GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Course Title: AC Machines Lab

Following documents are available in Course File.

S.No.	Points	Yes	No
1	Institute and Department Vision and Mission Statements	✓	
2	PEO & PO Mapping	✓	
3	Academic Calendar	✓	
4	Subject Allocation Sheet	✓	
5	Class Time Table, Individual Timetable (Single Sheet)	✓	
6	Syllabus Copy	✓	
7	Course Handout	✓	
8	CO-PO Mapping	✓	
9	CO-Cognitive Level Mapping	✓	
10	Lecture Notes		✓
11	Tutorial Sheets With Solution		✓
12	Soft Copy of Notes/Ppt/Slides		✓
13	Sessional Question Paper and Scheme of Evaluation		✓
14	Best, Average and Weak Answer Scripts for Each Sessional Exam. (Photocopies)		✓
15	Assignment Questions and Solutions		✓
16	Previous University Question Papers		✓
17	Result Analysis		✓
18	Feedback From Students		✓
19	Course Exit Survey		✓
20	CO Attainment for All Mids.		✓
21	Remedial Action.		✓

Course Instructor / Course Coordinator **Course Instructor / Course Coordinator**

D Srinivasa Rao **D Srinivasa Rao**

(Name) **(Signature)**

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Vision of the Institute

To be among the best of the institutions for engineers and technologists with attitudes, skills and knowledge and to become an epicenter of creative solutions.

Mission of the Institute

To achieve and impart quality education with an emphasis on practical skills and social relevance.

Vision of the Department

To impart technical knowledge and skills required to succeed in life, career and help society to achieve self sufficiency.

Mission of the Department

- To become an internationally leading department for higher learning.
- To build upon the culture and values of universal science and contemporary education.
- To be a center of research and education generating knowledge and technologies which lay groundwork in shaping the future in the fields of electrical and electronics engineering.
- To develop partnership with industrial, R&D and government agencies and actively participate in conferences, technical and community activities.

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INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Programme Educational Objectives (B.Tech. – EEE)

This programme is meant to prepare our students to professionally thrive and to lead.
During their progression:

Graduates will be able to

PEO 1: Have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams.
PEO 2: Acquire, use and develop skills as required for effective professional practices.
PEO 3: Able to attain holistic education that is an essential prerequisite for being a responsible member of society.
PEO 4: Engage in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.

Programme Outcomes (B.Tech. – EEE)

At the end of the Programme, a graduate will have the ability to

PO 1: Apply knowledge of mathematics, science, and engineering.
PO 2: Design and conduct experiments, as well as to analyze and interpret data.
PO 3: Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
PO 4: Function on multi-disciplinary teams.
PO 5: Identify, formulates, and solves engineering problems.
PO 6: Understanding of professional and ethical responsibility.
PO 7: Communicate effectively.
PO 8: Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
PO 9: Recognition of the need for, and an ability to engage in life-long learning.
PO 10: Knowledge of contemporary issues.
PO 11: Utilize experimental, statistical and computational methods and tools necessary for engineering practice.
PO 12: Demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.

PEOs & POs Mapping

Programme Educational Objectives (PEOs)	Programme Outcomes (POs)											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1	M	M	-	-	H	-	-	H	H	-	H	H
2	-	-	M	M	H	H	H	-	-	-	-	H
3	-	-	-	-	H	H	M	M	M	M	H	H
4	-	-	-	M	M	H	M	H	H	-	M	H

* H: Strongly Correlating (3); M: Moderately Correlating (2)& L: Weakly Correlating (1)

HOD-EEE

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

GRIET/DAA/1H/G/18-19 05 May 2018

ACADEMIC CALENDAR
Academic Year 2018-19

II B.TECH – FIRST SEMESTER

S. No.	EVENT	PERIOD	DURATION
1	1st Spell of Instructions	02-07-2018 to 05-09-2018	9 Weeks3 Days
2	1st Mid-term Examinations	06-09-2018 to 08-09-2018	3 Days
3	2nd Spell of Instructions	10-09-2018 to 27-10-2018	7 Weeks
4	2nd Mid-term Examinations	29-10-2018 to 31-10-2018	3 Days
5	Preparation	01-11-2018 to 07-11-2018	1Week
6	**End Semester Examinations (Theory/ Practicals) Regular/Supplementary**	**08-11-2018 to 08-12-2018**	**4 Weeks 3 Days**
7	Commencement of Second Semester, A.Y 2018-19	10-12-2018	

