CRITERION 2	Program Curriculum and Teaching-Learning Processes	100

2.1. PROGRAM CURRICULUM (30)

2.1.1 State the Process for Designing the Program Curriculum (10):

Step 1: To strengthen the teaching and learning process, curriculum is modified every three years and strengthened by introduction of new courses from emerging areas of Electrical Engineering.

Step 2: Department Undergraduate Committee (DUGC) is formulated once in every three years with HOD as Chairman, all faculty members and one faculty from sister department as a member. The committee collects feedback, suggestions, and modifications, if any, from stakeholders and submits the same to the course instructor to prepare/modify the curriculum.

Step 3: The course instructors prepare and submit a tentative draft after thorough study of the report given by DUGC. The committee analyses and evaluates all the issues mentioned in the draft related to feedback and direct the instructor to draft a curriculum aligned with PEOs, PSOs and Pos.

Step 4: The draft after approval of the DUGC, is sent to Program Assessment Committee (PAC) for their comments.

Step 5: The PAC submits the same to the Departmental Assessment Board (DAB), chaired by the HOD. Again, the curriculum is subjected to evaluation so that the contents fulfill all the statutory requirements, else it is again returned for review.

Step 6: Redrafting the curriculum is made on the basis of valuable comments into consideration, the final draft ready for Senate Undergraduate Committee's (SUGC) approval.

Step 7: Taking the comments from the members of SUGC into consideration, final draft syllabus is put to the approval of the Senate.

Step 8: The final draft is circulated and disseminated to various stakeholders.

The design and development of curriculum is explained in the flow chart given here under

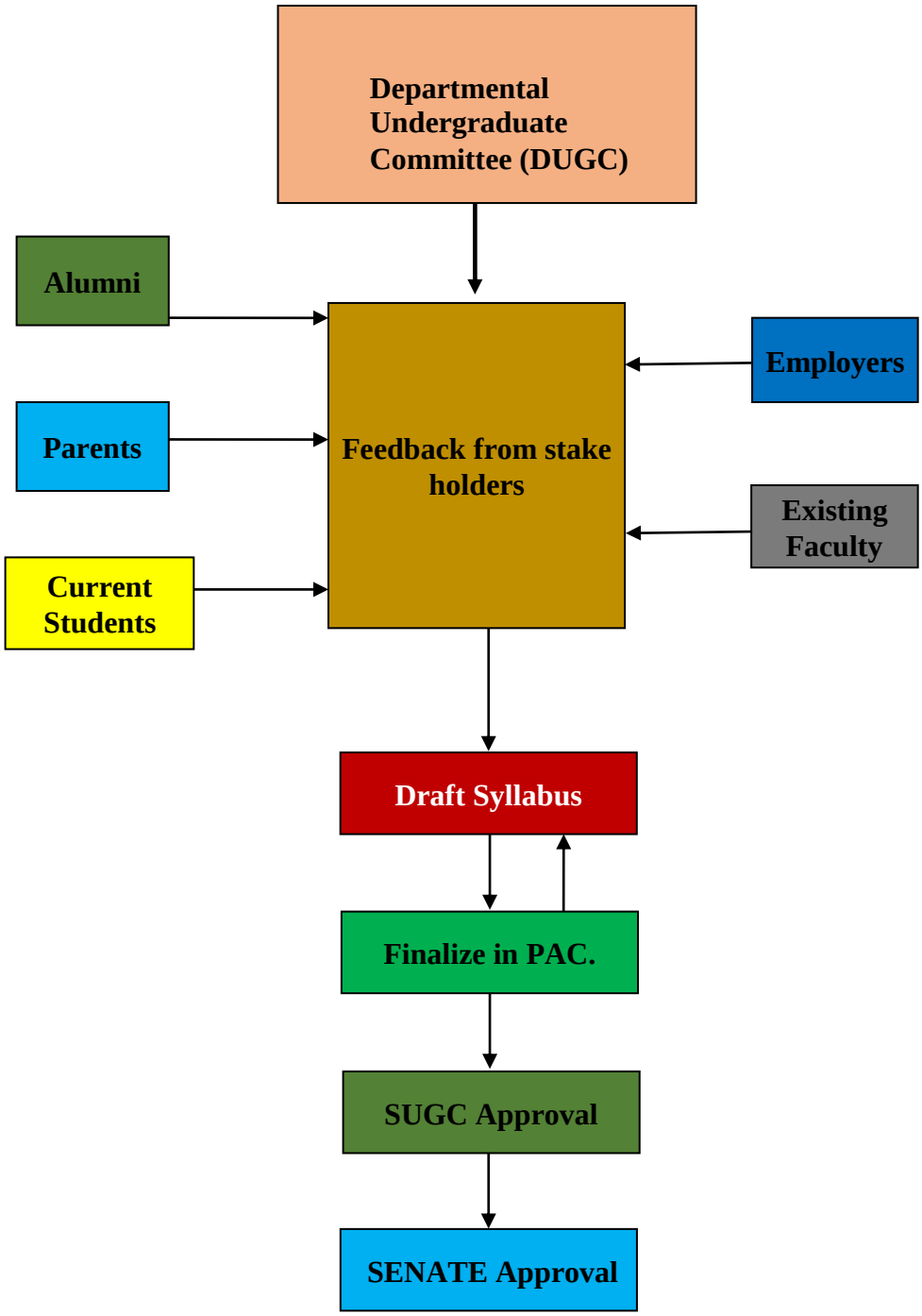

Figure: Process of designing the program curriculum

2.1.2 Structure of the Curriculum (5)

Scheme and Syllabi of Courses B.Tech. Year-2019 batch onwards

1st Semester (Group A) Electrical / Electronics & Comm. / Computer Science / Information Technology

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	EEL100	Basic Electrical Engineering	Electrical	4	3	1	0	4
2	HUL100	Basic English and Communication Skills	Humanities	3	2	1	0	3
3	ITL100	Computer Programming	Information Technology	3	2	1	0	3
4	CYL100	Engineering Chemistry	Chemistry	4	3	1	0	4
5	CIP100	Engineering Drawing	Civil	4	1	0	6	7
6	MAL100	Mathematics I	Mathematics	4	3	1	0	4
7	ELP100	Basic Electrical Engineering Laboratory	Electrical	1	0	0	2	2
8	CYP100	Chemistry Laboratory	Chemistry	1	0	0	2	2
9	ITP100	Computer Programming Laboratory	Information Technology	1	0	0	2	2
		Total		25	14	5	12	31

1st Semester (Group B) Civil/ Mechanical / Chemical / Mett & Mat Science

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	MEL100	Elements of Mechanical Engg.	Mechanical	3	2	1	0	3
2	PHL100	Engineering Physics	Physics	4	3	1	0	4
3	CIL100	Engineering Mechanics	Civil	4	3	1	0	4
4	HUL100	Basic English and Communication Skills	Humanities	3	2	1	0	3
5	CYL101	Environmental Studies	Chemistry	3	2	1	0	3
6	MAL100	Mathematics I	Mathematics	4	3	1	0	4
7	HUP100	Language Laboratory	Humanities	1	0	0	2	2
8	PHP100	Physics Laboratory	Physics	1	0	0	2	2
9	WSP100	Workshop Practice	Workshop	2	0	0	5	5
		Total		25	15	6	9	30

2nd Semester (Group A) Electrical / Electronics & Comm. / Computer Science / Information Technology

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	HUL101	Advanced English Comm. Skills & Organizational Behavior	Humanities	3	2	1	0	3
2	PHL100	Engineering Physics	Physics	4	3	1	0	4
3	CIL100	Engineering Mechanics	Civil	4	3	1	0	4
4	MEL100	Elements of Mechanical Engg.	Mechanical	3	2	1	0	3
5	CYL101	Environmental Studies	Chemistry	3	2	1	0	3
6	MAL101	Mathematics II	Mathematics	4	3	1	0	4
7	HUP100	Language Laboratory	Humanities	1	0	0	2	2
8	PHP100	Physics Laboratory	Physics	1	0	0	2	2
9	WSP100	Workshop Practice	Workshop	2	0	0	5	5
		Total		25	15	6	8	30

2nd Semester (Group B) Civil/ Mechanical / Chemical / Mett & Mat Science

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	HUL101	Advanced English Comm. Skills & Organizational Behavior	Humanities	3	2	1	0	3
2	EEL100	Basic Electrical Engineering	Electrical	4	3	1	0	4
3	ITL100	Computer Programming	Information Technology	3	2	1	0	3
4	CYL100	Engineering Chemistry	Chemistry	4	3	1	0	4
5	CIP100	Engineering Drawing	Civil	4	1	0	6	7
6	MAL101	Mathematics II	Mathematics	4	3	1	0	4
7	ELP100	Basic Electrical Engineering Laboratory	Electrical	1	0	0	2	2
8	CYP100	Chemistry Laboratory	Chemistry	1	0	0	2	2
9	ITP100	Computer Programming Laboratory	Information Technology	1	0	0	2	2
		Total		25	14	5	12	31

3rd Semester

S. No.	**Course Code**	**Course Title**	**Credits**	**Contact Hours**			
				L	**T**	**P**	**Total**
1	EET201	Electrical Measurement & Instrumentation.	4	3	1	0	4
2	ECT201	Electronics-I	4	3	1	0	4
3	ECT202	Network Analysis	4	3	1	0	4

4	PHT201	EMF & Waves	4	3	1	0	4
5	MMT209	Electrical Engg. Materials	4	3	1	0	4
6	MAT204	Mathematics-III	4	3	1	0	4
7	ECL204	Electronics – I Lab	1	0	0	2	2
Total			25	18	6	2	26

4th Semester

S. No	Course Code	Course Title	Credits	Contact Hours			
				L	T	P	Total
1.	EET250	Electrical Machines-I	4	3	1	0	4
2.	EET251	Control Systems-I	4	3	1	0	4
3.	MET257	Thermal Engineering	4	3	1	0	4
4.	ECT250	Electronics-II	4	3	1	0	4
5.	CVT259	Hydraulics & Hydraulic Machines	3	2	1	0	3
6.	MAT253	Mathematics-IV	3	2	1	0	3
7.	EEL252	Electrical Machines – I Lab.	1	0	0	2	2
8.	EEL253	Electrical Measurement & Instrumentation-Lab	1	0	0	2	1
9.	ECL253	Electronics-II Lab	1	0	0	2	3
		Total	**25**	**16**	**6**	**6**	**28**

Scheme and Syllabi of Courses B.Tech. Year-2015 batch onwards

Course Code	Course Title	Total Number of contact hours				Credits
		Lecture (L)	Tutorial (T)	Practical(P)	Total Hours	
1st Semester						
PHY-101	Physics	3	0	0	3	3
PHY-102 P	Physics (Lab)	0	0	2	2	1
CHM-101	Chemistry	4	0	0	4	4
CHM-102 P	Chemistry (Lab)	0	0	2	2	1
MTH-101	Mathematics	3	1	0	4	4
HSS-101	Humanities	3	1	0	4	4
CIV-102	Engineering Drawing	1	0	3	4	4
IT-101	Computer Science	3	0	0	3	3
IT-102 P	Computer Science (Lab)	0	0	2	2	1
WSP-1P	Workshop Practice	1	0	3	4	2

2nd Semester						
PHY-201	Physics-II	3	0	0	3	3
PHY-201 P	Physics-II (Lab)	0	0	2	2	1
CHM-201	Chemistry-II	3	1	0	4	4
CHM-201 P	Chemistry-II (Lab)	0	0	2	2	1
MTH-201	Mathematics-II	3	1	0	4	4
HSS-201	Humanities-II	3	1	0	4	4
MED-201	Machine Drawing	1	0	2	3	3
CSE-201	Programming	3	0	0	3	3
CSE-202 P	Computer Programming (Lab)	0	0	2	2	1
CIV-201	Engineering Mechanics	3	1	0	4	4
WSP-II P	Workshop Practice	1	0	3	4	2
3rd Semester						
ELE-301	Basic Electrical Engineering	2	1		3	3
ELE-301P	Basic Electrical Engineering LAB	-	-	2		1
ECE-301	Network Analysis and Synthesis	3	1	0	4	4
ECE-302	Electronics-I	2	1		3	3
ECE-302P	Electronics-I LAB	-	-	2		1
PHY-303	Electro Magnetic Fields & Waves	2	1	0	3	3
MET-302	Electrical Engineering Materials	2	1	0	3	3
MTH-305	Mathematics-III	2	1	0	3	3
MECH-ELE	Engineering Thermodynamics	3	1	0	4	4
ELE-301	Principles of Electrical Engineering (For ECE Department)	3	1		4	4
ELE-301P	Principles of Electrical Engineering LAB (For ECE Department)			2		1
ELE-302	Electrical Engineering Technology (For Civil Engineering Department)	2	1		3	3
ELE-302P	Electrical Engineering Technology LAB (For Civil Engineering Department)			2		1
ELE-303	Electrical Engineering Technology (For Chemical Engineering Department)	2	1		3	3
ELE-303P	Electrical Engineering Technology LAB (For Chemical Engineering Department)			2		1
ELE-304	Electrical Engineering Technology (For Metallurgical Engg. Department)	2	1		3	3
ELE-304P	Electrical Engineering Technology LAB (For Metallurgical Engg. Department)			2		1
ELE-305	Basic Electrical Engineering (For Computer Sciences and Engineering)	2	1		3	3

ELE-305P	Basic Electrical Engineering LAB (For Computer Sciences and Engg.)			2		1
ELE-306	Circuit Analysis (For Information Technology)	2	1		3	3
ELE-306P	Circuit Analysis LAB (For Information Technology)			2		1
4^{th} Semester						
ELE-401	Electric Machines-I	3	1	0	4	4
ELE-401P	Electric Machines-I Lab	0	0	2	-	1
ELE-402	Control Systems-I	3	1	0	4	4
ELE-403	Electrical Measurements and Measuring Instruments	3	1	0	4	4
ELE-403P	Electrical Measurements and Measuring Instruments Lab	0	0	2	-	1
ECE-402	Electronics – II	3	1	0	4	4
ECE-402P	Electronics – II Lab.	0	0	2	-	1
CIV-401	Hydraulics and Hydraulic Machines	2	1	0	3	3
MTH-402	Mathematics-IV	2	1	0	3	3
ELE-405	Electrical Machines (For ECE Department)	2	1		3	3
ELE-406	Electrical Engineering Technology (For Electrical Engineering Department)	2	1		3	3
ELE-406P	Electrical Engineering Technology Lab. (For Electrical Engineering Department)	0	0	2		1
ELE-407	Control Systems (For ECE Department)	2	1		3	3
ELE-407P	Control Systems Lab. (For ECE Department)	0	0	2		1
ELE-408	Control Systems (For Information Technology)	2	1		3	3
ELE-408	Control Systems (For CSE)	2	1		3	3
5^{th} Semester						
ELE-501	Power Systems – I	2	1	0	3	3
ELE-501P	Power Systems - I Lab.	0	0	2	-	1
ELE-502	Electric Machines-II	3	1	0	4	4
ELE-502P	Electric Machines-II Lab.	0	0	2	-	1
ELE-503	Control System-II	2	1	0	3	3
ELE-503P	Control System & VI Lab.	0	0	2	-	1
ELE-504P	Computer Aided Simulation of Electrical Systems	0	0	3	-	2

ECE-508	Communication Systems	2	1	0	3	3
ECE-509	Digital Electronics & Logic Design	2	1	0	3	3
ECE-509P	Digital Electronics & Logic Design Lab.	0	0	2	-	1
MTH-503	Mathematics-V	2	1	0	3	3
6th Semester						
ELE-601	Power Systems-II	3	1	0	4	4
ELE-601P	Power Systems-II LAB	0	0	2	-	1
ELE-602	Power Electronics	3	1	0	4	4
ELE-602P	Power Electronics LAB	0	0	2	-	1
ELE-603	Electric Machines Design	3	1	0	4	4
ELE-604	Tour & Training	0	0	0	2	2
ELE-605	Digital Signal Processing	3	1	0	4	4
ELE-606	Microprocessors	3	1	0	4	4
ELE-606P	Microprocessors LAB	0	0	2	-	1
ELE-607	Power Electronics (For ECE Department)	2	1		3	3
ELE-607P	Power Electronics Lab. (For ECE Department)	0	0	2		1
7th Semester						
ELE-701	Power System Protection	2	1		3	3
ELE-701 P	Power System Protection LAB.			2		1
ELE-702	Advanced Power Electronics	3	1	0	4	4
ELE-703	Power Systems-III	3	1	0	4	4
ECE-708	Electronic Measurements & Instrumentation	2	1		3	3
ECE-708P	Electronic Measurements &Instrumentation LAB			2		1
ELE-704	Power Station Practice	2	1	0	3	3
ELE-1-14	Elective	2	1	0	3	3
ELE-706P	Project Preliminary Work/ Seminar	0	0	3		3
ELE-705	Electrical Power Systems (For ECE Department)	2	1		3	3
ELE-705P	Electrical Power Systems Lab. (For ECE Department)	0	0	2		1
8th Semester						
HSS-701	General Management & Economics	2	1	0	4	03
ELE-1-14 / MTH-705	Elective-I	2	1	0	3	03
ELE-803	High Voltage Engineering	2	1	0	3	03
ELE-803P	High Voltage Engineering Lab.	0	0	2	0	01
ELE-802	Project	0	0	18	12	12

ELE-1-14	Elective-II	2	1	0	3	03
Total		207				

Department Elective Subject for 7th& 8th Semesters (Electrical)
BATCH 2015 ONWARDS
Electives –I, II, III (3 credits each)

1. Distribution System Automation ELE-1/E
2. Industrial Process Instrumentation & Telemetry ELE-2/E
3. Selected Topics in Advanced Control ELE-3/E
4. Mechatronics ELE-4/E
5. Advanced Power Systems Control ELE-5/E
6. Power Systems Transients ELE-6/E
7. System Planning & Load Forecasting ELE-7/E
8. EHV AC & DC Transmission ELE-8/E
9. Maintenance & Design of Electrical Sub Stations ELE-9/E
10. Power System Reliability ELE-10/E
11. Utilization & Traction ELE-11/E
12. Microcontroller & their applications + LAB ELE-12/E
13. Electric Drives + LAB ELE-13/E
14. Renewable Sources of Electrical Energy ELE-14/E
15. Optimization Techniques MTH-705

2.1.3 State the components of the curriculum (5)

Programme curriculum grouping based on different components.

Course Component	Curriculum Content (% of Total Number of Credits of the program)	Total number of Contact hours	Total number of credits
Basic Sciences	8.212	17	17
Engineering	15.45	34	32

Sciences			
Humanities and Social Sciences	14.00	33	29
Program Core	47.82%	114	99
Program Electives	4.347%	9	9
Open Electives	1.93%	8	4
Project/ Internships/Seminars	8.212%	15	17
Total number of credits			**207**

2.1.4. State the process used to identify the extent of compliance of the curriculum for attaining the Program Outcome (POs) and Program Specific Outcomes (PSOs) (10):

Different methods / processes are used to identify the extent of compliance of the curriculum for attaining the Program Outcomes and Program Specific Outcomes. Based on the POs mentioned in SAR of NBA, subjects are segregated and mapped with POs.

