESE	100	40	40	
Total:							28	23	Total Marks: 800				
									Total Credit: 23				

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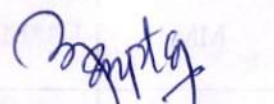
PROGRAM ELECTIVE - I

Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELPE0511	Microcontroller & Microprocessor	3	-	-	3	3
2	UELPE0512	Material Science Engineering	3	-	-	3	3
3	UELPE0513	Renewable Energy Sources	3	-	-	3	3
Total:						3	3

OPEN ELECTIVE - I

Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELOE0521		3	-	-	3	3
Total:						3	3


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SEMESTER VI													
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs. / Week	Credits	Evaluation Scheme				
									Component				
1	PC	UELPC0601	Electrical Drives & Control	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
2	PC	UELPC0602	IOT for Electrical Engg.	2	-	-	2	2	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
3	PC	UELPC0603	Power System Protection	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
4	PEC	UELPE061X	Program Elective- II	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
5	OE	UELOE062X	Open Elective -II	3	-	-	3	3	ISE1	10	20	40	
									MSE	30			
									ISE2	10			
									ESE	50			
6	AEC	UELAE0631	Business Communication and Value Science	-	-	2	2	1	ISE	50	20	20	
7	PC	UELPC0631	Electrical Drives & Control Laboratory	-	-	2	2	1	ISE	25	10		
									ESE (POE)	25	10		
8	PC	UELPC0632	IOT for Electrical Engg. Laboratory	-	-	2	2	1	ISE	25	10		
									ESE (OE)	25	10		
9	PC	UELPC0633	Power System Protection Laboratory	-	-	2	2	1	ISE	25	10		
10	FP	UELIL0631	Mini Project-II	-	-	2	2	1	ISE	25	10		
11	CC	UELCC0631	Co -Curricular Activities-III	-	-	2	2	1	ISE	50	20		
12	MM	U**MM0***	Multi Disciplinary Minor-IV	3	-	-	3	3	ESE	100	40	40	
Total:							29	23	Total Marks: 850 Total Credit: 23				

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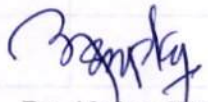


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PROGRAM ELECTIVE - II						
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week
1	UELPE0611	Electrical Machine Design	3	-	-	3
2	UELPE0612	Power System Operation and Control	3	-	-	3
3	UELPE0613	Advanced Control System	3	-	-	3
Total:						3
						3

OPEN ELECTIVE - II						
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week
1	UELOE0621		3	-	-	3
Total:						3
						3


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SEMESTER VII												
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs. / Week	Credits	Evaluation Scheme			
									Component			
1	PC	UELPC0701	Industrial Automation	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
2	PC	UELPC0702	Power Quality	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
3	PC	UELPC0703	HVDC & FACTS	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
4	PEC	UELPE071X	Program Elective-III	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
5	OE	UELOE072X	Open Elective-III	2	-	-	2	2	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
6	PC	UELPC0731	Industrial Automation Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
7	PC	UELPC0732	Power Quality Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (OE)	25	10	
8	RM	UELIL0771	Project -I	-	-	8	8	4	ISE I	50	20	40
									ESE (OE)	50	20	
9	MM	U**MM0***	Multi Disciplinary Minor-V	3	-	-	3	3	ESE	100	40	40
Total:							29	23	Total Marks: 800 Total Credit: 23			

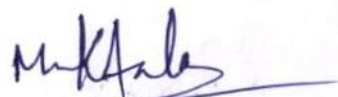

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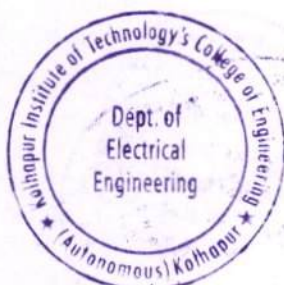

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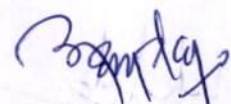
PROGRAM ELECTIVE - III						
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week Credits
1	UELPE0711	Reactive Power Management	3	-	-	3 3
2	UELPE0712	Special Purpose Machines	3	-	-	3 3
3	UELPE0713	Electrical Vehicle Technology	3	-	-	3 3
Total:						3 3