IIB.TECH – SECOND SEMESTER

S. No.	EVENT	PERIOD	DURATION
1	1st Spell of Instruction	10-12-2018 to 06-02-2019	8 Weeks3 days
2	1st Mid-term Examinations	07-02-2019 to 09-02-2019	3 Days
3	2nd Spell of Instruction	11-02-2019 to 03-04-2019	**7 Weeks 3 Days**
4	2nd Mid-term Examinations	04-04-2019to 06-04-2019	3 Days
5	Preparation	08-04-2019 to 17-04-2019	**1 Week 3 Days**
6	**End Semester Examinations(Theory/ Practicals) Regular**	18-04-2019 to 08-05-2019	3 Weeks
7	**Supplementary and Summer Vacation**	**09-05-2019 to 22-06-2019**	**6 Weeks 3 Days**
8	Commencement of First Semester, A.Y 2019-20	24-06-2019	

Copy to Director, Principal, Vice Principal, DOA, DOE, Balaji Kumar, DCGC, All HODs

(Dr. K. Anuradha)
Dean of Academic Affairs

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Gokaraju Rangaraju Institute of Engineering and Technology				
Department of Electrical and Electronics Engineering				
2018-19 II sem Subject Allocation sheet				
	GRIET/EEE/05B/G/18-19		**30.10.18**	
	II YEAR(GR17)	Section-A	Section-B	
	Managerial Economics and Financial Analysis			
	Power Generation and Distrubution	SN	SN	
	AC Machines	VVSM	VVSM	
	Control Systems	Dr DGP	MS	
	Princeples of Digital Electronics	PRK	PRK	
	AC Machines Lab	PPK/DSR	PPK/DSR	
	Control Systems Lab	MS/PSVD	MS/PSVD	
	Analog and Digital Electronics Lab	RAK/DKK	RAK/DKK	
	Value Education and Ethics			
	Gender Sensitization Lab	MS/PSVD	MS/PSVD	
	III YEAR (GR15)			
	Computer Methods in Power systems	VVRR/MP	VVRR/MP	
	Switch Gear & Protection	PSVD	Dr JSD	
	Management Science			
	Utilization of Electrical Energy	MRE	MRE	
	Non Conventional Sources of Energy			
	Neural and Fuzzy Systems			
	Sensors&Transducers	UVL	UVL	
	Power Systems Lab	GSR/YSV	GSR/YSV	
	Advanced English Communications Skills Lab			
	Industry Oriented Mini Project Lab	PPK/AVK/Dr JP	MP/Dr JP	
	IV YEAR (GR15)			
	Programmable Logic Controllers	PK		
	Flexible AC Transmission Systems	Dr TSK		
	EHV AC Transmission			
	Power System Automation			
	Modern Power Electronics	AVK		
	DSP Based Electromechanical Systems			
	Advaced Control Systems			

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Department of Electrical & Electronics Engineering

	Programmable Logic Controllers-Lab	VVSM	PK	
	Main Projects	RAK/Dr SVJK	PK/VVRR	
	M.Tech PE			
	Modeling and Analysis of Electrical Machines	Dr BPB		
	Digital control of power Electronics and Drive Systems	Dr DGP		
	FACTS and Custom power Devices	Dr TSK		
	Smart Grids	VVRR		
	Audit Course -2	YSV/UVL		
	Power Quality Lab	Dr BPB		
	Digital Signal Processing Lab	AVK		
	MINI Projects	Dr JP/GSR		
	M.Tech PS			
	Digital Protection of Power System	Dr JSD		
	Power System Dynamics -II	Dr SVJK		
	FACTS and Custom power Devices	Dr TSK		
	Smart Grids	VVRR		
	Audit Course -2	YSV/UVL		
	Power Quality Lab	Dr BPB		
	Power System Protection Lab	VUR		
	MINI Projects	Dr JP/GSR		
	Other Dept.			
	BEE (I YEAR) CSE (6)	MNSR,MK,MVK,		
	BEE Lab	MNSR,MK,MVK,YSV,VUR,PS,UVL,MRE,GBR		
	EET (II YEAR) Mech (2)	KS	KS	
	EET LAB (II TEAR) Mech (2)	KS,DKK,PPK,		

HoD-EEE

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

GRIET/PRIN/06/G/01/18-19 wef: 10 Dec 2018

B.Tech - EEE – A II Year - II Semester

Day/Hour	9:00 - 9:50	9:50 - 10:40	10:40 - 11:30	11:30-12:00	12:00-12:45	12:45 - 1:30	1:30 - 2:15	2:15 - 3:00
MONDAY	MEFA		PGD	BREAK	CS		PDE	
TUESDAY	MEFA		ACM		PGD		CS	
WEDNESDAY	VEE		PDE		PGD		ACM	
THURSDAY	CS		ACM		CS/GS LAB(A1) /ADE Lab(A2)			
FRIDAY	ACM		PDE		CS/GS LAB(A2) /**ACM Lab(A1)**			
SATURDAY	PDE		PGD		ADE Lab(A2) / **ACM Lab (A1)**			