Each Course has well defined course outcomes and they correlate to POs and PSOs leading to eventual attainment. This strong correlation among the COs and POs, develops the necessary skills in students, and transforms them as proficient engineers.

Process to identify the extent of compliance of curriculum for attainment of POs & PSOs.

- POs & PSOs stated clearly.
- Department curriculum is stated subject wise and the percentage of total credits for each subject is evaluated.
- The total number of contact hours for each subject in a semester is calculated.
- Course allocation to the faculty takes place two months prior to the commencement of classes as per the faculty preference such as to prepare their pedagogical approach for the subject.
- Faculty incharge of the course prepares detailed lecture plans according to the academic calendar of the Institution and maintains a course file comprising of all the lesson plans. The lecture plans incorporate the details of the topics to be covered in each lecture, syllabus to be covered before internal exams, number of tutorials to be conducted and, total number of lecture hours necessary for completion of the course.
- The Program Assessment Committee considers the defined mandatory graduate attributes (GAs) from the NBA guidelines, Program Educational Objectives, Vision and Mission statements of the Department and views from the stakeholders. The committee develops POs & PSOs and discusses with the senior faculty members of the Department. The developed POs & PSOs are put up in DUGC (earlier Board of Studies) meeting for review and approval. Process of defining POs and PSOs is depicted in the flowchart as shown in Figure B.2.1.4a.

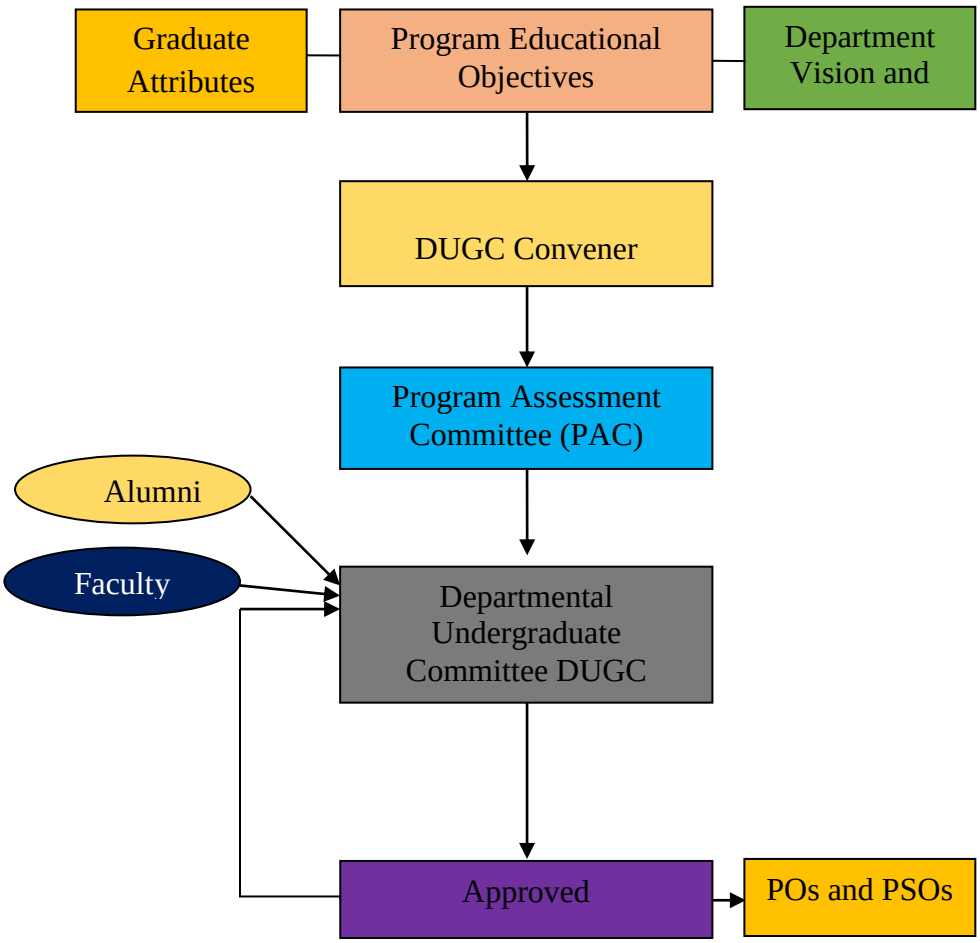

Figure: Procedure for Defining Program Outcomes and Program Specific Outcomes

The PO and PSO articulation matrix are as follows:

Year (2017-18)

Course Code	Course Name	CO Code	POs												PSO		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
PHY 101	Physics	C 101.1	3	3	2	1	1	1									
		C 101.2	3	3	3	2	1	1									
		C 101.3	3	3	3	1	1	1									
		C 101.4	3	3	3	1	1	1									
		AVERAGE	3	3	2.75	1.25	1	1									
PHY 101 P	Physics Lab	C 101.1	3	3	2	3	1	1	3	1	3	2	2	3	2	2	1
		C	1	1	3	2	1	2	1		2	2	2	3	2	1	1

		101.2															
		C 101.3	3	1	3	1	1		2	2	3	2	1	1	2	1	1
		C 101.4	2	2	1	1	3	2	1	2	3		3	1	2	1	1
		C 101.5	3	1	1	1	3	2	1	2	1	1		1	2	1	1
		AVERAGE	2.4	1.6	2	1.6	1.8	1.75	1.6	1.75	2.4	1.75	2	1.8	2	1.2	1
CHM -101	**Chemistry I**	**C 101.1**	2	2	1		2		1			2		2	3	2	1
		C 101.2	2	2	1			1	2			2		2	3	2	2
		C 101.3	3	2	2			2	2			2	2	3	2	3	2
		C 101.4	3	3	2		2	1	2		1	1		2	1	3	2
		AVERAGE	2.5	2.25	1.5		2	1.3333	1.75		1	1.75	2	2.25	2.25	2.5	1.75
CHM -101 P	**Chemistry I Lab**	**C 101.1**	2	2			3	2	1			1		2	3	2	1
		C 101.2	3	1			2	2	3			1	2	1	2	3	2
		C 101.3	3	1			2	2	3			2		1	3	3	2
		C 101.4	2	2			3	2	2				2	1	2	2	1
		AVERAGE	2.5	1.5			2.5	2	2.25			1.3333	2	1.25	2.5	2.5	1.5
MTH -101	**Mathematics-I**	**C 101.1**	2	2	1	2	2	1							2	2	1
		C101.2	2	2	2	3	2	2							2	3	1
		C 101.3	2	2	2	2	2	1							2	3	1
		C 101.4	1	2	2	2	1	1							2	1	1
		C 101.5	1	2	2	1	2										
		AVERAGE	1.6	2	1.8	2	1.8	1.25							2	2.25	1
HSS-101	**Communication Skills and oral Presentation**	**C 101.1**									2	3	2				
		C101.2									2	2	2				
		C 101.3									2	3	3				
		C 101.4									3	2	2				
		AVERAGE									2.25	2.5	2.25				
CIV-102	**Engineering Drawing**	**C 102.1**	3	3	3	3	2	1	2	2			3	2	3	2	2
		C102.2	3	3	3	3	2	1	2	2			3	2	3	2	2
		C 102.3	3	3	3	3	2	1	2	2			3	2	3	2	2
		C 102.4	3	3	3	3		3	1	2			3	2	3	2	2
		AVERAGE	3	3	3	3	2	1.5	1.75	2			3	2	3	2	2
ITL 101	**Computer Fundamentals and Problem**	**C 101.1**	3				2							2	3	1	1
		C101.2	3											2	3	2	1
		C	2	3	1									2	2	2	1

	solving	**101.3**															
		C 101.4	2	3	1		2							2	3	3	3
		AVERAGE	2.5	3	1		2							2	2.75	2	1.5
IT-102P	**Computer Fundamentals and Problem solving Lab**	**C 101.1**	3				2							2	1		1
		C101.2	2		1		3							2	1		1
		C 101.3	2	1	1		2							2	1		1
		C 101.4	2	2	2		2							2	1		1
		C 101.5	2	2	2		2							2	1		1
		AVERAGE	2.2	1.6667	1.5		2.2							2	1		1
WSP-1	**Workshop Practice**	**C 101.1**	3	1	1		2	2	2	2	3	2		3	2	1	1
		C101.2	3	1	1		2	2	2	2	3	2		3	2	1	1
		C 101.3	3	1	1		2	2	2	2	3	2		3	2	1	1
		C 101.4	3	1	1		2	2	2	2	3	2		3	2	1	1
		C 101.5	3	1	1		2	2	2	2	3	2		3	2	1	1
		AVERAGE	3	1	1		2	2	2	2	3	2		3	2	1	1
PHY-201	**Physics II**	**C 201.1**	3	3	2	1	1				1						
		C201.2	3	3	3	2	1				1						
		C 201.3	3	3	3	1	1				1						
		C 201.4	3	3	3	1	1				1						
		AVERAGE	3	3	2.75	1.25	1				1						
PHY-201 P	**Physics II Lab**	**C 201.1**	1	3	3	3	3	1	1	1	3	2	2	3	2	2	1
		C201.2	1	2	1	2	3	2	1		2	2	2	3	2		1
		C 201.3	2	2	1	1	1		2	2	1	1	1		2		1
		C 201.4	2	2	1	1	1	2	1	2	1		3	3		1	1
		C 201.5	3	3	3	1	3	2	1	1	1	3				1	1
		AVERAGE	1.8	2.4	1.8	1.6	2.2	1.75	1.2	1.5	1.6	2	2	3	2	1.3333	1
CHM-201	**Chemistry II**	**C 201.1**	2	1	2			1	1					2	2	2	2
		C201.2	3	2	2	1	1		3	1	1			2	2	3	1
		C 201.3	2	3	3	1		1	3	1	1	2		2	2	3	1
		C 201.4	2	1	1		2	1						1	2	1	1
		AVERAGE	2.25	1.75	2	1	1.5	1	2.33	1	1	2		1.75	2	2.25	1.25
CHM-201P	**Chemistry II Lab**	**C 201.1**	3	2	2			2	2			2	1	1	2	2	3
		C201.2	2	2	3			2	3			1		2	2	3	1
		C 201.3	2	2	1			2	2				2	1	3	2	2
		C	3	2	1			1	1				1	1	2	3	2

		201.4															
		AVERAGE	2.5	2	1.75			1.75	2			1.5	1.33	1.25	2.25	2.5	2
MTH-201	**Mathematics-II**	**C 201.1**	3	2	2	2	3								2	2	1
		C201.2	3	3	3	3	3								2	3	1
		C 201.3	3	2	3	2	2								2	3	1
		C 201.4	3	3	3	2	3								2	1	1
		C 201.5	3	2	2	2	2								1	1	1
		AVERAGE	3	2.4	2.6	2.2	2.6								1.8	2	1
HSS-201	**Humanities-II**	**C 201.1**	2	1	1	1	1	1	3	1	3	2	2	3	2	2	1
		C201.2	3	1	2	2	1	2	3		2	2	2	1	1	1	2
		C 201.3	2	3	2	2	1		2	2	1	2	1	1	1	1	1
		C 201.4	2	1	2	2	3	2	3	2	1		3	1	2	1	
		C 201.5	1	3	3	1	3	2	3	2	1	1		1	2	1	1
		AVERAGE	2	1.8	2	1.6	1.8	1.75	2.8	1.75	1.6	1.75	2	1.4	1.6	1.2	1.25
MEC-201	**Machine Drawing**	**C 201.1**	1	1	1	1	1	1	1	1	3	2	2	3	2	2	1
		C201.2	2	3	1	2	1	2	1		2	2	2	3	2	3	1
		C 201.3	2	1	3	3	1		2	2	1	2	1	3	2	3	1
		C 201.4	1	2	3	3	3	2	3	2	1		3	3	2	1	1
		C 201.5	1	3	3	1	3	2	3	2	1	3		3	2	1	1
		AVERAGE	1.4	2	2.2	2	1.8	1.75	2	1.75	1.6	2.25	2	3	2	2	1
CSE-201	**Computer Programming**	**C 201.1**	1	3	2		3								2	2	
		C201.2	1	3	3		3								2	2	
		C 201.3	1	3	3		3								2	2	
		C 201.4	1	3	3		3								2	2	
		AVERAGE	1	3	2.75		3								2	2	
CSE-201 P	**Programming Lab**	**C 201.1**	1	3	1	1	1	1	1	1	3	2	2	3	2	2	1
		C201.2	1	2	1	2	3	2	1		2	2	2	1	2	1	1
		C 201.3	1	2	2	1	1		2	2	1	2	1	1	2	1	1
		C 201.4	1	1	3	3	1	2	3	2	1		3	1	2	1	1
		C 201.5	1	1	3	1	3	2	3	2	1	3		3	2	1	1
		AVERAGE	1	1.8	2	1.6	1.8	1.75	2	1.75	1.6	2.25	2	1.8	2	1.2	1
CIV-201	**Engineering Mechanics**	**C 201.1**	1	3	1	1	1	1	1	1	1	2	2	1	2	2	1
		C201.2	1	2	1	2	3	2	1		2	2	2	1	1	1	1
		C 201.3	2	1	1	3	1		2	2	3	2	1	1	1	1	1
		C	1	2	2	1	1	2	3	2	3		3	3	1	1	1

		201.4															
		C 201.5	1	3	3	1	3	2	3	2	1	3		3	2	1	1
		AVERAGE	1.2	2.2	1.6	1.6	1.8	1.75	2	1.75	2	2.25	2	1.8	1.4	1.2	1
WSP-II	**Workshop Practice**	**C 201.1**	3	1	1		2	2	2	2	3	2		3	2	1	1
		C201.2	3	1	1		2	2	2	2	3	2		3	2	1	1
		C 201.3	3	1	1		2	2	2	2	3	2		3	2	1	1
		C 201.4	3	1	1		2	2	2	2	3	2		3	2	1	1
		C 201.5	3	1	1		2	2	2	2	3	2		3	2	1	1
		AVERAGE	3	1	1		2	2	2	2	3	2		3	2	1	1
ELE 301	**Basic Electrical Engineering**	**C 301.1**	3	3	1	2	1						2	1	1	1	2
		C 301.2	2	2	2	3	2						2	2	3		2
		C 301.3	3	1	2	2								1	1		
		C 301.4	3	1	2	3	1							2		1	2
		C301.5	3	2	2	1	2						3	1	1	2	2
		AVERAGE	2.8	1.8	1.8	2.2	1.5						2.33	1.4	1.5	1.33	2
ELE 301-P	**Basic Electrical Engineering Lab**	**C 301.1**	2	2		1		3	1				2		2	2	1
		C 301.2	3	3		2		3	2				3		2	3	1
		C 301.3	2	3		3		3	3				3		2	3	1
		C 301.4	3	1		1		1	2				1		2	1	1
		AVERAGE	2.5	2.25		1.75		2.5	2				2.25		2	2.25	1
ECE 301	**Network Analysis and Synthesis**	**C 301.1**	3	3	3	2	1					3		3	3	3	3
		C 301.2	3	3	3	3	3	1	3	2	3	2	3	3	3	3	3
		C 301.3	3	3	3	2	3	1	2					3	3	3	3
		C 301.4	3	3	3	3	3		3					3	3	3	3
		AVERAGE	3	3	3	2.5	2.5	1	2.66	2	3	2.5	3	3	3	3	3
ECE 302	**Electronics-I**	**C 302.1**	3	2	2	1			1				1	3	3	3	2
		C 302.2	3	2	3	3			2				2	3	3	3	2
		C 302.3	3	3	3	3		3	2					3	3	3	3
		C 302.4	2	2	2	2		2	2					3	3	3	2
		AVERAGE	2.75	2.25	2.5	2.25		2.5	1.75				1.5	3	3	3	2.25
ECE 302-P	**Electronics-I Lab**	**C 302.1**	3	1	1	1		1			2		2	2	2	1	3
		C 302.2	2	3	2	1					2		3	1	1	2	2
		C	2	2	3	2	1	2			3		3	2	3	2	1

		302.3															
		C 302.4	2	2	3	2	1	2			3		3	2	3	1	2
		C 302.5	2	2	3	2	1	2			3		3	2	3	3	3
		AVERAGE	2.2	2	2.4	1.6	1	1.75			2.6		2.8	1.8	2.4	1.8	2.2
PHY 303	**Electromagnetic Fields ad Waves**	**C 303.1**	3	3	2	1	2										
		C 303.2	3	3	2	2	3										
		C 303.3	3	2	2	2	3										
		C 303.4	3	2	2	1	3										
		AVERAGE	3	2.5	2	1.5	2.75										
MET 302	**Electrical Engineering Materials**	**C 302.1**	1			2									1	1	
		C 302.2	2	2	2	2		1	1	1				1	2	1	1
		C 302.3	3	2	2	2		1	1	1				1	2	1	2
		C 302.4	3	2	2	2		1	1	1				1	2	1	2
		C 302.5	3	2	2	2		1	1	1				1	2	1	2
		AVERAGE	2.4	2	2	2		1	1	1				1	1.8	1	1.75
MTH 305	**Mathematics-III**	**C 305.1**	2	2	2	2						1		1	2	3	1
		C 305.2	2	2	2	2						1			1	3	1
		C 305.3	3	3	2	2						1		1	2	3	1
		C 305.4	2	3	3	2						1			2	1	1
		AVERAGE	2.25	2.5	2.25	2						1		1	1.75	2.5	1
MECH-ELE	**Thermal Engineering**	**C1**	3	2	2		2	1	2	2				2	3	2	3
		C2	3	2	2		2	2	2	2				2	3	2	3
		C3	3	2	2		2	2	2	2				2	3	2	3
		C4	3	3	3			3	1	2			3	2	3	1	3
		AVERAGE	3	2.25	2.25		2	2	1.75	2			3	2	3	1.75	3
ELE 401	**Electric Machines -I**	**C 401.1**	2	2		1		3	1				2		2	2	1
		C 401.2	3	3		2		3	2				3		2	3	1
		C 401.3	2	3		3		3	3				3		2	3	1
		C 401.4	3	1		1		1	2				1		2	1	1
		AVERAGE	2.5	2.25		1.75		2.5					2.25		2	2.25	1
ELE 401-P	**Electric Machines -I Lab**	**C 401.1**	2	2		1		3	1				2		2	2	1
		C 401.2	3	3		2		3	2				3		2	3	1
		C 401.3	2	3		3		3	3				3		2	3	1
		C	3	1		1		1	2				1		2	1	1