OPEN ELECTIVE - III						
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week Credits
1	UELOE0721		2	-	-	2 2
Total:						2 2



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SEMESTER VIII												
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs. / Week	Credits	Evaluation Scheme			
									Component			
1	PEC	UELPE081X	Program Elective-IV	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
2	PEC	UELPE081X	Program Elective-V	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
3	RP	UELIL0871	Project - II	-	-	8	8	4	ISE	50	20	
									ESE (OE)	50		
4	OJT	UELIL0872	Internship	-	-	12	12	6	ISE I	75	30	
									ISE II	75		
5	CC	UELCC0831	Co - Curricular Activities-IV	-	-	2	2	1	ISE	50	20	
Total:							28	17	Total Marks: 500			
									Total Credit: 17			

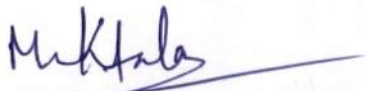

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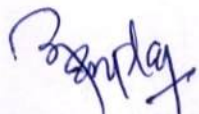

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PROGRAM ELECTIVE - IV							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELPE0811	High Voltage Engineering	3	-	-	3	3
2	UELPE0812	Battery Management System	3	-	-	3	3
3	UELPE0813	Computer Aided Power System Analysis	3	-	-	3	3
Total:						3	3

PROGRAM ELECTIVE - V							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELPE0814	EHVAC	3	-	-	3	3
2	UELPE0815	Wide Area Measurement Systems	3	-	-	3	3
3	UELPE0816	Smart Grid	3	-	-	3	3
Total:						3	3