Room No.	
Theory	4401
Lab	**2106-07/4505/4507**
Class Incharge:	V V S Madhuri

Subject Code	Subject Name	Faculty Code	Faculty Name	Almanac	
MEFA	Managerial Economics and Financial Analysis	KL	K Latha	1st Spell of Instructions	10-12-2018 to 06-02-2019
PGD	Power Generation and Distrubution	SN	Syed Sarfaraz Nawaz	1st Mid-term Examinations	07-02-2019 to 09-02-2019
ACM	AC Machines	VVSM	VVS Madhuri	2nd Spell of Instructions	11-02-2019 to 03-04-2019
CS	Control Systems	Dr DGP	Dr D G Padhan	2nd Mid-term Examinations	04-04-2019 to 06-04-2019
PDE	Principles of Digital Electronics	PRK	P Ravi Kanth	Preparation	08-04-2019 to 17-04-2019
ACM Lab	**AC Machines Lab**	**PPK/DSR**	**P Praveen Kumar/ D Srinivasa Rao**	End Semester Examinations (Theory/ Practicals) Regular	18-04-2019 to 08-05-2019
CS Lab	Control Systems Lab	MS/PSVD	M Srikanth /P Srividya Devi		
ADE Lab	Analog and Digital Electronics Lab	RAK/DKK	R Anil Kumar/D Karuna Kumar	Supplementary and Summer Vacation	09-05-2019-to 22-06-2019
VEE	Value Education and Ethics	KL	K Latha		
GS Lab	Gender Sensitization Lab	MS/PSVD	M Srikanth /P Srividya Devi	Commencement of Second Semester , AY	24-06-2019

HOD **Co-ordinator** **DAA**

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

GRIET/PRIN/06/G/01/18-19 wef: 10 Dec 2018

B.Tech - EEE - B II Year - II Semester

Day/Hour	9:00 - 9:50	9:50 - 10:40	10:40 - 11:30	11:30-12:00	12:00-12:45	12:45 - 1:30	1:30 - 2:15	2:15 - 3:00
MONDAY	CS		PDE	BREAK	CS/GS LAB(B1) /ADE Lab(B2)			
TUESDAY	CS		PDE		**CS/GS LAB(B2) /ACM Lab (B1)**			
WEDNESDAY	PGD		ACM		**ADE Lab(B2) / ACM Lab(B1)**			
THURSDAY	MEFA		CS		PGD		ACM	
FRIDAY	MEFA		CS		ACM		PDE	
SATURDAY	VEE		ACM		PDE		PGD	

Room No.	
Theory	4402
Lab	**2106-07/4505/4507**
Class Incharge:	V V S Madhuri

Subject Code	Subject Name	Faculty Code	Faculty Name	Almanac	
MEFA	Managerial Economics and Financial Analysis	KL	K Latha	1st Spell of Instructions	10-12-2018 to 06-02-2019
PGD	Power Generation and Distrubution	SN	Syed Sarfaraz Nawaz	1st Mid-term Examinations	07-02-2019 to 09-02-2019
ACM	AC Machines	VVSM	VVS Madhuri	2nd Spell of Instructions	11-02-2019 to 03-04-2019
CS	Control Systems	MS	M Srikanth	2nd Mid-term Examinations	04-04-2019 to 06-04-2019
PDE	Principles of Digital Electronics	PRK	P Ravi Kanth	Preparation	08-04-2019 to 17-04-2019
ACM Lab	**AC Machines Lab**	**PPK/DSR**	**P Praveen Kumar/ D Srinivasa Rao**	End Semester Examinations (Theory/ Practicals) Regular	18-04-2019 to 08-05-2019
CS Lab	Control Systems Lab	MS/PSVD	M Srikanth /P Srividya Devi		
ADE Lab	Analog and Digital Electronics Lab	RAK/DKK	R Anil Kumar/D Karuna Kumar	Supplementary and Summer Vacation	09-05-2019-to 22-06-2019
VEE	Value Education and Ethics	KL	K Latha		
GS Lab	Gender Sensitization Lab	MS/PSVD	M Srikanth /P Srividya Devi	Commencement of Second Semester , AY	24-06-2019

HOD **Co-ordinator** **DAA**

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Syllabus – AC Machines Lab
Course Code: GR17A2044
B.Tech II Year II Sem

Contents:

1. OC, SC and Load tests on single phase transformer.

2. Sumpner's test.

3. V and inverted V curves of a 3-phase synchronous motor. 4.

4.Brake test on slip ring induction motor.