		401.4															
		AVERAGE	2.5	2.25		1.75		2.5					2.25		2	2.25	1
ELE 402	**Control Systems-I**	**C 402.1**	3	3	3	3	3	1	3	1	3	2	2	3	2	2	1
		C 402.2	3	3	3	2	3	2	3		2	2	2	3	2	3	1
		C 402.3	3	3	3	3	1		2	2	3	2	1	3	2	3	1
		C 402.4	3	2	3	3	3	2	3	2	3		3	3	2	1	1
		C 402.5	3	3	3	1	3	2	3	2	1	3		3	2	1	1
		AVERAGE	3	2.8	3	2.4	2.6	1.75	2.8	1.75	2.4	2.25	2	3	2	2	1
ELE 403	**Electric Measurements and Measuring Instruments**	**C 403.1**	3	2	1	1	1	2	1				2	2	2	2	1
		C 403.2	3	3	3	2	1	3	3				3	2	2	3	1
		C 403.3	2	3	3	3	1	3	3				3	2	2	3	1
		C 403.4	3	3	3	2	1	3	3				3	2	2	3	1
		AVERAGE	2.75	2.75	2.5	2	1	2.75	2.5				2.75	2	2	2.75	1
ELE 403-P	**Electric Measurements and Measuring Instruments Lab**	**C 403.1**	3	3	2	1	1	1	1	1	3	2	2	2	2	2	1
		C 403.2	3	3	3	2	2		1	1	3	3	3	2	3	3	1
		C 403.3	3	3	3	1	2		1		3	3	3	3	3	3	1
		AVERAGE	3	3	2.66	1.33	1.66	1	1	1	3	2.66	2.66	2.33	2.66	2.66	1
ECE 402	**Electronics-II**	**C 402.1**	2	1	1	0	0	0	0	0	0	1	0	2	2	2	1
		C 402.2	3	3	2	0	0	0	0	0	0	1	0	3	1	3	1
		C 402.3	2	3	2	0	0	0	0	0	0	2	0	3	2	3	1
		C 402.4	3	3	3	1	0	0	0	0	0	2	0	1	2	2	1
		AVERAGE	2.5	2.5	2	0.25	0	0	0	0	0	1.5	0	2.25	1.75	2.5	1
ECE 402-P	**Electronics-II Lab**	**C 402P.1**	3	3	3	3	3							3	3	3	
		C 402P.2	3	3	3	3	3							3	3	3	
		C 402P.3	3	3	3	3	3							3	3	3	
		C 402P.4	3	3	3	3	3							3	3	3	
		AVERAGE	3	3	3	3	3							3	3	3	
CIV 401	**Hydraulics and Hydraulic Machines**	**C 401.1**	3	3	3	3		2	2	1		1		2	2	3	3
		C 401.2	3	3	3	3		2	2	1		1		2	2	3	3
		C 401.3	3	3	3	3		2	2	1		1		2	2	3	3
		C 401.4	3	3	3	3		2	2	1		1		2	2	3	3

		AVERAGE	3	3	3	3		2	2	1		1		2	2	3	3
MTH 402	**Mathematics-IV**	**C 402.1**	2	2	2	3						1		1	2	3	1
		C 402.2	2	2	2	2						1			1	3	1
		C 402.3	3	3	2	2						1		1	2	3	1
		C 402.4	2	3	3	2						1			2	1	1
		C 402.5	2	3	3	2						1			2	1	1
#NAME?		**AVERAGE**	2.2	2.6	2.4	2.2						1		1	1.8	2.2	1
ELE 501	**Power Systems-I**	**C 501.1**	1	2	1			1	3					2	1	2	1
		C 501.2	3	3	3	3	1	2	2					2	3	3	3
		C 501.3	3	3	3	2	1						1	2	3	2	2
		C 501.4	1	2	1									2	2	3	2
		C 501.5	1	2	1									2	2	3	2
		AVERAGE	1.8	2.4	1.8	2.5	1	1.5	2.5				1	2	2.2	2.6	2
	Power Systems-I Lab	**C 501.1**	3	2				2	2						2	1	1
		C 501.2	3	2				2	2						2	1	1
ELE 501-P		**C 501.3**	2	1				1	2						2	2	1
		C 501.4	3	2	2	2	2		2					2	3	2	2
		AVERAGE	2.75	1.75	2	2	2	1.66	2					2	2.25	1.5	1.25
ELE 502	**Electric Machines-II**	**C 502.1**	3	2	2	1	1	1						2	3	3	1
		C 502.2	3	3	2	1	2	1						2	3	3	1
		C 502.3	3	3	3	2	2	1	1					2	3	3	1
		C 502.4	3	2	2	1	1	1						2	3	3	1
		C 502.5	3	2	2	1	2	1						2	3	3	1
		C 502.6	3	3	3	2	2	1	1					2	3	3	1
		AVERAGE	3	2.5	2.33	1.33	1.66	1	1					2	3	3	1
ELE 502-P	**Electric Machines-II Lab**	**C 502.1**	2	2	2	1		3	2	2	1	2	2	3	2	2	1
		C 502.2	1	3	2	1		2	2	2	1	1	1	2	2	1	2
		C 502.3	2	1	1				2	2	3	1	1	2	2	3	2
		C 502.4	1	1	2	1		3	2	2	1	1	2	2	2	3	1
		AVERAGE	1.5	1.75	1.75	1		2.66	2	2	1.5	1.25	1.5	2.25	2	2.25	1.5
ELE 503	**Control Systems-**	**C 503.1**	3	2	1	1	2	1			1	1		2	2	2	1

	II	**C 503.2**	3	3	3	3	2	2			2	2	1	3	2	3	1
		C 503.3	3	3	3	3	3	2	2	1	2	1	1	2	2	3	1
		C 503.4	3	2	3	3	3	3	2	1	2		1	3	2	1	1
		AVERAGE	3	2.5	2.5	2.5	2.5	2	2	1	1.75	1.3333	1	2.5	2	2.25	1
ELE 503-P	**Control Systems-II and VI Lab**	**C 503.1**	3	3	2	1	1	1	1	1	3	2	2	2	2	2	1
		C 503.2	3	3	3	2	2		1	1	3	3	3	2	3	3	1
		C 503.3	3	3	3	1	2		1		3	3	3	3	3	3	1
		AVERAGE	3	3	2.66	1.33	1.66	1	1	1	3	2.66	2.66	2.3333	2.66	2.66	1
ELE 504	**Computer Aided Simulation of Electrical Systems**	**C 504.1**	3	3	2	1	1	1	1	1	3	2	2	2	2	2	1
		C 504.2	2	3	3	2	2		1	1	2	3	3	2	3	3	1
		C 504.3	3	3	3	1	2		1		3	2	3	3	2	3	1
		AVERAGE	2.66	3	2.66	1.33	1.66	1	1	1	2.66	2.33	2.66	2.33	2.333	2.66	1
ECE 508	**Communication Systems**	**C 508.1**	3	3	1	2	3	1	1	1	1	2	1	2	2	3	1
		C 508.2	3	3	3	2	3	2	2	1	1	1	1	2	3	3	3
		C 508.3	2	1	3	1	2	1	1		1		1	1	3	2	3
		C 508.4	3	3	2	3	3		1		1		1	3	3	3	3
		AVERAGE	2.75	2.5	2.25	2	2.75	1.33	1.25	1	1	1.5	1	2	2.75	2.75	2.5
ECE 509	**Digital Electronics and Logic Design**	**C 509.1**	3	2	1		1						1	3	1		1
		C 509.2	3	3	3		3						3	3	3	2	3
		C 509.3	2	3	3		2						1	3	2	2	3
		C 509.4	3	2	3	2	3						3	3	3	3	3
		AVERAGE	2.75	2.5	2.5	2	2.25						2	3	2.25	2.33	2.5
ECE 509-P	**Digital Electronics and Logic Design Lab**	**C 509.1**	3	2	2	2				2	2		1		2	3	2
		C 509.2	3	2	2	2				2	2		1		2	3	2
		C 509.3	3		3	3				2	2		1		2	3	2
		C 509.4	3	2	3	3				2	2		2		2	3	2
		AVERAGE	3	2	2.5	2.5				2	2		1.25		2	3	2
MTH 503	**Mathematics V**	**C 503.1**	2	2	2	3						1		1	2	3	1
		C 503.2	2	2	2	2						1			1	3	1
		C 503.3	3	3	2	2						1		1	2	3	1
		C503.4	2	3	3	2						1			2	1	1
		C503.5	2	3	3	2						1			2	1	1

		AVERAGE	2.2	2.6	2.4	2.2						1		1	1.8	2.2	1
ELE 601	**Power Systems-II**	**C 601.1**	2	3		1	1								2	2	
		C 601.2	3		2	2	3							1	2	2	
		C 601.3	2	2	2	2							2	1	2	2	
		C 601.4	2	1		2							1	1	2	2	
		C 601.5	1	3			2							1	2	2	
		AVERAGE	2	2.25	2	1.75	2						1.5	1	2	2	
ELE 601-P	**Power Systems-II Lab**	**C 601.1**	1	3		1	2								2	2	
		C 601.2	2	2	2	2	1							1	2	2	
		C 601.3	1	3	1		2							1	2	2	2
		C 601.4	2	1		2								1	2	2	2
		AVERAGE	1.5	2.25	1.5	1.66	1.66							1	2	2	2
ELE 602	**Power Electronics**	**C 602.1**	3	1	1	1		1			2		2	2	2	1	3
		C 602.2	2	3	2	1		1			2		3	1	1	2	2
		C 602.3	2	2	3	2	1	2			3		3	2	3	2	1
		C 602.4	2	2	3	2	1	2			3		3	2	3	1	2
		C 602.5	2	2	3	2	1	2			3		3	2	3	3	3
		AVERAGE	2.2	2	2.4	1.6	1	1.6			2.6		2.8	1.8	2.4	1.8	2.2
ELE 602-P	**Power Electronics Lab**	**C 602.1**	3	1	1	1		1			2		2	2	2	1	3
		C 602.2	2	3	2	1		1			2		3	1	1	2	2
		C 602.3	2	2	3	2	1	2			3		3	2	3	2	1
		C 602.4	2	2	3	2	1	2			3		3	2	3	1	2
		AVERAGE	2.25	2	2.25	1.5	1	1.5			2.5		2.75	1.75	2.25	1.5	2
ELE 603	**Electric Machines Design**	**C 603.1**	3	2	1	1	1	2	1				2	2	2	2	1
		C 603.2	3	3	3	2	1	3	3				3	2	2	3	1
		C 603.3	2	3	3	3	1	3	3				3	2	2	3	1
		C 603.4	3	3	3	2	1	3	3				3	2	2	3	1
		AVERAGE	2.75	2.75	2.5	2	1	2.75	2.5				2.75	2	2	2.75	1
ELE 604	**Tour and Training**	**C 604.1**	3	2	2		2						2	2	2	2	
		C 604.2	3	2	2		3				1	2	2	2	2	2	
		C 604.3	3	2		2	2		2			1		1	2	2	

		AVERAGE	3	2	2	2	2.33		2		1	1.5	2	1.66	2	2	
ELE 605	**Digital Signal Processing**	**C 605.1**	3	3	1	1	1	1					2	1	1	1	2
		C 605.2	2	2	2	3	3	1					2	2	3	3	2
		C 605.3	3	1	2	2	1	2					2	1	1	3	3
		C 605.4	3	1	2	3	1	2					2	2	3	1	2
		C 605.5	3	2	1	3	3	1					3	1	2	2	2
		AVERAGE	2.8	1.8	1.6	2.4	1.8	1.4					2.2	1.4	2	2	2.2
ELE 606	**Microprocessors**	**C 606.1**	3		2		1	1				1	2	2	2	2	2
		C 606.2	3	2	3	3	3	1					1	2	3	3	3
		C 606.3	3	2	3	3	3	2	1				2	1	3	3	3
		AVERAGE	3	2	2.66	3	2.33	2.33	1			1	1.66	1.66	2.66	2.66	2.66
ELE 606-P	**Microprocessors Lab**	**C 606P.1**	3	1	1	2	3	1				1	2	1	3	3	2
		C 606P.2	3	1	1	2	3	1				1	2	1	3	3	3
		C 606P.3	3	3	3	3	3	1				1	2	1	3	3	3
		AVERAGE	3	1.66	1.66	2.33	3	1				1	2	1	3	3	2.66
ELE 701	**Power System Protection**	**C 701.1**	3	2	1	1	1	2	1				2	2	2	2	1
		C 701.2	3	3	3	2	1	3	3				3	2	2	3	1
		C 701.3	2	3	3	3	1	3	3				3	2	2	3	1
		C 701.4	3	3	3	2	1	3	3				3	2	2	3	1
		AVERAGE	2.75	2.75	2.5	2		2.75					2.75	2	2	2.75	1
ELE 701-P	**Power System Protection Lab**	**C 701P.1**	3	2	1	1	1	2	1				2	2	2	2	1
		C 701P.2	3	3	3	2	1	3	3				3	2	2	3	1
		C 701P.3	2	3	3	3	1	3	3				3	2	2	3	1
		C 701P.4	3	3	3	2	1	3	3				3	2	2	3	1
		AVERAGE	2.75	2.75	2.5	2	1	2.75	2.5				2.75	2	2	2.75	1
ELE 702	**Advanced Power Electronics**	**C 702.1**	3	3	2		1		1					2	3	2	1
		C 702.2	3	3	2	1	1		1					2	3	2	1
		C 702.3	3	3	2				1					2	3	2	1
		C 702.4	3	3	2				1					2	3	2	1
		C 702.5	3	3	3			1						2	3	2	1
		AVERAGE	3	3	2.2	1	1	1	1					2	3	2	1

ECE 708	**Electronic Measurements and Instrumentation**	**C 708.1**	2	2	1									1	2	2	3
		C 708.2	3	3	3			1						1	2	2	3
		C 708.3	1	2	3	1					1	1	1	1	2	2	3
		C 708.4	3	2	3	1								2	2	2	3
		AVERAGE	2.25	2.25	2.5	1		1			1	1	1	1.25	2	2	3
ECE 708-P	**Electronic Measurements and Instrumentation Lab**	**C 708.1**	2	2	1									1	2	2	3
		C 708.2	3	3	3			1						1	2	2	3
		C 708.3	1	2	3	1					1	1	1	1	2	2	3
		C 708.4	3	2	3	1								2	2	2	3
		AVERAGE	2.25	2.25	2.5	1		1			1	1	1	1.25	2	2	3
ELE 4/E	**Selected topics in advanced Control**	**C ELE-3/E.1**	3	3	3	2	1	2	3	1	2			3	2	3	2
		C ELE-3/E.2	3	2	1	2				1	2	2		3	1	2	2
		C ELE-3/E.3	2	2		1	1	3	3			3	2	3	3	2	3
		C ELE-3/E.4	2	3	2	3		3	2	1	1			2	3	3	3
		C ELE-3/E.5	3	3	2	3		3		2	3	2	3	3	2	3	2
		AVERAGE	2.6	2.6	2	2.2	1	2.75	2.66	1.25	2	2.33	2.5	2.8	2.2	2.6	2.4
ELE 704-P	**Project Preliminary Work/Seminar**	**C 706P.1**	2	2	3			1					3	2	3	1	2
		C 706P.2	2	1	1			1					1	2	1		2
		AVERAGE	2	1.5	2			1					2	2	2	1	2
HSS-701	**General Management and Economics**	**C 701.1**						2	2				3	3		3	
		C 701.2		3	2				1					3		3	
		C 701.3		3					2				3	3		3	
		C 701.4		3						2	3		3	3		3	
		C 701.5						2			3		3	3		3	
		C 701.6		3	2								2	3		3	
		AVERAGE		3	2			2	1.66	2	3		2.8	3		3	
ELE 15/E	**Elective-I Utilization and Traction**	**C1**	3		2				3				2	1	2	3	1
		C2	2		1	2		3	2				1	2	1	2	1
		C3	3	2	1		1	2	3	1				3	3	1	2
		C4	1		3		2		2	2			2	1	1	2	3

		AVERAGE	2.25	2	1.75	2	1.5	2.5	2.5	1.5			1.66	1.75	1.75	2	1.75
ELE 801	**Power System III**	**C 801.1**	3	3	1		1	1					2	1	1	1	2
		C 801.2	2	2	2	3		1					2	2	3		2
		C 801.3	3	1	2	2								1	1		
		C 801.4	3	1	2	3	1	2						2		1	2
		C 801.5	3	2	1			1					3	1		2	2
		AVERAGE	2.8	1.8	1.6	2.66	1	1.25					2.33	1.4	1.66	1.33	2
ELE 802	**Project**	**C 802.1**	3	2	2	3	2			3	2		2		2	2	2
		C 802.2				2	1		1						2	2	2
		C 802.3	2	3	2	2	2								2	2	2
		C 802.4					2					1			2	2	2
		AVERAGE	2.5	2.5	2	2.33	1.75		1	3	2	1	2		2	2	2
ELE-18/E	**High Voltage Engineering**	**C 803.1**	3	2	2	1	2	1						2	3	3	1
		C 803.2	3	2	2	1	2	1						2	3	3	1
		C 803.3	3	2	2	1	2	1	1					2	3	3	1
		C 803.4	3	2	2	2	2	1	1					2	3	3	1
		AVERAGE	3	2	2	1.25	2	1	1					2	3	3	1
ELE-18/EP	**High Voltage Engineering Lab**	**C 803P.1**	2	2	2	2	1	1			2			2	3	3	1
		C 803P.2	3	2	2	1	1	1			2			2	3	3	1
		C 803P.3	3	2	2	1	1	1			2			2	3	3	1
		C 803P.4	3	2	2	2	1	1			2			2	3	3	1
		AVERAGE	2.75	2	2	1.5	1	1			2			2	3	3	1
ELE-803	**Power Station Practise**	**C 803P.1**	3	2	1	1	1	2	1				2	2	2	2	1
		C 803P.2	3	3	3	2	1	3	3				3	2	2	3	1
		C 803P.3	2	3	3	3	1	3	3				3	2	2	3	1
		C 803P.4	3	3	3	2	1	3	3				3	2	2	3	1
		AVERAGE	2.75	2.75	2.5	2		2.75					2.75	2	2	2.75	1
ELE-11/E	**Maintenance and design of electrical Substations**	**C 803P.1**	3	2	2	1	2	1						2	1	1	1
		C 803P.2	2	1	1	1	2	1						2	1	3	1
		C 803P.3	1	2	1	1	1	1	1					2	1	1	1
		C 803P.4	1	1	2	2	2	1	1					2	3	1	1

		AVERAGE	1.75	1.5	1.5	1.25	1.75	1	1					2	1.5	1.5	1

Year (2018-19)