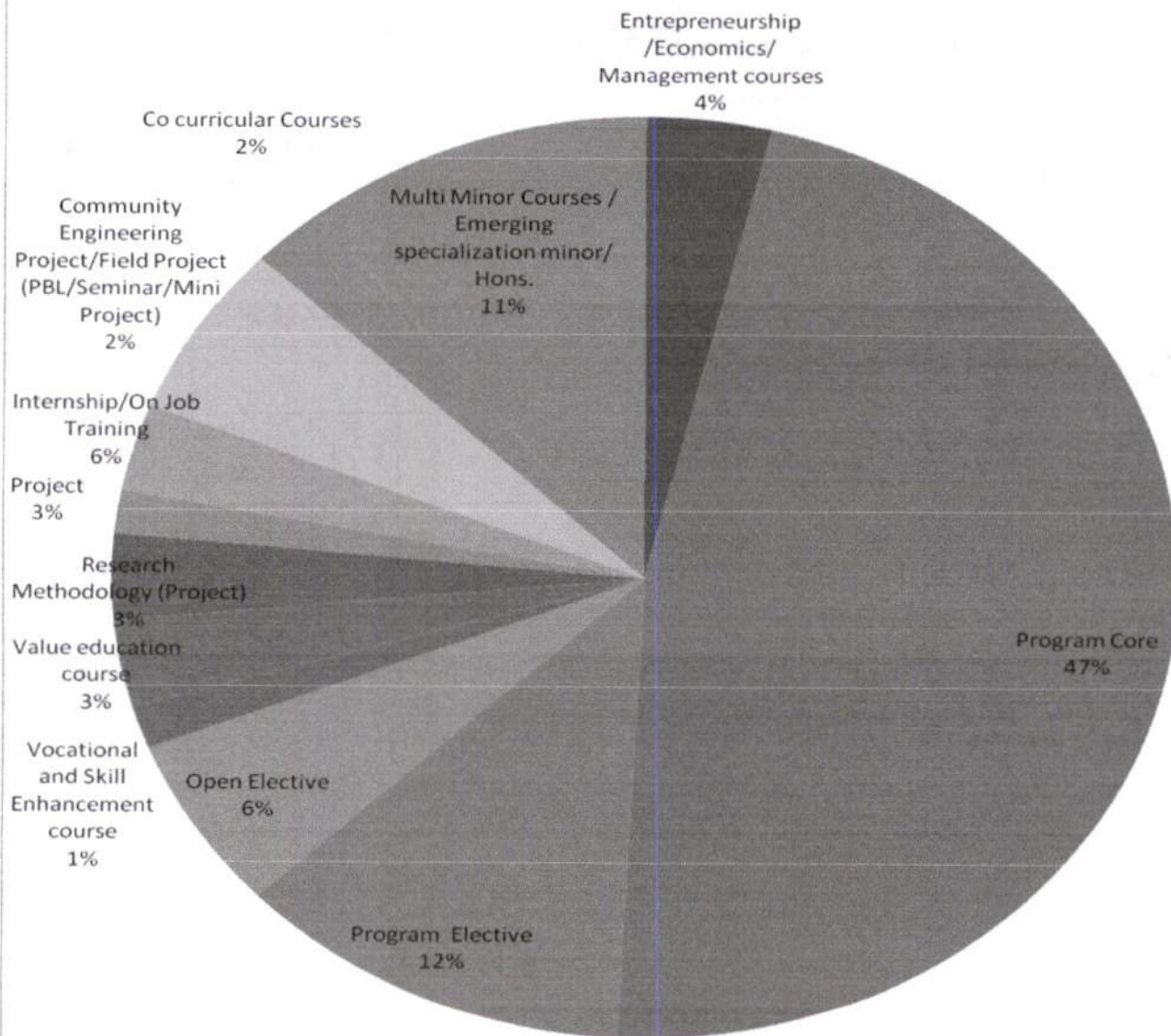

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Credit Distribution:

Chart Title

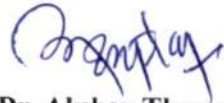


Pie chart showing the distribution of credits

Pie chart showing Theory & Practical components


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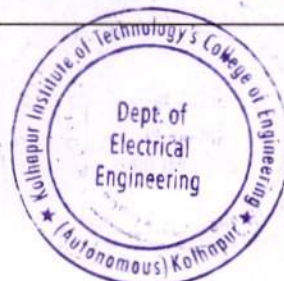



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ENTREPRENEURSHIP /ECONOMICS/ MANAGEMENT COURSES							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELHS0301	Project Management	2	-	-	2	2
2	UELHS0501	Business Planning & Strategy	2	-	-	2	2
3	UELAE0601	Business Communication and Value Science	-	-	2	2	1
Total:						6	5

PROGRAM CORE							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELPC0301	DC Machines & Transformers	3	1	-	4	4
2	UELPC0302	Electrical Circuit Analysis	3	-	-	3	3
3	UELPC0303	Computational Mathematics	3	-	-	3	3
4	UELPC0304	Analog Electronics Engineering	3	-	-	3	3
5	UELPC0331	DC Machines & Transformers Laboratory	-	-	2	2	1
6	UELPC0332	Electrical Circuit Analysis Laboratory	-	-	2	2	1
7	UELPC0333	Analog Electronics Engineering Laboratory	-	-	2	2	1
8	UELPC0401	Electrical Power Systems	2	-	-	2	2
9	UELPC0402	AC Machines	3	-	-	3	3
10	UELPC0403	Power Electronics	3	-	-	3	3
11	UELPC0404	Electrical Measurements & Instrumentation	2	-	-	2	2
12	UELPC0405	Electromagnetic Field Theory	3	-	-	3	3
13	UELPC0431	AC Machines Laboratory	-	-	2	2	1
14	UELPC0432	Power Electronics Laboratory	-	-	2	2	1
15	UELPC0501	Control System	3	-	-	3	3
16	UELPC0502	Electrical Utilization & Traction	2	-	-	2	2
17	UELPC0503	Power System Analysis	3	-	-	3	3
18	UELPC0531	Control System Laboratory	-	-	2	2	1
19	UELPC0532	Power System Analysis Laboratory	-	-	2	2	1
20	UELPC0601	Electrical Drives & Control	3	-	-	3	3
21	UELPC0602	IOT for Electrical Engg.	2	-	-	2	2
22	UELPC0603	Power System Protection	3	-	-	3	3
23	UELPC0631	Electrical Drives & Control Laboratory	-	-	2	2	1
24	UELPC0632	IOT in Electrical Engg. Laboratory	-	-	2	2	1
25	UELPC0633	Power System Protection Laboratory	-	-	2	2	1
26	UELPC0701	Industrial Automation	3	-	-	3	3
27	UELPC0702	Power Quality	3	-	-	3	3
28	UELPC0703	HVDC & FACTS	3	-	-	3	3
29	UELPC0731	Industrial Automation Laboratory	-	-	2	2	1
30	UELPC0732	Power Quality Laboratory	-	-	2	2	1
Total:						75	63