5. No-load and block rotor tests on squirrel cage induction motor.

6. Equivalent circuit of single phase induction motor.

7. Determination of Xd and Xq of a salient pole synchronous machine from slip test.

8. Regulation of alternator by synchronous impedance method and MMF method.

9. Hysteresis loss determination.

10.Scott connection.

11.Induction generator.

12.Heat run test on transformer.

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Department of Electrical & Electronics Engineering

-

COURSE OBJECTIVES

Academic Year : 2018-2019

Semester : II

Name of the Program: EEE…… B.Tech …II/II…..… Section: A,B

Course/Subject: ACM Lab……Code: …GR17A2044

Name of the Faculty: D.Srinivas Rao Dept: ……..EEE……
Designation: Assistant professor

On completion of this Subject/Course the student shall be able to:

S.No	Course Objectives
1.	Basic knowledge of transformers.
2.	Basic knowledge of induction motors.
3.	Basic knowledge of alternators.
4.	Design a practical transformer.
5.	Knowledge about an induction generator.
6.	Concept of back to back connection of a transformer.
7.	Concept of three phase to two phase conversion by Scott connection.

Signature of HOD Signature of faculty

Date: Date:

GOKARAJU RANGARAJU
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Department of Electrical & Electronics Engineering

COURSE OUTCOMES

Academic Year : 2018-2019

Semester : II

Name of the Program: EEE…… B.Tech …II/II……. Section: A,B

Course/Subject: ACM Lab…… Code:GR17A2044

Name of the Faculty: D.Srinivasa rao Dept: ……..EEE……

Designation: Assistant professor

The expected outcomes of the Course/Subject are:

S.No	Course Outcomes
1.	Have knowledge of various parts of a electrical machine.
2.	Calculate the parameters of equivalent circuit of single phase induction motor.
3.	Conduct open circuit/ short circuit test on transformer.
4.	Conduct experiments on Ac Machines to find the characteristics.
5.	Draw the various characteristics of three phase induction motor.
6.	Perform test on synchronous Machine to find Direct and quadrature axis reactance.
7.	Conduct No Load and Full load tests on transformers/Induction Motor

Signature of HOD Signature of faculty

Date:

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

GUIDELINES TO STUDY THE COURSE / SUBJECT

Academic **Y**ear : 2018-2019

Semester : II

Name of the Program: B.Tech Year: II Section: A/B
Course/Subject: ACM Lab Course Code: GR17A2044

Name of the Faculty: D Srinivasa rao

Designation: ASST.PROFESSOR.

Guidelines to study the Course/ Subject: ACM Lab

CourseDesignandDeliverySystem(CDD):

- The Course syllabus is written into number of learning objectives and outcomes.
- These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, projects, seminars, presentations, etc.
- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

Understand the principles of Learning

Understand the psychology of students

Develop instructional objectives for a given topic

Department of Electrical & Electronics Engineering

Prepare course, unit and lesson plans

Understand different methods of teaching and learning

Use appropriate teaching and learning aids

Plan and deliver lectures effectively Provide feedback to students using various methods of Assessments and tools of Evaluation

Act as a guide, adviser, counselor, facilitator, and motivator and not just as a teacher alone

Signature of HOD Signature of faculty

Date: Date:

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

COURSE SCHEDULE

Academic Year : 2018-2019
Semester : II
Name of the Program: EEE…… B.Tech …II/II…..… Section: A,B

Course/Subject: ACM Lab…… Code: GR17A2044

Name of the Faculty: D.Srinivasa Rao Dept: ……..EEE……

Designation: Assistant professor
The Schedule for the whole Course / Subject is:

Exp. No.	Description	Duration(Date)	Total No. of Periods
1.	OC, SC and Load tests on single phase transformer.	12-Dec	4
2.	*Sumpner's test.*	19-Dec	4
3.	V and inverted V curves of a 3-phase synchronous motor.	26-Dec	4
4.	Brake test on slip ring induction motor.	02-Jan	4
5.	No-load and block rotor tests on squirrel cage induction motor.	09-Jan	4
6.	Equivalent circuit of single phase induction motor.	16-Jan	4
7	Determination of Xd and Xq of a salient pole synchronous machine from slip test.	23-Jan	4
8.	Regulation of alternator by synchronous impedance method and MMF method.	30-Jan	4
9.	Hysteresis loss determination.	06-Feb	4
10	Scott connection.	13-Feb	4
11.	Induction generator.	20-Feb	4
12.	Heat run test on transformer.	27-Feb	4