S.No	**Sem.**	**Course Code**	**Course Name**	**CO Code**	**POs**												**PSO**		
					1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	**1**	**PHY 101**	**Physics**	**C 101.1**	3	3	2	1	1	1									
				C 101.2	3	3	3	2	1	1									
				C 101.3	3	3	3	1	1	1									
				C 101.4	3	3	3	1	1	1									
				AVERAGE	3	3	2.75	1.25	1	1									
2	**1**	**PHY 101P**	**Physics Lab**	**C 101.1**	3	3	3	3	3	1	3	1	3	2	2	3	2	2	1
				C 101.2	3	3	3	2	3	2	3		2	2	2	3	2	3	1
				C 101.3	3	3	3	3	1		2	2	3	2	1	3	2	3	1
				C 101.4	3	2	3	3	3	2	3	2	3		3	3	2	1	1
				C 101.5	3	3	3	1	3	2	3	2	1	3		3	2	1	1
				AVERAGE	3	2.8	3	2.4	2.6	1.75	2.8	1.75	2.4	2.25	2	3	2	2	1
3	**1**	**CHM-101**	**Chemistry I**	**C 101.1**	3	2	1							2		2	2	1	2
				C 101.2	2	2	1							2		2	1	1	2
				C 101.3	3	2	2							2		3	2	1	2
				C 101.4	3	3	2							1		2	2	1	3
				AVERAGE	2.75	2.25	1.5							1.75		2.25	1.75	1	2.25
4	**1**	**CHM-101P**	**Chemistry Lab**	**C 101.1**	2	2			3	2	1			1		2	3	2	1
				C 101.2	3	1			2	2	3			1	2	1	2	3	2
				C 101.3	3	1			2	2	3			2		1	3	3	2
				C 101.4	2	2			3	2	2				2	1	2	2	1
				AVERAGE	2.5	1.5			2.5	2	2.25			1.33	2	1.25	2.5	2.5	1.5
5	**1**	**MTH-101**	**Mathematics-I**	**C 101.1**	2	2	1	2	2	1							2	2	1
				C101.2	2	2	2	3	2	2							2	3	1
				C 101.3	2	2	2	2	2	1							2	3	1

				C 101.4	1	2	2	2	1	1							2	1	1
				C 101.5	1	2	2	1	2										
				AVERAGE	1.6	2	1.8	2	1.8	1.25							2	2.25	1
6	1	HSS-101	Communication skills and oral presentation	**C 101.1**									2	3	2		2	2	1
				C101.2									2	2	2		2	3	1
				C 101.3									2	3	3		2	3	1
				C 101.4									3	2	2		2	1	1
				AVERAGE									2.25	2.5	2.25		2	2.25	1
7	1	CIV-102	Engineering Drawing	**C 102.1**	3	3	3	3	2	1	2	2			3	2	3	2	2
				C102.2	3	3	3	3	2	1	2	2			3	2	3	2	2
				C 102.3	3	3	3	3	2	1	2	2			3	2	3	2	2
				C 102.4	3	3	3	3		3	1	2			3	2	3	2	2
				AVERAGE	3	3	3	3	2	1.5	1.75	2			3	2	3	2	2
8	1	IT-101	Computer Fundamentals and Problem Solving Techniques	**C 101.1**	3				2							2	3	1	1
				C101.2	3											2	3	2	1
				C 101.3	2	3	1									2	2	2	1
				C 101.4	2	3	1		2							2	3	3	3
				AVERAGE	2.5	3	1		2							2	2.75	2	1.5
9	1	IT-102P	Computer Fundamentals and problem solving Lab	**C 101.1**	3				2							2	1		1
				C101.2	2		1		3							2	1		1
				C 101.3	2	1	1		2							2	1		1
				C 101.4	2	2	2		2							2	1		1
				C 101.5	2	2	2		2							2	1		1
				AVERAGE	2.2	1.66666667	1.5		2.2							2	1		1
10	1	WSP-1	Workshop Practice	**C 101.1**	3	1	1		2	2	2	2	3	2		3	2	1	1
				C101.2	3	1	1		2	2	2	2	3	2		3	2	1	1
				C 101.3	3	1	1		2	2	2	2	3	2		3	2	1	1
				C 101.4	3	1	1		2	2	2	2	3	2		3	2	1	1

				C 101.5	3	1	1		2	2	2	2	3	2		3	2	1	1
				AVERAGE	3	1	1		2	2	2	2	3	2		3	2	1	1
11	**2**	**PHY-201**	**Physics II**	**C 201.1**	3	3	2	1	1				1						
				C201.2	3	3	3	2	1				1						
				C 201.3	3	3	3	1	1				1						
				C 201.4	3	3	3	1	1				1						
				AVERAGE	3	3	2.75	1.25	1				1						
12	**2**	**PHY-201P**	**Physics II Lab**	**C 201.1**	1	3	3	3	3	1	1	1	3	2	2	3	2	2	1
				C201.2	1	2	1	2	3	2	1		2	2	2	3	2		1
				C 201.3	2	2	1	1	1		2	2	1	1	1		2		1
				C 201.4	2	2	1	1	1	2	1	2	1		3	3		1	1
				C 201.5	3	3	3	1	3	2	1	1	1	3				1	1
				AVERAGE	1.8	2.4	1.8	1.6	2.2	1.75	1.2	1.5	1.6	2	2	3	2	1.33	1
13	**2**	**CHM-201**	**Chemistry II**	**C 201.1**	2	1	2			1	1					2	2	2	2
				C201.2	3	2	2	1	1		3	1	1			2	2	3	1
				C 201.3	2	3	3	1		1	3	1	1	2		2	2	3	1
				C 201.4	2	1	1		2	1						1	2	1	1
				AVERAGE	2.25	1.75	2	1	1.5	1	2.33	1	1	2		1.75	2	2.25	1.25
14	**2**	**CHM-201P**	**Chemistry II Lab**	**C 201.1**	3	2	2			2	2			2	1	1	2	2	3
				C201.2	2	2	3			2	3			1		2	2	3	1
				C 201.3	2	2	1			2	2				2	1	3	2	2
				C 201.4	3	2	1			1	1				1	1	2	3	2
				AVERAGE	2.5	2	1.75			1.75	2			1.5	1.33	1.25	2.25	2.5	2
15	**2**	**MTH-201**	**Mathematics-II**	**C 201.1**	3	2	2	2	3								2	2	1
				C201.2	3	3	3	3	3								2	3	1
				C 201.3	3	2	3	2	2								2	3	1
				C 201.4	3	3	3	2	3								2	1	1
				C 201.5	3	2	2	2	2								1	1	1

				AVERAGE	3	2.4	2.6	2.2	2.6								1.8	2	1
16	**2**	**HU-201**	**Humanities-II**	**C 201.1**			2			2	2	2	2			2			
				C201.2						2	2				1				
				C 201.3						1		1	3	2					
				C 201.4						2	1	2	1						
				C 201.5							1	1			2				
				AVERAGE			2			1.75	1.5	1.5	2	2	1.5	2			
17	**2**	**MEC-201**	**Machine Drawing**	**C 201.1**	1	1	1	1	1	1	1	1	3	2	2	3	2	2	1
				C201.2	2	3	1	2	1	2	1		2	2	2	3	2	3	1
				C 201.3	2	1	3	3	1		2	2	1	2	1	3	2	3	1
				C 201.4	1	2	3	3	3	2	3	2	1		3	3	2	1	1
				C 201.5	1	3	3	1	3	2	3	2	1	3		3	2	1	1
				AVERAGE	1.4	2	2.2	2	1.8	1.75	2	1.75	1.6	2.25	2	3	2	2	1
18	**2**	**CSE-201**	**Computer Programming**	**C 201.1**	1	3	2		3								2	2	
				C201.2	1	3	3		3								2	2	
				C 201.3	1	3	3		3								2	2	
				C 201.4	1	3	3		3								2	2	
				AVERAGE	1	3	2.75		3								2	2	
19	**2**	**CSE-201P**	**Computer Programming Lab**	**C 201.1**	1	3	1	1	1	1	1	1	3	2	2	3	2	2	1
				C201.2	1	2	1	2	3	2	1		2	2	2	1	2	1	1
				C 201.3	1	2	2	1	1		2	2	1	2	1	1	2	1	1
				C 201.4	1	1	3	3	1	2	3	2	1		3	1	2	1	1
				C 201.5	1	1	3	1	3	2	3	2	1	3		3	2	1	1
				AVERAGE	1	1.8	2	1.6	1.8	1.75	2	1.75	1.6	2.25	2	1.8	2	1.2	1
20	**2**	**CIV-201**	**Engineering Mechanics**	**C 201.1**	3	3	1	1		2	1						2		1
				C201.2	3	3	2	2		2	1						2	1	2
				C 201.3	3	3	2	2		2	1						2	1	2
				C 201.4	3	3	2	2		2	1						2	1	2
				C 201.5	3	3	2	2		2	1						2	1	1

				AVERAGE	3	3	1.8	1.8		2	1						2	1	1.6
21	**2**	**WSP-II**	**Workshop Practice**	**C 201.1**	3	1	1		2	2	2	2	3	2		3	2	1	1
				C201.2	3	1	1		2	2	2	2	3	2		3	2	1	1
				C 201.3	3	1	1		2	2	2	2	3	2		3	2	1	1
				C 201.4	3	1	1		2	2	2	2	3	2		3	2	1	1
				C 201.5	3	1	1		2	2	2	2	3	2		3	2	1	1
				AVERAGE	3	1	1		2	2	2	2	3	2		3	2	1	1
22	**3**	**ELE 301**	**Basic Electrical Engineering**	**C 301.1**	3	3	1	2	1						2	1	1	1	2
				C 301.2	2	2	2	3	2						2	2	3		2
				C 301.3	3	1	2	2								1	1		
				C 301.4	3	1	2	3	1							2		1	2
				C 301.5	3	2	2	1	2						3	1	1	2	2
				AVERAGE	2.8	1.8	1.8	2.2	1.5						2.33	1.4	1.5	1.33	2
23	**3**	**ELE 301-P**	**Basic Electrical Engineering Lab**	**C 301.1**	2	2		1		3	1				2		2	2	1
				C 301.2	3	3		2		3	2				3		2	3	1
				C 301.3	2	3		3		3	3				3		2	3	1
				C 301.4	3	1		1		1	2				1		2	1	1
				AVERAGE	2.5	2.25		1.75		2.5	2				2.25		2	2.25	1
24	**3**	**ECE 301**	**Network Analysis and Synthesis**	**C 301.1**	3	3	3	2	1					3		3	3	3	3
				C 301.2	3	3	3	3	3	1	3	2	3	2	3	3	3	3	3
				C 301.3	3	3	3	2	3	1	2					3	3	3	3
				C 301.4	3	3	3	3	3		3					3	3	3	3
				AVERAGE	3	3	3	2.5	2.5	1	2.66	2	3	2.5	3	3	3	3	3
25	**3**	**ECE 302**	**Electronics-I**	**C 302.1**	3	2	2	1			1				1	3	3	3	2
				C 302.2	3	2	3	3			2				2	3	3	3	2
				C 302.3	3	3	3	3		3	2					3	3	3	3
				C 302.4	2	2	2	2		2	2					3	3	3	2
				AVERAGE	2.75	2.25	2.5	2.25		2.5	1.75				1.5	3	3	3	2.25

26	**3**	**ECE 302-P**	**Electronics-I Lab**	**C 302.1**	3	1	1	1		1			2		2	2	2	1	3
				C 302.2	2	3	2	1					2		3	1	1	2	2
				C 302.3	2	2	3	2	1	2			3		3	2	3	2	1
				C 302.4	2	2	3	2	1	2			3		3	2	3	1	2
				C 302.5	2	2	3	2	1	2			3		3	2	3	3	3
				AVERAGE	2.2	2	2.4	1.6	1	1.75			2.6		2.8	1.8	2.4	1.8	2.2
27	**3**	**PHY 303**	**Electromagnetic Fields ad Waves**	**C 303.1**	3	3	2	1	2										
				C 303.2	3	3	2	2	3										
				C 303.3	3	2	2	2	3										
				C 303.4	3	2	2	1	3										
				AVERAGE	3	2.5	2	1.5	2.75										
28	**3**	**MET 302**	**Electrical Engineering Materials**	**C 302.1**	1			2									1	1	
				C 302.2	2	2	2	2		1	1	1				1	2	1	1
				C 302.3	3	2	2	2		1	1	1				1	2	1	2
				C 302.4	3	2	2	2		1	1	1				1	2	1	2
				C 302.5	3	2	2	2		1	1	1				1	2	1	2
				AVERAGE	2.4	2	2	2		1	1	1				1	1.8	1	1.75
29	**3**	**MTH 305**	**Mathematics-III**	**C 305.1**	2	2	2	2						1		1	2	3	1
				C 305.2	2	2	2	2						1			1	3	1
				C 305.3	3	3	2	2						1		1	2	3	1
				C 305.4	2	3	3	2						1			2	1	1
				AVERAGE	2.25	2.5	2.25	2						1		1	1.75	2.5	1
30	**3**	**MECH-ELE**	**Thermal Engineering**	**C1**	3	2	2		2	1	2	2				2	3	2	3
				C2	3	2	2		2	2	2	2				2	3	2	3
				C3	3	2	2		2	2	2	2				2	3	2	3
				C4	3	3	3			3	1	2			3	2	3	1	3
				AVERAGE	3	2.25	2.25		2	2	1.75	2			3	2	3	1.75	3
31	**4**	**ELE 401**	**Electric Machines-I**	**C 401.1**	2	2		1		3	1				2		2	2	1
				C 401.2	3	3		2		3	2				3		2	3	1
				C 401.3	2	3		3		3	3				3		2	3	1

				C 401.4	3	1		1		1	2				1		2	1	1
				AVERAGE	2.5	2.25		1.75		2.5	2				2.25		2	2.25	1
32	**4**	**ELE 401-P**	**Electric Machines-I Lab**	**C 401.1**	2	2		1		3	1				2		2	2	1
				C 401.2	3	3		2		3	2				3		2	3	1
				C 401.3	2	3		3		3	3				3		2	3	1
				C 401.4	3	1		1		1	2				1		2	1	1
				AVERAGE	2.5	2.25		1.75		2.5	2				2.25		2	2.25	1
33	**4**	**ELE 402**	**Control Systems-I**	**C 402.1**	3	3	3	3	3	1	3	1	3	2	2	3	2	2	1
				C 402.2	3	3	3	2	3	2	3		2	2	2	3	2	3	1
				C 402.3	3	3	3	3	1		2	2	3	2	1	3	2	3	1
				C 402.4	3	2	3	3	3	2	3	2	3		3	3	2	1	1
				C 402.5	3	3	3	1	3	2	3	2	1	3		3	2	1	1
				AVERAGE	3	2.8	3	2.4	2.6	1.75	2.8	1.75	2.4	2.25	2	3	2	2	1
34	**4**	**ELE 403**	**Electric Measurements and Measuring Instruments**	**C 403.1**	3	2	1	1	1	2	1				2	2	2	2	1
				C 403.2	3	3	3	2	1	3	3				3	2	2	3	1
				C 403.3	2	3	3	3	1	3	3				3	2	2	3	1
				C 403.4	3	3	3	2	1	3	3				3	2	2	3	1
				AVERAGE	2.75	2.75	2.5	2	1	2.75	2.5				2.75	2	2	2.75	1
35	**4**	**ELE 403-P**	**Electric Measurements and Measuring Instruments Lab**	**C 403.1**	3	3	2	1	1	1	1	1	3	2	2	2	2	2	1
				C 403.2	3	3	3	2	2		1	1	3	3	3	2	3	3	1
				C 403.3	3	3	3	1	2		1		3	3	3	3	3	3	1
				AVERAGE	3	3	2.66	1.333	1.66	1	1	1	3	2.66	2.66	2.333	2.66	2.666	1
36	**4**	**ECE 402**	**Electronics-II**	**C 402.1**	2	1	1	0	0	0	0	0	0	1	0	2	2	2	1
				C 402.2	3	3	2	0	0	0	0	0	0	1	0	3	1	3	1
				C 402.3	2	3	2	0	0	0	0	0	0	2	0	3	2	3	1
				C 402.4	3	3	3	1	0	0	0	0	0	2	0	1	2	2	1
				AVERAGE	2.5	2.5	2	0.25	0	0	0	0	0	1.5	0	2.25	1.75	2.5	1

37	**4**	**ECE 402-P**	**Electronics-II Lab**	**C 402P.1**	3	3	3	3	3							3	3	3	
				C 402P.2	3	3	3	3	3							3	3	3	
				C 402P.3	3	3	3	3	3							3	3	3	
				C 402P.4	3	3	3	3	3							3	3	3	
				AVERAGE	3	3	3	3	3							3	3	3	
38	**4**	**CIV 401**	**Hydraulics and Hydraulic Machines**	**C 401.1**	3	3	3	3		2	2	1		1		2	2	3	3
				C 401.2	3	3	3	3		2	2	1		1		2	2	3	3
				C 401.3	3	3	3	3		2	2	1		1		2	2	3	3
				C 401.4	3	3	3	3		2	2	1		1		2	2	3	3
				AVERAGE	3	3	3	3		2	2	1		1		2	2	3	3
39	**4**	**MTH 402**	**Mathematics-IV**	**C 402.1**	2	2	2	3						1		1	2	3	1
				C 402.2	2	2	2	2						1			1	3	1
				C 402.3	3	3	2	2						1		1	2	3	1
				C 402.4	2	3	3	2						1			2	1	1
				C 402.5	2	3	3	2						1			2	1	1
				AVERAGE	2.2	2.6	2.4	2.2						1		1	1.8	2.2	1
40	**5**	**ELE 501**	**Power Systems-I**	**C 501.1**	1	2	1			1	3					2	1	2	1
				C 501.2	3	3	3	3	1	2	2					2	3	3	3
				C 501.3	3	3	3	2	1						1	2	3	2	2
				C 501.4	1	2	1									2	2	3	2
				C 501.5	1	2	1									2	2	3	2
				AVERAGE	1.8	2.4	1.8	2.5	1	1.5	2.5				1	2	2.2	2.6	2
41			**Power Systems-I Lab**	**C 501.1**	3	2				2	2						2	1	1
				C 501.2	3	2				2	2						2	1	1
	5	**ELE 501-P**		**C 501.3**	2	1				1	2						2	2	1
				C 501.4	3	2	2	2	2		2					2	3	2	2