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VOCATIONAL AND SKILL ENHANCEMENT COURSE							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELVS0431	Electrical Wiring Practices	-	-	2	2	1
2	UELVS0531	Python For Electrical Engineering	-	-	2	2	1
Total:						4	2

VALUE EDUCATION COURSE							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELVE0301	Environmental Studies	2	-	-	2	2
2	UELVE0401	Constitution of India	2	-	-	2	2
Total:						4	4

RESEARCH METHODOLOGY (PROJECT)							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELIL0771	Project -I	-	-	8	8	4
Total:						8	4

Community Engineering Project/Field Project (PBL/Seminar/Mini Project)							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELIL0531	Community Engagement Project	-	-	2	2	1
2	UELIL0631	Mini Project-II	-	-	2	2	1
Total:						4	2

Project							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELIL0871	Project -II	8	-	-	8	4
Total:						8	4


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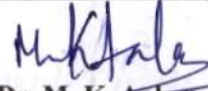

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Internship/On Job Training							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELIL0331	Innovative Practices (PBL)	-	-	2	2	1
2	UELIL0431	Mini Project-I	-	-	2	2	1
3	UELIL0831	Internship	-	-	12	12	6
						16	8

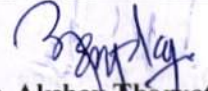
Co curricular Courses							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELCC0431	Co -Curricular Activities-II	-	-	2	2	1
2	UELCC0631	Co -Curricular Activities-III	-	-	2	2	1
3	UELCC0831	Co -Curricular Activities-IV	-	-	2	2	1
			Total:			6	3

Multi Disciplinary Minor Course : Robotics & Automation							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELMM0341	Introduction to Robotics & Automation	2	-	-	2	2
2	UELMM0441	Sensors in Automation	3	-	-	3	3
3	UELMM0541	Microprocessor & Real time Embedded Systems	3	-	-	3	3
4	UELMM0641	Artificial Intelligence for Robotics	3	-	-	3	3
5	UELMM0741	Applications of Robotics & Automation	3	-	-	3	3
			Total:			14	14

B. Tech Honors : Electric Vehicles							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELHN0351	Electric Vehicles Drives	3	1	-	4	4
2	UELHN0451	Electric Vehicles Charging Infrastructure	3	1	-	4	4
3	UELHN0551	Energy Storage and Battery Management Systems	3	1	-	4	4
4	UELHN0651	Electrical Vehicle Design, Analysis and Testing	3	1	-	4	4
5	UELHN0751	Project on Electric Vehicle	-	-	4	4	2
			Total:			20	18


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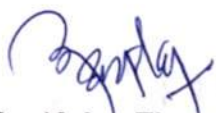

Dr. Akshay Thorvat
 Dean Academics

Emerging Minor : Internet of Things							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELMN0361	Introduction to Internet of Things	2	-	-	2	2
2	UELMN0461	Introduction to Security in IoT	3	-	-	3	3
3	UELMN0561	Sensing, Computing and Communication in IoT	3	-	-	3	3
4	UELMN0661	Embedded Systems for IoT	3	-	-	3	3
5	UELMN0761	IoT with Arduino, ESP, and Raspberry Pi	3	-	-	3	3
Total:						14	14

Exit Courses							
Sr. No.	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	UELEX0491	Electrical Machines Maintenance	3	-	-	3	3
2	UELEX0492	Wiring Practices & Electrical Harnesses	3	-	-	3	3
3	UELEX0493	Field Training	-	-	4	4	2
4	UELEX0691	Design & Installation of Solar & Wind Systems.	3	-	-	3	3
5	UELEX0692	Introduction to Electrical Software Tools	3	-	-	3	3
6	UELEX0693	Field Training	-	-	4	4	2
Total:						20	16


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