Total No. of Instructional periods available for the course: …. …….Hours / Periods

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Department of Electrical & Electronics Engineering

SCHEDULE OF INSTRUCTIONSCOURSEPLAN

Academic Year : 2018-2019

Semester : II

Name of the Program: EEE…… B.Tech …II/II……. Section: A,B

Course/Subject: ACM Lab…… Code:GR17A2044

Name of the Faculty: D.Srinivasa Rao Dept: ……..EEE……
Designation: Assistant professor

Exp. No	Topics	Objectives & Outcomes	References(TextBook,Journal…)
1.	OC, SC and Load tests on single phase transformer.	1,2,3 & 1,2	Electric Machines by I.J. Nagrath&D.P. Kothari
2.	*Sumpner's test.*	1,2,3 & 1,2	Electric Machines by I.J. Nagrath&D.P. Kothari
3	V and inverted V curves of a 3-phase synchronous motor.	1,2,3& 1,2	Electric Machines by I.J. Nagrath&D.P. Kothari
4	Brake test on slip ring induction motor.	1,2,3,6& 1,2	Electric Machines by I.J. Nagrath&D.P. Kothari
5	No-load and block rotor tests on squirrel cage induction motor.	1,2,3& 1,2	Electric Machines by I.J. Nagrath&D.P. Kothari
6	Equivalent circuit of single phase induction motor.	1,2,3 & 1,2	Electric Machines by I.J. Nagrath&D.P. Kothari
7	Determination of Xd and Xq of a salient pole synchronous machine from slip test.	1,2,3,4 & 1,2	Electric Machines by I.J. Nagrath&D.P. Kothari

8	Regulation of alternator by synchronous impedance method and MMF method.	1,2,3 & 2	Electric Machines by I.J. Nagrath&D.P. Kothari
9	Hysteresis loss determination.	1,2,3 & 2	Electric Machines by I.J. Nagrath&D.P. Kothari
10	Scott connection.	1,2,3 & 2	Electric Machines by I.J. Nagrath&D.P. Kothari
11	Induction generator.	1,2,3,& 2	Electric Machines by I.J. Nagrath&D.P. Kothari
12	Heat run test on transformer.	1,2,3,4 ,5,6 & 2	Electric Machines by I.J. Nagrath&D.P. Kothari

Signature of HOD

Date:

Signature of faculty

Date:

COURSE OUTCOME AND PROGRAM OUTCOME MAPPING

PO's / CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	H	H	M		H		M	H	H	H	H
CO2		H	H	M		H			M	H	H	H
CO3	H	M		H		M	H		M			M
CO4	H		H	M		M	H	M	M		H	M
CO5	H	H	M	M		H	H	H			H	M
CO6		H	H	M		H	H	M	H	M	H	H
CO7	H	H	H	M		H		M	H		H	H

Assessment methods:

1. Operation skill and familiarization ofsoftware.
2. Experimental procedure, simulation results, internal observation, labrecord.
3. Internal examinations.
4. External examinations.
5. Viva-voce.

1. **Course Objectives-Program Outcomes (POs) Relationship Matrix**
(Indicate the relationships by mark "X")

P-Outcomes	A	B	c	d	e	F	g	h	i	j	k	l

C-Objectives												
1	X	X	X	X	X				X	X	X	X
2	X				X		X	X		X	X	
3	X	X	X			X	X	X	X		X	X
4				X	X	X		X	X	X	X	
5		X	X	X					X	X		
6				X	X	X		X		X	X	
7	X	X	X	X	X	X	X		X	X	X	

2. Course Outcomes-Program Outcomes (POs) Relationship Matrix (Indicate the relationships by mark"X")

P-Outcomes C-Outcomes	a	b	c	d	e	f	g	h	i	J	K	l
1	X	X	X	X	X			X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X	X	X	X	X	X
4	X	X	X							X	X	X
5	X	X	X							X	X	X
6	X	X	X							X	X	X
7	X	X	X							X	X	X

3. Courses (with title & code)-Program Outcomes (POs) Relationship Matrix
(Indicate the relationships by mark "X"

P-Outcomes Courses	a	b	c	d	e	f	g	h	i	j	K	l
Electrical Networks Lab	X	X	X	X	X	X	X	X	X	X	X	X