				AVERAGE	2.75	1.75	2	2	2	1.66	2					2	2.25	1.5	1.25
42	**5**	**ELE 502**	**Electric Machines-II**	**C 502.1**	3	2	2	1	1	1						2	3	3	1
				C 502.2	3	3	2	1	2	1						2	3	3	1
				C 502.3	3	3	3	2	2	1	1					2	3	3	1
				C 502.4	3	2	2	1	1	1						2	3	3	1
				C 502.5	3	2	2	1	2	1						2	3	3	1
				C 502.6	3	3	3	2	2	1	1					2	3	3	1
				AVERAGE	3	2.5	2.33	1.33	1.66	1	1					2	3	3	1
43	**5**	**ELE 502-P**	**Electric Machines-II Lab**	**C 502.1**	2	2	2	1		3	2	2	1	2	2	3	2	2	1
				C 502.2	1	3	2	1		2	2	2	1	1	1	2	2	1	2
				C 502.3	2	1	1				2	2	3	1	1	2	2	3	2
				C 502.4	1	1	2	1		3	2	2	1	1	2	2	2	3	1
				AVERAGE	1.5	1.75	1.75	1		2.66	2	2	1.5	1.25	1.5	2.25	2	2.25	1.5
44	**5**	**ELE 503**	**Control Systems-II**	**C 503.1**	3	2	1	1	2	1			1	1		2	2	2	1
				C 503.2	3	3	3	3	2	2			2	2	1	3	2	3	1
				C 503.3	3	3	3	3	3	2	2	1	2	1	1	2	2	3	1
				C 503.4	3	2	3	3	3	3	2	1	2		1	3	2	1	1
				AVERAGE	3	2.5	2.5	2.5	2.5	2	2	1	1.75	1.33	1	2.5	2	2.25	1
45	**5**	**ELE 503-P**	**Control Systems-II and VI Lab**	**C 503.1**	3	3	2	1	1	1	1	1	3	2	2	2	2	2	1
				C 503.2	3	3	3	2	2		1	1	3	3	3	2	3	3	1
				C 503.3	3	3	3	1	2		1		3	3	3	3	3	3	1
				AVERAGE	3	3	2.66	1.33	1.66	1	1	1	3	2.66	2.66	2.33	2.66	2.66	1
46	**5**	**ELE 504**	**Computer Aided Simulation of Electrical Systems**	**C 504.1**	3	3	2	1	1	1	1	1	3	2	2	2	2	2	1
				C 504.2	2	3	3	2	2		1	1	2	3	3	2	3	3	1
				C 504.3	3	3	3	1	2		1		3	2	3	3	2	3	1
				AVERAGE	2.66	3	2.66	1.33	1.66	1	1	1	2.66	2.33	2.66	2.33	2.33	2.66	1
47	**5**	**ECE 508**	**Communication Systems**	**C 508.1**	3	3	1	2	3	1	1	1	1	2	1	2	2	3	1
				C 508.2	3	3	3	2	3	2	2	1	1	1	1	2	3	3	3

				C 508.3	2	1	3	1	2	1	1		1		1	1	3	2	3
				C 508.4	3	3	2	3	3		1		1		1	3	3	3	3
				AVERAGE	2.75	2.5	2.25	2	2.75	1.33	1.25	1	1	1.5	1	2	2.75	2.75	2.5
48	**5**	**ECE 509**	**Digital Electronics and Logic Design**	**C 509.1**	3	2	1		1						1	3	1		1
				C 509.2	3	3	3		3						3	3	3	2	3
				C 509.3	2	3	3		2						1	3	2	2	3
				C 509.4	3	2	3	2	3						3	3	3	3	3
				AVERAGE	2.75	2.5	2.5	2	2.25						2	3	2.25	2.33	2.5
49	**5**	**ECE 509-P**	**Digital Electronics and Logic Design Lab**	**C 509.1**	3	2	2	2				2	2		1		2	3	2
				C 509.2	3	2	2	2				2	2		1		2	3	2
				C 509.3	3		3	3				2	2		1		2	3	2
				C 509.4	3	2	3	3				2	2		2		2	3	2
				AVERAGE	3	2	2.5	2.5				2	2		1.25		2	3	2
50	**5**	**MTH 503**	**Mathematics V**	**C 503.1**	2	2	2	3						1		1	2	3	1
				C 503.2	2	2	2	2						1			1	3	1
				C 503.3	3	3	2	2						1		1	2	3	1
				C503.4	2	3	3	2						1			2	1	1
				C503.5	2	3	3	2						1			2	1	1
				AVERAGE	2.2	2.6	2.4	2.2						1		1	1.8	2.2	1
51	**6**	**ELE 601**	**Power Systems-II**	**C 601.1**	2	3		1	1								2	2	
				C 601.2	3		2	2	3							1	2	2	
				C 601.3	2	2	2	2							2	1	2	2	
				C 601.4	2	1		2							1	1	2	2	
				C 601.5	1	3			2							1	2	2	
				AVERAGE	2	2.25	2	1.75	2						1.5	1	2	2	
52	**6**	**ELE 601-P**	**Power Systems-II Lab**	**C 601.1**	1	3		1	2								2	2	
				C 601.2	2	2	2	2	1							1	2	2	
				C 601.3	1	3	1		2							1	2	2	2
				C 601.4	2	1		2								1	2	2	2

				AVERAGE	1.5	2.25	1.5	1.66	1.66							1	2	2	2
53	**6**	**ELE 602**	**Power Electronics**	**C 602.1**	3	1	1	1		1			2		2	2	2	1	3
				C 602.2	2	3	2	1		1			2		3	1	1	2	2
				C 602.3	2	2	3	2	1	2			3		3	2	3	2	1
				C 602.4	2	2	3	2	1	2			3		3	2	3	1	2
				C 602.5	2	2	3	2	1	2			3		3	2	3	3	3
54				**AVERAGE**	2.2	2	2.4	1.6	1	1.6			2.6		2.8	1.8	2.4	1.8	2.2
	6	**ELE 602-P**	**Power Electronics Lab**	**C 602.1**	3	1	1	1		1			2		2	2	2	1	3
				C 602.2	2	3	2	1		1			2		3	1	1	2	2
				C 602.3	2	2	3	2	1	2			3		3	2	3	2	1
				C 602.4	2	2	3	2	1	2			3		3	2	3	1	2
				AVERAGE	2.25	2	2.25	1.5	1	1.5			2.5		2.75	1.75	2.25	1.5	2
55	**6**	**ELE 603**	**Electric Machines Design**	**C 603.1**	3	2	1	1	1	2	1				2	2	2	2	1
				C 603.2	3	3	3	2	1	3	3				3	2	2	3	1
				C 603.3	2	3	3	3	1	3	3				3	2	2	3	1
				C 603.4	3	3	3	2	1	3	3				3	2	2	3	1
				AVERAGE	2.75	2.75	2.5	2		2.75					2.75	2	2	2.75	1
56	**6**	**ELE 604**	**Tour and Training**	**C 802P.1**	3	2	2		2						2	2	2	2	
				C 802P.2	3	2	2		3				1	2	2	2	2	2	
				C 802P.3	3	2		2	2		2			1		1	2	2	
				AVERAGE	3	2	2	2	2.33		2		1	1.5	2	1.66	2	2	
58	**6**	**ELE 605**	**Digital Signal Processing**	**C 605.1**	3	3	1	1	1	1					2	1	1	1	2
				C 605.2	2	2	2	3	3	1					2	2	3	3	2
				C 605.3	3	1	2	2	1	2					2	1	1	3	3
				C 605.4	3	1	2	3	1	2					2	2	3	1	2
				C 605.5	3	2	1	3	3	1					3	1	2	2	2
				AVERAGE	2.8	1.8	1.6	2.4	1.8	1.4					2.2	1.4	2	2	2.2

59	**6**	**ELE 606**	**Microprocessors**	**C 606.1**	3		2		1	1				1	2	2	2	2	2
				C 606.2	3	2	3	3	3	1					1	2	3	3	3
				C 606.3	3	2	3	3	3	2	1				2	1	3	3	3
				AVERAGE	3	2	2.66	3	2.33	1.33	1			1	1.66	1.66	2.66	2.66	2.66
60	**6**	**ELE 606-P**	**Microprocessors Lab**	**C 606P.1**	3	1	1	2	3	1				1	2	1	3	3	2
				C 606P.2	3	1	1	2	3	1				1	2	1	3	3	3
				C 606P.3	3	3	3	3	3	1				1	2	1	3	3	3
				AVERAGE	3	1.66	1.66	2.33	3	1				1	2	1	3	3	2.66
61	**7**	**ELE 701**	**Power System Protection**	**C 701.1**	3	2	1	1	1	2	1				2	2	2	2	1
				C 701.2	3	3	3	2	1	3	3				3	2	2	3	1
				C 701.3	2	3	3	3	1	3	3				3	2	2	3	1
				C 701.4	3	3	3	2	1	3	3				3	2	2	3	1
				AVERAGE	2.75	2.75	2.5	2		2.75					2.75	2	2	2.75	1
62	**7**	**ELE 701-P**	**Power System Protection Lab**	**C 701P.1**	3	2	1	1	1	2	1				2	2	2	2	1
				C 701P.2	3	3	3	2	1	3	3				3	2	2	3	1
				C 701P.3	2	3	3	3	1	3	3				3	2	2	3	1
				C 701P.4	3	3	3	2	1	3	3				3	2	2	3	1
63				**AVERAGE**	2.75	2.75	2.5	2	1	2.75	2.5				2.75	2	2	2.75	1
	7	**ELE 702**	**Advanced Power Electronics**	**C 702.1**	3	3	2		1		1					2	3	2	1
				C 702.2	3	3	2	1	1		1					2	3	2	1
				C 702.3	3	3	2				1					2	3	2	1
				C 702.4	3	3	2				1					2	3	2	1
				C 702.5	3	3	3			1						2	3	2	1
				AVERAGE	3	3	2.2	1	1	1	1					2	3	2	1
64	**7**	**ELE**	**Power Systems-**	**C 703.1**	3	3	1		1	1					2	1	1	1	2

		703	**III**	**C 703.2**	2	2	2	3		1					2	2	3		2
				C 703.3	3	1	2	2								1	1		
				C 703.4	3	1	2	3	1	2						2		1	2
				C 703.5	3	2	1			1					3	1		2	2
				AVERAGE	2.8	1.8	1.6	2.66	1	1.25					2.33	1.4	1.66	1.33	2
65	**7**	**ECE 708**	**Electronic Measurements and Instrumentation**	**C 708.1**	2	2	1									1	2	2	3
				C 708.2	3	3	3			1						1	2	2	3
				C 708.3	1	2	3	1					1	1	1	1	2	2	3
				C 708.4	3	2	3	1								2	2	2	3
66				**AVERAGE**	2.25	2.25	2.5	1		1			1	1	1	1.25	2	2	3
	7	**ECE 708-P**	**Electronic Measurements and Instrumentation Lab**	**C 708.1**	2	2	1									1	2	2	3
				C 708.2	3	3	3			1						1	2	2	3
				C 708.3	1	2	3	1					1	1	1	1	2	2	3
				C 708.4	3	2	3	1								2	2	2	3
				AVERAGE	2.25	2.25	2.5	1		1			1	1	1	1.25	2	2	3
67	**7**	**ELE-704**	**Power Station Practice**	**C 704.1**	3	2	1	1	1	2	1				2	2	2	2	1
				C 704.2	3	3	3	2	1	3	3				3	2	2	3	1
				C 704.3	2	3	3	3	1	3	3				3	2	2	3	1
				C 704.4	3	3	3	2	1	3	3				3	2	2	3	1
				AVERAGE	2.75	2.75	2.5	2	1	2.75	2.5				2.75	2	2	2.75	1
68	**7**	**ELE-11/E**	**Elective-I Utilization and Traction**	**C ELE-11/E.1**	3		2				3				2	1	2	3	1
				C ELE-11/E.2	2		1	2		3	2				1	2	1	2	1
				C ELE-11/E.3	3	2	1		1	2	3	1				3	3	1	2
				C ELE-11/E.4	1		3		2		2	2			2	1	1	2	3

				AVERAGE	2.25	2	1.75	2	1.5	2.5	2.5	1.5			1.66666667	1.75	1.75	2	1.75
69	**7**	**ELE 706-P**	**Project Preliminary Work/Seminar**	**C 706P.1**	2	2	3			1					3	2	3	1	2
				C 706P.2	2	1	1			1					1	2	1		2
				AVERAGE	2	1.5	2			1					2	2	2	1	2
				C 701.1						2	2				3	3	2	2	1
				C 701.2		3	2				1					3	2	3	1
	8	**HSS-801**	**General Management and Economics**	**C 701.3**		3					2				3	3	2	3	1
70				**C 701.4**		3						2	3		3	3	2	3	1
				C 701.5						2			3		3	3	2	3	1
				C 701.6		3	2								2	3			
				AVERAGE		3	2			2	1.66	2	3		2.8	3	2	2.8	1
				C ELE-3/E.1	3	3	3	2	1	2	3	1	2			3	2	3	2
				C ELE-3/E.2	3	2	1	2				1	2	2		3	1	2	2
71	**8**	**ELE -3/E**	**Selected topics in advanced Control**	**C ELE-3/E.3**	2	2		1	1	3	3			3	2	3	3	2	3
				C ELE-3/E.4	2	3	2	3		3	2	1	1			2	3	3	3
				C ELE-3/E.5	3	3	2	3		3		2	3	2	3	3	2	3	2
				AVERAGE	2.6	2.6	2	2.2	1	2.75	2.66	1.25	2	2.33	2.5	2.8	2.2	2.6	2.4
				C ELE 11/E.1	1	2	1			1	3	2					1	2	1
72	**8**	**ELE 14/E**	**Renewable sources of electrical energy**	**C ELE 11/E.2**	3	3	3	3	1	2	2	1			1	1	3	3	3
				C ELE 11/E.3	3	3	3	2	1	1	1	1					3	2	2
				C ELE 11/E.4	1	2	1	1		2	2				1	2	2	3	2

				AVERAGE	2	2.5	2	2	1	1.5	2	1.33			1	1.5	2.25	2.5	2
73	8	ELE 1-14	Elective-III Maintenance and design of electrical substations	**C 804.1**	3	2	2	2	1							1	2	2	1
				C 804.2	3	3	2	2	1				1				2	2	1
				C 804.3	3	2	2	2	1							1	2	2	1
				C 804.4	3	3	2	2	1				1				2	2	1
				C 805.5	2	2	2		1				1			1	2	2	1
				AVERAGE	2.8	2.4	2	2	1				1			1	2	2	1
74	8	ELE 802	Project	**C 802.1**	3	2	2	3	2			3	2		2		2	2	2
				C 802.2				2	1		1						2	2	2
				C 802.3	2	3	2	2	2								2	2	2
				C 802.4					2					1			2	2	2
75				**AVERAGE**	2.5	2.5	2	2.33	1.75		1	3	2	1	2		2	2	2
	8	ELE 803	High Voltage Engineering	**C 803.1**	3	2	2	1	2	1						2	3	3	1
				C 803.2	3	2	2	1	2	1						2	3	3	1
				C 803.3	3	2	2	1	2	1	1					2	3	3	1
				C 803.4	3	2	2	2	2	1	1					2	3	3	1
				AVERAGE	3	2	2	1.25	2	1	1					2	3	3	1
76	8	ELE 803-P	High Voltage Engineering Lab	**C 803P.1**	2	2	2	2	1	1			2			2	3	3	1
				C 804P.2	3	2	2	1	1	1			2			2	3	3	1
				C 804P.3	3	2	2	1	1	1			2			2	3	3	1
				C 804P.4	3	2	2	2	1	1			2			2	3	3	1
				AVERAGE	2.75	2	2	1.5	1	1			2			2	3	3	1

Year 2019-20

Course Code	Course Name	POs												PSO		
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
ELE 301	**Basic Electric Engineering**	2.5	2.2		1.7		2.5					2.2		2.0	2.2	1.0

		0	5		5		0					5		0	5	0
ELE 301-P	**Basic Electric Engineering Lab**	2.50	2.25		1.75		2.50					2.25		2.000	2.25	1.000
ECE 301	**Network Analysis and Synthesis**	3.000	2.80	3.000	2.40	2.60	1.75	2.80	1.75	2.40	2.25	2.000	3.000	2.000	2.000	1.000
ECE 302	**Electronics-I**	3.000	2.80	3.000	2.40	2.60	1.75	2.80	1.75	2.40	2.25	2.000	3.000	2.000	2.000	1.000
ECE 302-P	**Electronics-I Lab**	2.20	2.000	2.40	1.60	1.000	1.75			2.60		2.80	1.80	2.40	1.80	2.20
PHY 303	**Electromagnetic Fields & Waves**	3.000	2.80	3.000	2.40	2.60	1.75	2.80	1.75	2.40	2.25	2.000	3.000	2.000	2.000	1.000
MET 302	**Electrical Engineering Materials**	2.40	2.20	2.000	1.33	1.33	2.000	1.000				1.33	1.80	3.000	2.40	2.20
MTH 305	**Mathematics-III**	1.20	1.80	1.80		2.000				1.000			1.50	2.000	2.25	1.000
MECH-ELE	**Thermal Engineering**	3.000	2.25	2.25		2.000	2.000	1.75	2.00			3.000	2.000	3.000	1.75	3.000
ELE 401	**Electric Machines-I**	2.50	2.25		1.75		2.50					2.25		2.000	2.25	1.000
ELE 401-P	**Electric Machines-I Lab**	2.50	2.25		1.75		2.50					2.25		2.000	2.25	1.000
ELE 402	**Control Systems -I**	3.000	2.80	3.000	2.40	2.60	1.75	2.80	1.75	2.40	2.25	2.000	3.000	2.000	2.000	1.000
ELE 403	**Electrical Measurements & Measuring Instruments**	2.75	2.75	2.500	2.000	1.000	2.75	2.50				2.75	2.000	2.000	2.75	1.000
ELE 403-P	**Electrical Measurements & Measuring Instruments Lab**	2.75	2.25	2.000	1.50	2.50	2.33	3.000	2.000	2.000		2.75	1.25	1.000	1.000	
ECE 402	**Electronics-II**	2.33	2.67	2.000	1.33	1.67	1.000	1.000	2.000	2.000	1.33	1.67	2.33	1.33	2.000	2.000
ECE 402-P	**Electronics-II Lab**	1.75	1.67	2.000	1.67	2.000	2.000	2.000	1.000	2.000	2.000		2.000	2.000	1.50	1.000
CIV 401	**Hydraulic and Hydraulic Machines**	3.000	2.000	3.000	2.000	2.33	2.000	2.000	2.000	3.000	2.000	2.000	3.000	3.000	1.67	2.000
MTH 402	**Mathematics-IV**	1.60	2.20	1.80	2.000	1.50							1.67	2.75	2.50	1.50
ELE 501	**Power Systems-I**	1.80	2.40	1.8.	2.50	1.000	1.50	2.50				1.000	2.000	2.20	2.60	2.000
ELE 501-P	**Power Systems-I Lab**	2.75	1.75	2.000	2.000	2.000	1.67	2.000					2.000	2.25	2.000	1.25
ELE 502	**Electric Machines-II**	3.000	3.000	3.000	2.75	1.33	1.33	3.000	1.33	1.33	1.25	1.33	2.67	3.000	2.25	2.75
ELE 502-	**Electric Machines-II Lab**	2.	3.	2.	1.		3.	2.	2.	2.	1.	1.	2.	2.	2.	2.

P		0 0	0 0	0 0	0 0		0 0	0 0	0 0	0 0	7 5	5 0	2 5	0 0	2 5	0 0
ELE 503	**Control Systems -II**	3. 0 0	2. 5 0	2. 5 0	2. 5 0	2. 5 0	2. 0 0	2. 0 0	1. 0 0	1. 7 5	1. 3 3	1. 0 0	2. 5 0	2. 0 0	2. 2 5	1. 0 0
ELE 503-P	**Control systems-II & VI Lab**	3. 0 0	3. 0 0	2. 6 7	1. 3 3	1. 6 7	1. 0 0	1. 0 0	1. 0 0	3. 0 0	2. 6 7	2. 6 7	2. 3 3	2. 6 7	2. 6 7	1. 0 0
ELE 504	**Computer Aided Simulation of Electrical Systems**						1. 7 5		3. 0 0	1. 7 5	3. 0 0	2. 0 0	1. 7 5			2. 0 0
ECE 508	**Communication Systems**	3. 0 0	2. 2 5	2. 7 5	1. 3 3	2. 0 0	1. 0 0	2. 0 0					2. 7 5	2. 7 5	2. 7 5	2. 0 0
ECE 509	**Digital Electronics & Logic design**	2. 0 0	2. 0 0	2. 0 0	1. 7 5									2. 2 5	2. 0 0	2. 0 0
ECE 509-P	**Digital Electronics & Logic design Lab**	2. 7 5	2. 5 0	2. 6 7	2. 0 0	2. 6 7	1. 6 7	1. 7 5	1. 7 5	2. 0 0	2. 0 0	1. 3 3	1. 5 0	2. 3 3	1. 0 0	1. 6 7
MTH 503	**Mathematics-V**	1. 6 0	2. 2 0	1. 8 0	2. 0 0	1. 5 0							1. 6 7	3. 0 0	3. 0 0	3. 0 0
ELE 601	**Power system II**	2. 8 0	2. 6 0	2. 0 0	2. 0 0	2. 0 0						2. 2 0	1. 0 0	1. 4 0	1. 8 0	1. 0 0
ELE 601-P	**Power system II Lab**	3. 0 0	2. 2 5	2. 2 5		2. 0 0	2. 0 0	1. 7 5	2. 0 0			3. 0 0	2. 0 0	3. 0 0	1. 7 5	3. 0 0
ELE 602	**Power Electronics**	2. 2 0	2. 0 0	2. 4 0	1. 6 0	1. 0 0	1. 7 5			2. 6 0		2. 8 0	1. 8 0	2. 4 0	1. 8 0	2. 2 0
ELE 602-P	**Power Electronics Lab**	2. 2 5	2. 0 0	2. 2 5	1. 5 0	1. 0 0	1. 5 0			2. 5 0		2. 7 5	1. 7 5	2. 2 5	1. 5 0	2. 0 0
ELE 603	**Electric Machines Design**	2. 7 5	2. 7 5	2. 5 0	2. 0 0	1. 0 0	2. 7 5	2. 5 0				2. 7 5	2. 0 0	2. 0 0	2. 7 5	1. 0 0
ELE 604	**Tour & Training**	2. 0 0	1. 5 0	3. 0 0	2. 3 3	2. 5 0	1. 5 0	2. 0 0	1. 0 0	3. 0 0	2. 0 0	2. 3 3	1. 0 0	2. 0 0	2. 0 0	2. 5 0
ELE 605	**Digital Signal Processing**	2. 8 0	1. 8 0	1. 6 0	2. 4 0	1. 8 0	1. 4 0					2. 2 0	1. 4 0	2. 0 0	2. 0 0	2. 2 0
ELE 606	**Microprocessors**	3. 0 0	2. 0 0	2. 6 7	3. 0 0	2. 3 3	1. 3 3	1. 0 0			1. 0 0	1. 6 7	1. 6 7	2. 6 7	2. 6 7	2. 6 7
ELE 606-P	**Microprocessors Lab**	3. 0 0	1. 6 7	1. 6 7	2. 3 3	3. 0 0	1. 0 0				1. 0 0	2. 0 0	1. 0 0	3. 0 0	3. 0 0	2. 6 7
ELE 701	**Power System Protection**	2. 7 5	2. 7 5	2. 5 0	2. 0 0	1. 0 0	2. 7 5	2. 5 0				2. 7 5	2. 0 0	2. 0 0	2. 7 5	1. 0 0
ELE 701-P	**Power System Protection Lab**	1. 6 7	1. 6 7	1. 5 0	2. 2 5	2. 0 0	2. 0 0	1. 5 0	1. 7 5	1. 8 0	2. 4 0	1. 0 0	1. 4 0	3. 0 0	3. 0 0	3. 0 0
ELE 702	**Advanced Power Electronics**	3. 0 0	3. 0 0	2. 2 0	1. 0 0	1. 0 0	1. 0 0	1. 0 0					2. 0 0	3. 0 0	2. 0 0	1. 0 0
ELE 703	**Power Systems-III**	2. 8 0	1. 8 0	1. 6 0	2. 6 7	1. 0 0	1. 2 5					2. 3 3	1. 4 0	1. 6 7	1. 3 3	2. 0 0

ELE 708	**Electronic Measurments and Instrumentation**	2.25	2.25	2.50	1.000		1.000			1.000	1.000	1.000	1.25	2.000	2.000	3.000
ELE 708-P	**Electronic Measurments and Instrumentation Lab**	2.25	2.000	1.75	2.000	1.50	2.50	2.50	1.50			1.667	1.75	1.75	2.000	1.75
ELE 704	**Power Station Practice**	2.75	2.75	2.50	2.000		2.75					2.75	2.000	2.000	2.75	1.000
ELE-1-14	**Elective-I**	2.75	2.75	3.000	2.000	1.000	3.000	3.000				3.000	2.000	2.000	2.75	1.000
ELE 706P	**Project Preliminary Work/Seminar**	1.75	2.75		2.000		2.000	2.25		3.000			3.000	3.000	1.000	2.25
HSS 701	**General Management and Economics**	2.80	2.80	3.000	2.000	1.000	3.000	3.000				3.000	2.000	2.000	2.80	1.000
ELE1-14/MTH 705	**Elective-II**	2.40	2.60	2.000	1.600	2.000	1.400			1.600		1.800	2.220	1.600	2.000	2.220
ELE 803	**High Voltage Engineering**	3.000	2.000	2.000	1.25	2.000	1.000	1.000					2.000	3.000	3.000	1.000
ELE 803-P	**High Voltage Engineering Lab**	3.000	2.000	2.000	1.25	2.000	1.000	1.000					2.000	3.000	3.000	1.000
ELE 802	**Project**	2..5	2.50	2.000	2.33	1.75		1.000	3.000	2.000	1.000	2.000		2.000	2.000	2.000
ELE 1-14	**Elective-III**	3.000	2.25	2.25		1.50	2.000	1.75	2.000			0.75	2.000	3.000	1.75	3.000

Gaps identified by Industry Experts.

Sl.	Identified Gap	Compensated Course Name	Program Outcomes	Program Specific Outcomes
1.	Hands on experience of trouble shooting of household equipment	Basic Engineering Products	PO1, PO6, PO12	PSO1
2	Recent Technologies using in industry	Modular Course	PO1, PO3, PO5	PSO2
3	Artificial intelligent controllers for power electronic based systems	Soft Computing	PO1, PO3, PO4,PO5,	PSO2
4	Specific knowledge is required in UPS technology.	Advanced Power Electronics	PO1, PO3	PSO1, PSO2

Gaps identified by Academic Experts.

S. No	Identified Gap	Compensated Course Name	Program Outcomes	Program Specific Outcomes
1	Knowledge on Environment and	Renewable Sources of Electrical Energy	PO7	PSO1, PSO3

	sustainability			
2	Practical behaviour of EHV and UHV AC lines through simulation	EHV AC & DC Transmission	PO1, PO4	PSO1
3	Smart grid and distributed generation concepts to be familiarize	Distribution System Automation	PO1, PO4	PSO1, PSO2
4	Financial Energy Management of the industry	Energy Economics	PO7, PO8, PO11,	PSO1
5	Digital protection knowledge of power system to be imposed	Advanced Power Electronics	PO1, PO4	PSO1, PSO2

Gaps identified by Students.

S. No	Identified Gap	Compensated Course Name	Program Outcomes	Program Specific Outcomes
1.	Knowledge on basic electrical concepts	Basic Electrical Engineering	PO1, PO2	PSO1, POS3
2	Knowledge on special machines	Electric Machine -II	PO1, PO2	PSO1, POS3
3	Taught at an 8^{th}-semester level as an elective course be shifted to 7^{th}-semester level with the same LTP as a core course.	Advanced Power Electronics	PO1, PO2, PO3	PSO1, POS2

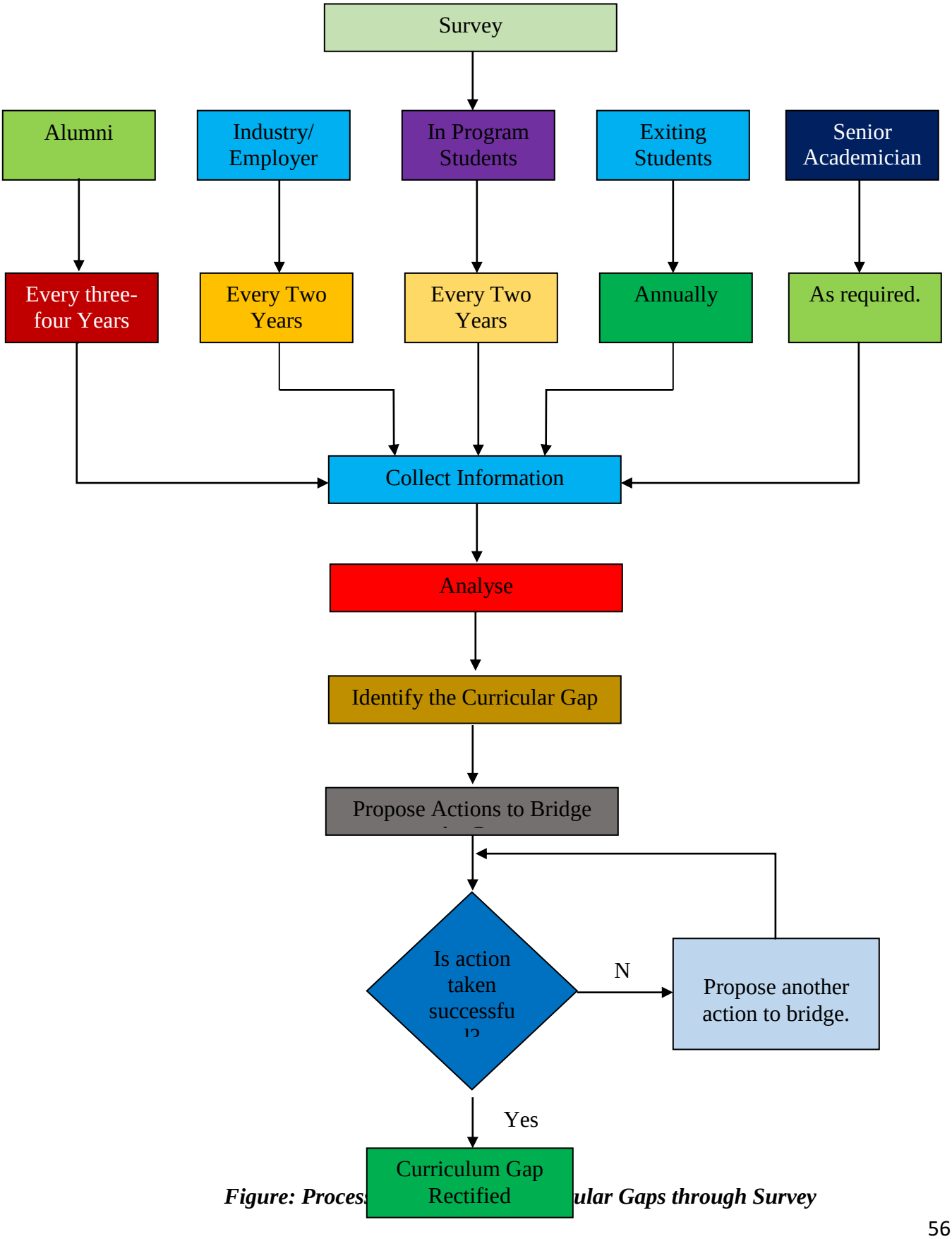

Figure: Proces ular Gaps through Survey

ALUMNI SURVEY

Electrical Engineering Department
National Institute of Technology Srinagar
Alumni Survey Form

Thank you for taking the time to fill out this questionnaire. All the information will be kept confidential and will be used only for statistical purposes.

Alumni name		
Year of Graduation		
Mailing address		
Placement	**Before/after graduation**	**Core/Software**
Name of the Company		

Please rate each of the following skills, abilities, or attributes in terms of their importance to state how well your education at **Chemical Engineering Department, National Institute of Technology, Srinagar** prepare you for these.

Skills, Abilities and Attributes	**Scale (1 to 5) Excellent to poor**
Apply Knowledge of mathematics, Basic sciences and Engineering	
Problem Identification and Analysis	
Design a system and develop solution to the problem	
Investigate and handle complex problems	
Ability to use techniques and tools in engineering practice	
Understand and appreciate the impact of engineering in the societal and global contexts	
Awareness of existing issues (e.g., Economics of engineering, Environmental issues)	
Understand professional and ethical responsibilities as an engineer (e.g., safety, professional ethics, code of conduct)	
Function effectively in teams	
Proficient in English language in both communicative and technical forms	
Awareness of the need for life-long learning (Seeking further education, self-learning, Membership in professional societies)	
Project Management and Finance	
Ability to apply the principles and practices of Chemical Engineering discipline along with the basic sciences and humanities to solve the complex engineering problems concerning the issues of environment, safety, economics, culture and society etc	
Apply the new knowledge with professional responsibility and ethics towards the advancement of academic and research pursuits in chemical and allied disciplines in the societal contexts	
Design, develop and modify the chemical processes and to analyse these by applying the physicochemical and biological techniques	

Signature	**Suggestion if any:**

EMPLOYER SURVEY

Electrical Engineering Department
National Institute of Technology, Srinagar
Employer Survey Form

The purpose of this survey is to obtain Employer's input on the quality of education of undergraduate programs in NIT, Srinagar. Your sincere cooperation would enable us to improve the quality of our graduates as per your requirements

Name of Company/ Organization			
Mailing address			
Sector Private/Public/Academia			
What are the pertinent employability skills to stay updated in current industry trends and thereby improve the quality of the undergraduate program?	Logical Thinking	Good Aptitude	Excellent Communication

Rate NIT Srinagar Graduates working in your organization using the following criterion.
Put tick mark Knowledge, Skills, Abilities, Attitude and other Attributes expected out of NIT Srinagar graduates.

Sl. No.	**Overall, are you satisfied with**	**Excellent (3)**	**Good (2)**	**Satisfied**
i.	Capacity for development and analysis of engineering problems and formulation of appropriate solutions, retaining professional and ethical responsibilities.			
ii.	Aptitude for self-education, ability to learn new skills and a clear appreciation for the value of life-long learning to update professional knowledge.			
iii.	Understanding professional engineering solutions for sustainable development and their application in global, national and societal contexts.			
iv.	Competence for acquiring new skills and applying them in research and development.			
v.	Fundamental knowledge in mathematics and science and professional fluency in English both communicative and technical forms.			
vi.	Dexterity in differentiation of management techniques and possession of leadership skills that enable successful function of multi-disciplinary teams.			

Name and Designation:	**Signature:**

IN PROGRAM STUDENTS SURVEY

National Institute of Technology, Srinagar **Electrical Engineering Department** **In-Program Student Survey Form**			
Name:		**Year Passed out:**	
Email:		**Phone**	
Assessment of Knowledge, Skills, Abilities and Attributes presently acquired at NIT Srinagar			
Please rate each of the following Knowledge, Skills, Abilities, Attitudes, or attribute in terms how well NIT Srinagar inculcated them in your education so far. (Tick mark your choice)			
i.	Ability to acquire and apply knowledge of basic mathematics, science and engineering fundamentals. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
ii.	Ability to apply analytical skills to engineering problems. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
iii.	Ability to conduct experiments, analyse data, and present results. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
iv.	Ability to conduct independent research for information required in engineering problem. Solving. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
v.	Ability to use modern technologies and tools necessary for practice. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
vi.	Ability to understand global issues related to engineering. If not satisfied give your suggestions to improve.		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
vii.	Understand the importance of ethical and professional responsibility. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
viii.	An ability to function on multi-disciplinary teams. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
ix.	An ability to communicate effectively. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
x.	A recognition of the need for, and an ability to engage in life-long learning. If not satisfied give your suggestions to improve		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**

EXITING STUDENTS SURVEY

Electrical Engineering Department **National Institute of Technology, Srinagar** **Exiting Students Survey Form**			
Name:		Enrolment. No:	
Phone No.		Email:	
Assessment of Abilities, Skills and Attributes acquired at NIT Srinagar. Please rate each of the following items in terms how well your education at NIT Srinagar prepared you for them.			
1.	Basic knowledge in mathematics, science, engineering, and humanities.		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
2.	Ability to identify, analyse and solve chemical engineering problems		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
3.	Ability to design and develop solutions for chemical engineering problems		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
4.	Ability to investigate the complex chemical engineering problems and their solutions		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
5.	Use of research-based knowledge and research methods		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
6	Demonstrate the ability to apply advanced technologies to solve contemporary and new problems		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
7.	Understanding professional engineering solutions in societal and environmental contexts		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
8.	Understanding of professional and ethical responsibility		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
9.	Ability to function as an effective member in multi-disciplinary teams		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
10.	Proficient in English language in both communicative and technical forms		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
11.	Demonstrate the ability to choose and apply appropriate resource management techniques		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
12.	Capable of self-education and clearly understand the value of updating their		

	professional knowledge to engage in life-long learning		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
13.	Ability to apply the principles and practices of Chemical Engineering discipline along with the basic sciences and humanities to solve the complex engineering problems concerning the issues of environment, safety, economics, culture, and society etc.		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
14.	Ability to acquire and apply the new knowledge with professional responsibility and ethics towards the advancement of academic and research pursuits in chemical and allied disciplines in the societal contexts.		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**
15.	Design, develop and modify the chemical processes and to analyse these by applying the physicochemical and biological techniques.		
	Extremely Satisfied	**Satisfied**	**Not Satisfied**

1. Please list some very important skills that you think you had learned in the engineering program.

2. Please write down any comments or suggestions that you think will improve the engineering programs at NIT Srinagar.

3. Please comment about the department Vision and Mission:

Measures and processes used to improve curriculum.

In view of the gaps identified, BOS meeting was held on 16-07-2012 and the following changes were made to the course curriculum:

1. The Elective IV [Advanced Power Electronics] with LTP 3:1:0:4 taught at an 8^{th}-semester level as an elective course be shifted to 7^{th}-semester level with the same LTP as a core course.

2. The "Electric Drives" along with Lab Course taught at 7^{th} semester as core course with LTP 2:1:2:4 is shifted to 8^{th}-semester level as an elective with same LTP.

3. Moreover, "Virtual Instrumentation Lab" being taught at the 8^{th} semester level with the LTP 0:0:2:1 be clubbed with control system-II Lab. At the 5^{th} semester level. The Lab Course is also renamed as Control System and Instrumentation Lab with LTP 0:0:2:1.
This will also help to reduce the number of credits from 26 to 25 at 8^{th} semester, so that uniformly in terms of No. of credits at each semester is maintained i.e 25 credits per semester.

4. The reformulated scheme of courses for the 5th semester, 7th semester and 8th semester for 2010 batch onwards after making correction are appended along-with List of Electives.

Another meeting of BOS was held on 27-08-2014. It was suggested to modify the present B. Tech curriculum to conform to the present requirements and objectives. It was resolved to make the following changes in the scheme:

1. 3rd semester:

i) The course "Principles of Electrical Engineering" shall be renamed as "Basic Electrical Engineering", similarly "Principles of Electrical Engineering".

ii) The course "Mechanical Engineering" taught by Electrical Engineering Department of the Institute was suggested to be renamed as Engineering Thermodynamics.

2. 4th semester:

The course No. ELE 404 i.e., Non-Conventional Energy Sources was decided to be dropped and introduce it as an elective at higher semester level with the modified syllabus. According to the revised credit structure of following courses was revised as follows:

- Control system-I 3 1 0 4
- Electric measurements and measuring Instruments 3 1 0 4.
- Electronics-II 3 1 0 4

3. 5th semester:

Power System Lab-I which was earlier dropped from 5th semester was reintroduced. Accordingly, the revised credit structure of Power System-I is 2 1 0 (3 credits) and for Power, System Lab will be 0 0 2(1 credit)

4. 6th semester:

The course No. ELE-603 was decided to be renamed as Electric Machine Design instead of Computer-Aided Design of Electric Machines and course no. ELE-603P (Computer Aided Design Lab) was dropped. Furthermore, the syllabus of course no. ELE-602 i.e., Power Electronics was modified as proposed by the concerned course in charge and DMC (Departmental Monitoring Committee). Also, the credit structure, of course, ELE-606 i.e., Microprocessor was revised to 3 1 0 4.

5. 7th semester:

The courses: General Management and Economics (HSS-701) and one of the electives were shifted to 8th semester and instead Power system-III and Power Station Practice was included in 7th semester. The syllabus of Advanced Power Electronics was revised as proposed by course in charge and DMC.

6. 8th semester:

Due to the decision at 5, the courses Power system-III and Power Station Practice were shifted to 7th semester and accordingly courses "General Management & Economics" and one elective is shifted to 8th semester. Furthermore, the course Non-Conventional Energy Sources dropped at 4th-semester level was included in 8th-semester level as an

elective with modification of syllabus with the new title "Renewable Sources of Electrical Energy".

It was further decided that Elective-IV i.e., High Voltage Engineering be treated as core course instead of electives.

7. Electives:

It was decided to have a common list of electives to be floated at a 7th and 8th-semester level to have more flexibility. Further, the electives i) Restructuring of Power System ii) Power System Optimization iii) FACTS iv) Fuzzy Logic and Neural Network (renamed as Soft Computing) and v) Stand Alone Power System will be dropped from the list as these were introduced at M.Tech. level.

Further, the meeting of the Departmental Under-Graduate Committee (DUGC) was held on June 13, 2019.

The committee deliberated upon some academic matters and proposed the following changes in the under-graduate courses offered by the department:

1. The course structure for B Tech in Electrical Engineering for the batch starting from Autumn 2019 was finalized and is attached as Annexure 2.1.
2. As decided in the last meeting of DUGC, Basic Electrical Engineering Course will henceforth be offered in 1st year to Electrical Engineering students as well as to other allied branches. To optimize the resources and for equitable distribution of teaching load, it was decided to offer the Basic Electrical Engineering course (Theory & Lab) to Electrical Engineering, Civil Engineering (two sections), and Chemical Engineering in 1st semester, and to other branches viz. ECE, Mechanical Engineering, CSE, IT and Metallurgical Engineering in 2nd semester. The other departments are requested to make necessary changes in their course structures accordingly.
3. Since the Basic Electrical Engineering course offered to Electrical Engineering students at present in 3rd Semester has been slashed, the 4-credits of this course are distributed with one additional credit to Electronics-I, EMF & Waves, Electrical Engineering Materials and Mathematics-III.
4. In B.Tech. 5th Semester, Control Systems-II course to have 4-credits instead of 3 credits and Computer Aided Simulation of Electrical Machines to have 1-credit instead of two credits with two contact hours per week.
5. In B.Tech. 5th semester, Microprocessors and DSP Lab. to be named Microprocessors Lab.

6. In B.Tech. 7th semester, Electronics Measurement, and Instrumentation Lab. to be slashed and instead Power Station Practice Lab (Field Visits) of 1 credit is proposed. Project Preliminary Work and Seminar to be shown as separate courses.
7. In B.Tech. 8th Semester, Project to have 9-credits only with 1 additional credit to Elective-I, Elective-II and High Voltage Engineering.

2.2. TEACHING-LEARNING PROCESSES (70)

2.2.1. Process followed to improve the quality of Teaching-Learning (15)

A. Adherence to academic calendar Academic Calendar Year 2019-2020 (2)

Month	Activities Planned
February	Registration B.Tech. (Spring 2019 session) Commencement of classes Registration for P.G and PhD (Spring 2019 session) Registration B.Tech. Even Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D. (Spring 2018 session) Registration with late fee B.Tech., M.Tech./M.Sc. 2nd and 4th and Ph.D. (Spring 2019 session) Commencement of Classes
March	Extra-Curricular Activities – 5-day workshop on Project Planning
April	Mid-Term examinations TECHVAGANZA
May	Advertisement for admission to M. Tech. (sponsored), Alumni Visit: Practical Examinations; Advertisement for PH.D. admissions. End Semester Examination B.Tech. 8th Semester
June	B.Tech. Project Viva-voce Examination Registration for Supplementary examinations End Semester Examination B.Tech. 2nd, 4th and 6th Semesters, M.Tech. /M.Sc. 2nd and 4th and Ph.D. Summer breaks for students
July	Supplementary Examinations for odd semester; Special Supplementary Examinations for 8th Semester; Registration for U.G./ P.G. / Ph.D. (Autumn 2019);
August	Commencement of classes; Registration with late fee Fresher's Orientation Day

September	Extra-Curricular Activities – Sports Event; Mid-Term Examination. Convocation
October	Celebration of Rashtriya Ekta Diwas; Run for Unity; National Innovation Day
November	National Entrepreneurship Day. Practical Examinations; End Semester Examinations; Registration for Supplementary Examination for Even Semester
December	Supplementary Examination for Even Semester; Winter Vacations for students

The calendar was implemented as per schedule up to 4th August 2019 but thereafter due to situations beyond Institute control, the activities up to 15th October 2019 were rescheduled & completed by January 2020 utilizing full winter vacation and holidays thereby ensuring that the academic calendar for 2019 is achieved without any loss of time.

Adherence to Academic Calendar (2018-2019)

Month	Activities Planned
February	Registration B.Tech. 8th Semester (Spring 2018 session) Commencement of classes for B.Tech. 8th Semester Registration with late fee B.Tech. 8th Semester (Spring 2018 session) Registration B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D. (Spring 2018 session)
March	Registration with late fee B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D. (Spring 2018 session) Commencement of classes for B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D.
April	Mid-Term exam B.Tech. 8th Semester Mid-Term exam B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D. Alumni Meet-2018; Extra-Curricular Activities
May	Annual Day. Practical Examinations; Advertisement for PH.D. admissions. End Semester Examination B.Tech. Semester
June	B.Tech. Project Viva-voce Examination End Semester Examination B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D.
July	M.Tech. Dissertation Viva-voce Exam. Supplementary Examinations for odd semester; Summer Break; Special Supplementary Examinations for 8th Semester; Registration for U.G./ P.G. / Ph.D. (Autumn 2018); Commencement of classes. Registration with late fee
August	Fresher's Orientation Day
September	Extra-Curricular Activities; Mid-Term Examination; Convocation Alumni Meet Delhi Chapter
October	Tech. Fest/ ECA National Innovation Day
November	Practical Examination; National Entrepreneur Day End Semester Examination; Supplementary Examination for Even Semester
December	Winter Vacations for students

The calendar was implemented and achieved in full with very minor reschedules.

Academic Calendar for the Year 2017-18

Month	Activities Planned
February	Registration (Spring 2017 session)
March	Late Registration (Spring 2017 session) Teaching (8th Semester); Teaching (other Semesters)
April	1st Minor Examination Extra-Curricular Activities
May	2nd Minor Examination Alumni Day Annual Day
June	B.Tech. Project Viva-voce Examination End-Term Examination (8th Semester) End-Term Examination (Other even Semesters) Result Declaration (8th Semester) M.Tech. Dissertation Viva-voce Exam
July	Result Declaration (M.Tech.); Supplementary Examinations for odd semester; Result Declaration (all semesters) Registration (Autumn 2017 session); Late Registration (Autumn 2017 session); Teaching; Tech. Fest
August	Fresher's Orientation Day 1st Minor Examination
September	Extra-Curricular Activities Convocation 2016
October	2nd Minor
November	End Term Examination for odd semesters
December	Supplementary Examination for Even Semester Result Declaration (all semesters). Winter Vacations for students

The calendar was implemented and achieved very satisfactorily.

SPRING-2020			
REGISTRATION & COMMENCEMENT OF CLASSES			
1.	**Registration for U. G**	**Date of Registration**	**Commencement of classes**
2.	2nd semester 4th semester 6th semester 8th semester	9 &11 March,2020 12-13 March,2020 16-17 March,2020 9 & 11 March,2020	12th March,2020 16th March,2020 18th March,2020 12th March,2020
3.	Registration for P.G &Ph.D.	9 & 11 March,2020	12th March,2020
4.	Registration with late fee: For next 04 days after the last permissible registration date(s) @ Rs.400/- per day in each category and Rs.800/- for next subsequent four days		
5.	Sports Week		11-04-2020 to 13-04 -2020
6.	Mid-Term Examinations		04-05-2020
7.	Advertisement for admission to: a) M.Tech (sponsored category) b) Ph.D.		Last week of May
	END-TERM EXAMINATIONS		
8.	B. Tech Project Viva-Voce& Practical Examinations		Last week of May
9.	B. Tech8th Semester End-Term Examination		01-06-2020
10.	U. G, PG &Ph.D. End-Term Examination		15-06-2020
11.	Registration for Supplementary Exam (Even Semester)		01-06-2020 to 10-06-2020
12.	Registration for Supplementary Exam (Odd Semester)		15-06-2020 to 26-06-2020
13.	Supplementary Exam (Odd Semester)		02-07-2020
AUTUMN-2020			
REGISTRATION & COMMENCEMENT OF CLASSES			
1.	Registration for U.G, P.G &Ph.D.		27-07-2020 to 31-07-2020
2.	Registration with late fee @ Rs.400/- per day		Upto 05-08-2020
3.	Commencement of classes for all semesters		03-08-2020
4.	Fresher's Orientation Day		23-08-2020
5.	Techvaganza		05-09-2020
6.	Mid-Term Examinations		14-09-2020
7.	Convocation		Date to be declared
8.	National Entrepreneurship Day		Date to be declared
END-TERM EXAMINATIONS			
9.	End Semester Examinations		From 09-11-2020
10.	Registration for Supplementary Exam (Odd Sem)		19-10-2020 to 29-10-2020
11.	Registration for Supplementary Exam (Even Sem)		09-11-2020 to 19-11-2020
12.	Supplementary Exam (Even Semester)		From 23-11-2020
13.	Winter Vacations for Students		07-12-2020

Table B.2.2.1a: Academic Calendar for the Calendar Year 2020

SPRING-2019			
S.No.	Activity	Date	
		From	To
1.	Reopening of Institution	18-02-2019	
	Registration for U.G, P.G &Ph.D.	18-02-2019	22-02-2019
	Registration with late fee @ Rs.400/- per day	25-02-2019	28-02-2019
	Commencement of classes	25-02-2019	
2.	Mid-Term Examinations	18-04-2019	
3.	Techvaganza	27-04-2019 & 28-04-2019	
4.	Advertisement for admission to: a) M.Tech (sponsored category) b) Ph.D.	3rd week of May	
	End-Term Examinations		
5.	B. Tech 8th Semester	From 23-05-2019	
	B. Tech Project Viva-Vice Exam	10-06-2019 to 13-06-2019	
	Registration for Supplementary Examinations with regular candidates	03-06-2019 to 07-06-2019	
	B. Tech 2nd, 4th& 6th M.Tech/ M.Sc. 2nd& 4th semesters and Ph.D.	From 10-06-2019	
6.	Registration for Supplementary Examinations (Odd Semester)	24-06-2019 to 02-07-2019	
7.	Supplementary Examinations for odd Sems	From 04-07-2019	
8.	Registration for Special Supplementary Exam for 8th semester	01-07-2019 to 11-07-2019	
9.	Special Supplementary Examinations for 8th Sem	From 15-07-2019	
10.	Summer Break	23-06-2019	28-07-2019
Autumn-2019			
Registration & Commencement of Classes			
1.	Registration for U.G, P.G &Ph.D.	29-07-2019	01-08-2019
	Registration with late fee @ Rs.400/- per day	Upto 05-08-2019	
	Commencement of classes	20-08-2019	
2.	Fresher's Orientation Day	20-08-2019	
3.	Sports Events	06-09-2019	08-09-2019
4.	Mid-Term Examinations	16-09-2019	
5.	Convocation	28-09-2019	
6.	National Entrepreneurship Day	09-11-2019	
End-Term Examinations			
7.	Practical Examinations	1st week of November	
8.	Registration for Supplementary Examinations with regular candidates	01-11-2019 to 07-11-2019	
9.	End Semester Examinations	From 11-11-2019	
10.	Registration for Supplementary Examinations (Even Sem)	20-11-2019 to 28-11-2019	
11.	Supplementary Examinations for Even Sems	From 01-12-2019	
12.	Winter Vacations for Students	10-12-2019	

Table B.2.2.1b: Academic Calendar for the Calendar Year 2019

SPRING-2018		
S.No.	Activity	Date
1.	Registration B.Tech. 8th Semester	19-02-2018 to 21-02-2018
2.	Commencement of classes for B.Tech. 8th Semester	22-02-2018
3.	Registration with late fee B.Tech. 8th Semester	22-02-2018 to 26-02-2018
4.	Registration B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D.	26-02-2018 to 28-02-2018
5.	Registration with late fee B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D.	01-03-2018 to 05-03-2018
6.	Commencement of classes for B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D.	01-03-2018
7.	Mid-Term exam B.Tech. 8th Semester	16-04-2018 to 21-04-2018
8.	Mid-Term exam B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd and 4th and Ph.D.	23-04-2018 to 28-04-2018
9.	Alumni Meet-2018	28-04-2018 to 29-04-2018
10.	Extra-Curricular Activities	28-04-2018 to 30-04-2018
11.	Annual Day	01-05-2018
12.	Practical Examinations	Last week of May
13.	Advertisement for Ph.D. admissions	Last week of May
14.	End Semester Examination B.Tech. Semester	From 28-05-2018
15.	B.Tech. Project Viva-voce Examination	11-06-2018 to 12-06-2018
16.	End Semester Examination B.Tech. 2nd, 4th and 6th Semesters, M.Tech./M.Sc. 2nd& 4th and Ph.D.	From 19-06-2018

Table B.2.2.1c: Academic Calendar Year 2018 (Spring Session)

1.	Registration for U.G., P.G. & Ph.D.	23-07-2018 to 25-07-2018
2.	Registration with late fee @Rs 400/= per day	Up to 30-07-2018
3.	Commencement of classes	6-07-2018
4.	Extracurricular activity	07-09-2018 to 15-09-2018
5.	Midterm examination	10-09-2018 to 15-09-2018
6.	Convocation	22-09-2018
7.	Alumni meet Delhi chapter	29-09-2018 to 30-09-2018
8.	Tech fest/ECA	13-10-2018 to 15-10-2018
9.	National innovation day	15-10-2018
10.	Practical examination	1st week of November
11.	National Entrepreneur Day	09-11-2018
12.	End semester examination	From 12-11-2018
13.	Supplementary examinations for even semester	From 26-11-2018
14.	Winter vacation for students	10-12-2018

Table B.2.2.1d: Academic Calendar for the Calendar Year 2018 (Autumn)

Autumn-2017			
S.No.	Activity	Date	
		From	To
01.	**Registration** for U.G, P.G &Ph.D.	26-07-2017	28-07-2017

	Late Registrationfor U.G, P.G &Ph.D.	31-07-2017	01-08-2017
02.	**Commencement of classes**	31-07-2017	
03.	**Tech. Fest**	04-08-2017	06-08-2017
04.	Fresher's Orientation Day	3rd week of August	
05.	**Minor-1 Examination for U.G, P.G &Ph.D.**	04-09-2017	06-09-2017
06.	**Extra Curriculum Activities**	07-09-2017	10-09-2017
07.	**Mid-Term Examination** (To be conducted instead of Minor-1 & Minor-2 if approved by Senate)	18-09-2017	20-09-2017
08.	**Convocation**	Last week of September to 1st week of October	
09.	**Minor-2**Examination for U.G, P.G &Ph.D.	04-10-2017	06-10-2017
10.	**Major Examination** for U.G, P.G &Ph.D.	06-11-2017	
11.	**Supplementary Examinations** for even Semester	20-11-2017	
12.	**Winter Vacation** for Students	01-12-2017	

Table B.2.2.1e: Academic Calendar for the Calendar Year 2017 (Autumn)

B. Maintenance of Course files

The implementation details:

The department is having a systematic procedure for improving the Teaching learning process which shows step by step improvement in quality of teaching and hence an improvement in the students' performance. The quality of the teaching and learning process is dynamic and improvements are incorporated from time to time depending upon the requirements of the students and to need the attain PEOs, PSOs and POs.

a) All the faculty members have to undergo FDP, FIP, FOP programmes once in a year to be aware of change pedagogy and ensure the quality of teaching.
b) Subject allotment takes place at least two months in advance as per the faculty choice so that the faculty members can get enough time to plan their pedagogical approach for the subject.
c) Faculty who is handling the course will prepare the detailed lecture plan according to the academic calendar of the Institution. The lecture plan incorporates the details of the topics covered in each lecture, syllabus to be cover before each internal exam, number of tutorials to be conducted and, total number of lecture hours needed for completing course.

d) Course monitoring committee (CMC) meetings are arranged periodically to monitor the coverage of syllabus, quality of teaching in the respective semesters and suitable corrective measures are adopted to complete the syllabus within the stipulated time.

e) Once in a month Dean, academics submit a report on the maintenance of quality of the teaching.

NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR
DEPARTMENT OF ELECTRICAL ENGINEERING
6^{Th} Semester (3^{rd} Year)
Course name: Power System-II
Course code: ELE- 601

COURSE DELIVERY PLAN

Sess. No.	CO	Topic (s)	Teaching-Learning Methods	Evaluation Components
1	CO1	Single line diagram, impedance and reactance diagram of a system	Questioning /Discussion	Comprehensive, Test – 1 & END semester exam
2		per unit calculations, per unit representation of a power system.	Questioning /Discussion	Comprehensive, Test – 1 & END semester exam
3	CO2	Faults, types of faults, symmetrical 3-phase balanced faults – calculation of fault currents, current limiting reactors.	Questioning /Discussion	Comprehensive, Test – 1 & END semester exam
4		Symmetrical components, sequence impedances, sequence networks, unsymmetrical faults –single line to ground,	Questioning /Discussion	Comprehensive, Test – 1 & END semester exam
5		line-to-line, double line to ground faults on unloaded alternators and on power systems.	Questioning /Discussion	Comprehensive, Test – 1 & END semester exam
6		Generation of over-voltages in a power system, lightning phenomena	Questioning /Discussion	Comprehensive & END semester exam
7	CO3	lightning surges, switching surges-interruption of short circuits and switching operations	Questioning /Discussion	Comprehensive & END semester exam
8		switching surges – interruption of capacitive circuits	Questioning /Discussion	Comprehensive & END semester exam

9		resonance over voltages, protection of power system components against over voltages – ground wires	Questioning /Discussion	Comprehensive & END semester exam
10		lightning arrestors. Concept of insulation coordination	Questioning /Discussion	Comprehensive & END semester exam
11		Basic impulse insulation level, standard impulse test wave,	Questioning /Discussion	Comprehensive & END semester exam
12	CO4	volt-time curve, location and rating of lightning arrestors	Questioning /Discussion	Comprehensive & END semester exam
13		Traveling waves on transmission lines, open-end line	Questioning /Discussion	Comprehensive & END semester exam
14		short-circuited line, line terminated through a resistance, line connected to a cable,	Questioning /Discussion	Comprehensive & END semester exam
15		reflection and refraction at a T-junction, line terminated through a capacitance	Questioning /Discussion	Comprehensive & END semester exam
16		line terminated through an inductance	Questioning /Discussion	Comprehensive & END semester exam
17		Attenuation of traveling waves.	Questioning /Discussion	Comprehensive & END semester exam
18	CO5	Electrostatic and Electromagnetic effect	Questioning /Discussion	Comprehensive & END semester exam
19		Comparison of HVAC and HVDC transmission lines	Questioning /Discussion	Comprehensive & END semester exam
20		Thyristors (brief revision)	Questioning /Discussion	Comprehensive & END semester exam
21		Basic converter and D.C system operation – rectification, inversion.	Questioning /Discussion	Comprehensive & END semester exam
22		Objective of FACTS.	Questioning /Discussion	Comprehensive & END semester exam
23		3 Basic types of FACTS controllers.	Questioning /Discussion	Comprehensive & END semester exam
24		Introduction to FACTS Devices.	Questioning /Discussion	Comprehensive & END semester exam

Lesson Plan

Name of Faculty: Dr Obbu Chandra Sekhar **Duration:** 55 Min.

Class: IV th Semester **Total Lectures: 44**

Lesson no	Planned date	Topic to be covered	Actual date of lesson delivered	remarks
1	06-03-2019	Introduction about course handout Basics of EMF and MMF	06-03-2019	
2	07-03-2019	Lorentz force equation	07-03-2019	
3	10-03-2019	Energy balance equation	10-03-2019	
4	11-03-2019	Force & Torque in singly excited systems Derivation of force equation with energy	11-03-2019	
5	11-03-2019	Force and Torque in multiply excited systems	11-03-2019	
6	13-03-2019	Working principle & operation of DC Generator	13-03-2019	
7	14-03-2019	Constructional details of DC Machines	14-03-2019	
8	18-03-2019	EMF equation	18-03-2019	
9	18-03-2019	Armature Winding -Lap winding	18-03-2019	
10	20-03-2019	Armature Winding- wave	20-03-2019	
11	25-03-2019	Armature reaction	25-03-2019	
12	25-03-2019	Demagnetization and cross magnetization	25-03-2019	
13	27-03-2019	Commutation Process	27-03-2019	
14	28-03-2019	Problems on Armature reaction	28-03-2019	
15	30-03-2019	Types of generators based on excitation	30-03-2019	
16	01-04-2019	Short shunt generator	01-04-2019	
17	01-04-2019	Problems on different types of DC generators	01-04-2019	
18	03-04-2019	No load Characteristics of DC generator	03-04-2019	
19	04-04-2019	Calculation of critical Filed Resistance and Critical Speed form OCC	04-04-2019	
20	06-04-2019	Load Characteristics of Self Excited Generators	06-04-2019	
21	08-04-2019	Characteristics of various types of generators, applications	08-04-2019	
22	10-04-2019	Parallel Operation of DC Generators	10-04-2019	
23	11-04-2019	D.C. Motors: Torque equation	11-04-2019	
24	15-04-2019	Characteristics of d.c. shunt, series and compound motors.	15-04-2019	
25	18-04-2019	Speed control of d.c. shunt and series motors	18-04-2019	
26	01-05-2019	Problems Solving on Speed Control Methods	01-05-2019	
27	06-05-2019	Starting methods of d.c. shunt motors	06-05-2019	
28	08-05-2019	Principle and constructional Details of Transformers	08-05-2019	
30	09-05-2019	operation of single-phase transformers and emf equation	09-05-2019	
31	13-05-2019	Operation of single-phase transformer on No-load and equivalent circuit	13-05-2019	

32	13-05-2019	Operation of single-phase transformer on load and equivalent circuit	13-05-2019	
33	15-05-2019	Testing- Open & short circuit tests	15-05-2019	
34	16-05-2019	Problems on OC and SC Tests	16-05-2019	
35	20-05-2019	Voltage Regulation of Transformer	20-05-2019	
36	20-05-2019	Transformer's losses and Efficiency caliculations	20-05-2019	
37	22-05-2019	Separation of hysteresis and eddy current losses.	22-05-2019	
38	23-05-2019	Parallel operation of single-phase transformers	23-05-2019	
39	27-05-2019	Autotransformers	27-05-2019	
40	27-05-2019	Construction, various types of connection and their comparative features of 3 phase transformers	27-05-2019	
42	29-05-2019	Phase conversion-Scott connection	29-05-2019	
43	30-05-2019	No load and on load tap changing of transformers, Cooling methods of transformers	30-05-2019	
44	03-06-2019	Problems on voltage regulation and efficiency	03-06-2019	

Reference Books:

1. Electric Machinery Fitzgerald, Kingslay, Umans Tata McGraw-Hill
2. Electric Machinery Fundamentals Chapman McGraw-Hill Higher Education
3. Electric Machines Nagrath and Kothari Tata McGraw-Hill
4. Electric Machinery and Transformer Guru, Hiziroglu Oxford University press
5. Electric Machinery P.S. Bimbhra Khanna Publishers
6. Basic Electric Machines Vincent Deltoro Prentice Hall

C. Use of various instructional methods and pedagogical initiatives:

The students acquire critical mind towards basic sciences and engineering, effective learning of curricular courses, acquiring knowledge on latest topics and technologies, teamwork through project work, and get habituated to self-learning and continuous learning.

1. Exclusive Notes preparation for subjects:

Exclusive notes on many subjects of Electrical Engineering have been prepared by the faculty members of this department and distributed to the students enabling the students to learn better. These notes contain clear description of the concepts, explanation of the content covered in the classes, typical questions, and critical analysis of problems with clearly

depicted solutions. These notes serve as a helping tool for them and serve to enhance their performance in exams.

2. Exclusive Videos collection and display for subjects:

Exclusive videos have been collected and compiled by the faculty in different subjects for displaying them to students during discussions in classrooms. These videos enhance their understanding abilities and create more interest towards learning the subjects.

3. Exclusive NPTEL facility for students for listening to special lectures:

- An exclusive audio-visual facility has been developed and is being maintained to register in NPTEL courses.
- This facility is available in the library and departmental laboratory.
- This facility is being used by the faculty and students and enables them to register to online courses in addition to the regular classroom teaching/learning.
- Faculty and students upgrade their knowledge through these courses and obtain additional certification.
- The exercise id to gradually move the students to self-learning methods.

4. Improved Instruction Methodology in Laboratories:

Special focus is given in instruction methodology in laboratories where the emphasis is more on student's ability to individually gain in-depth knowledge while conducting the experiments. In this regard, the following procedures are followed:

1. Laboratory manuals are prepared giving the details of the equipment, procedure, specifications, etc., along with a good number of objective questions. The students have to complete the calculations, graphs and also summarise their observations of the experiment in the form of results and discussions. All the details are then written meticulously in the respective laboratory records.
2. The students are required to study the experiment and know the procedure in the manual before conduct of the experiment. The group of students is also encouraged to discuss among themselves during this study and be ready to answer any questions raised by the faculty in this regard.

It has been observed that this method of instruction makes students prepare and understand the correlation of the experiments with the related theory in a better manner and also makes them confident in conducting the experiment on their own.

5. Seminars and Projects:

Through Seminars and projects, students are encouraged to innovate and come up with new ideas.

Seminars:

- Each student has to give a separate seminar, one in the 7th semester.
- The discussion among students after the seminar presentation is encouraged.
- Student seminars are attended by the faculty for giving a critical assessment.

Projects:

- Students are grouped into batch of 3-5 in each batch for projects to be carried in the 8th semester.
- Student projects are selected based on the ideas of the students, relevance of the subject, and the ability of the batches.
- Faculty assist students in formulating their ideas, design of components and development.
- Students are encouraged to carry out in-house fabrication as a part of their project work and some of these successful projects form a part of the experiments beyond curriculum.
- Novel projects are provided opportunity to participate in the competitions at the regional and national level.

6. ICT usage:

ICT is a potentially powerful tool for offering educational opportunities. It is difficult and maybe even impossible to imagine future learning environments that are not supported, in one way or another, by Information and Communication Technologies (ICT). Students are provided with knowledge and proficiency in the usage of simulation software like MATLAB, PSCAD and MULTISIM. These software's are available in the department and students use it for various analysis purpose. Special training is offered to the students in the lab on regular basis.

7. Focused group study:

- Students are divided into specific groups and are assigned specific topics related to curricular learning.
- These groups study the topics in detail through library books, internet, and library journals. Thereafter, the topics are discussed by individual groups in the class and the teacher further guides them about the specific topic.
- The group's composition and the group discussion should be carefully planned to create a nonthreatening environment, so that participants feel free to talk openly and give honest opinions.
- Since participants are actively encouraged to not only express their own opinions, but also respond to other members and questions posed by the leader, focus groups offer a depth and variety to the discussion.
- Additionally, because focus groups are structured and directed, but also expressive, they can yield a lot of information in a relatively short time.

8. Problem based learning:

Student-directed learning Attempts are made to create excitement in the classroom through posing problems related to the topic and finding solutions thereby presenting and learning the topic which ensures students do more than listening through active participation.
For example, question may be presented for the students like 'Design solar power plant for your home?' Such question compels students to take active participation in the class discussion and creates excitement among them.

9. Developing lifelong learning attitudes

The students are introduced and gradually pushed into adopting lifelong learning through the following initiatives and practices.

- Mandatory class hours for library-all students have to attend and spend time in library one hour in a week.
- The students with regular and frequent visits to the library are encouraged to gifts and rewards.
- Students are encouraged to prepare technical briefs on the contents covered in the journals.
- Students are encouraged to go through technical websites on the internet to learn about emerging issues and technologies.
- Students are encouraged to participate in technical competitions and hackthons being offered by the various agencies.
- Regular lectures are organized by the industry experts and from research organizations to make students aware of the latest developments and technologies.

Through the above methods faculty encourages the students into gradual self-motivated study and into continuous learning.

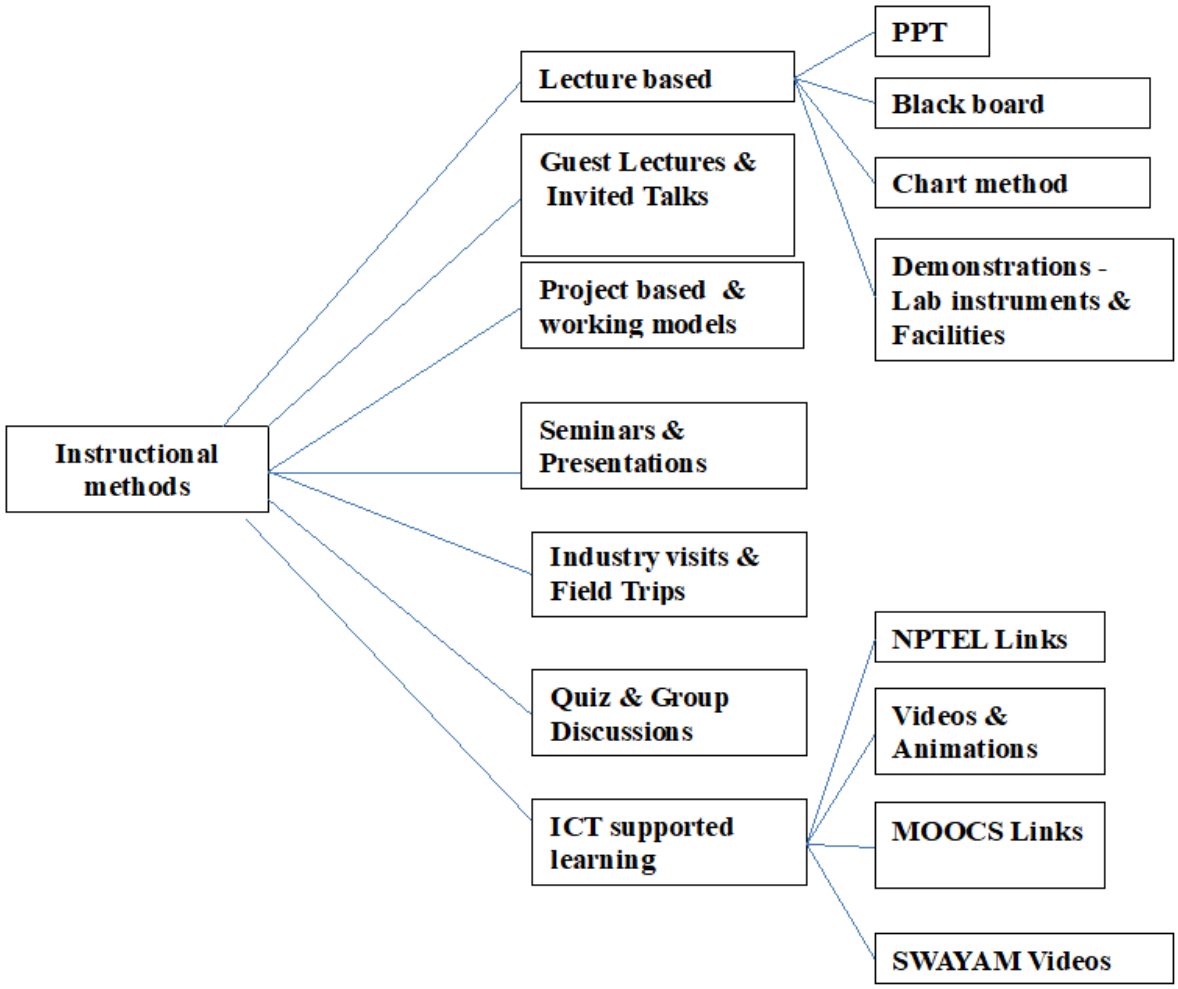

Figure: Strategies used to make the teaching more effective

D. Methodologies to support weak students and encourage bright students:

Encouraging Bright Students:

(a) The bright students are encouraged by giving the mentoring of other student (Slow learners).

(b) The bright students are given extra assignments in both theory and laboratory.

(c) The bright students are encouraged to the competitive exams like GATE, GRE, TOFEL, and CIVILS by giving the suitable material and also special training.

Assisting Weak Students:

(a) They are supported by the student mentoring and faculty mentoring, extra classes, remedial class are conducted.

(b) Behaviour problems are corrected through counselling system.

(c) During the lab, special assistance given by other bright students.

Weak students:

The weak students are analysed based on their performance analysis in MID term exams, classroom interactions and participation in seminars and quiz.

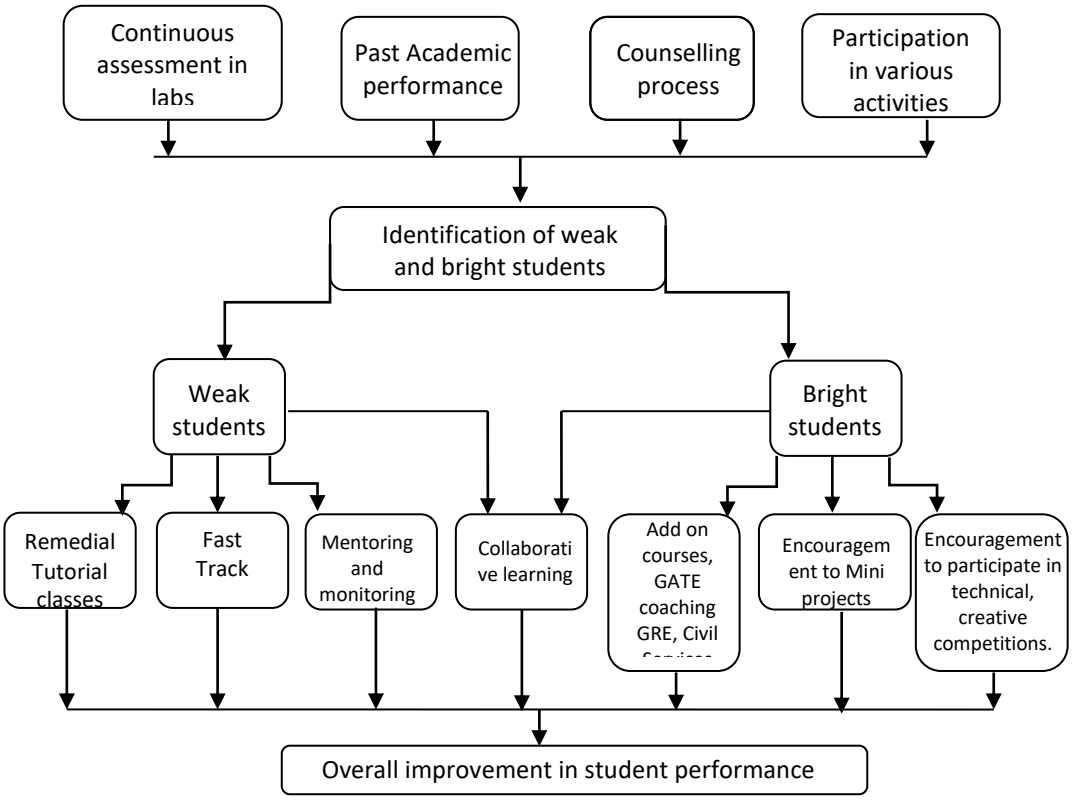

Figure: Process to identify and monitor weak and bright students

E. Conduction of Experiments:

(a) Respective faculty who handling laboratory courses will prepare the Lab manuals and circulated to the among the students well in advance.

(b) Separate O/C lab (Faculty In charge) is tasked the responsibility of maintenance and upkeep of all the equipment and laboratory, and to plan augmentation of labs in line with the course contents.

(c) There is a system to display the number of experiments performed by every student.

(d)The projects are given for the teams of the students to develop skill one side and team sprit other side.

Continuous assessment in the laboratory

- Each student should maintain a rough record to record the details of work done in each laboratory session.
- The students are directed to write the step-by-step procedure to achieve a solution for the given experiment.

- The faculty-in-charge will check the procedure and then students can proceed with doing the experiment.
- Students should record the observations in the rough record while doing the experiment.
- Students may also analyse the data to plot graph or other related work.
- The final output will be verified by the faculty-in-charge.
- Students should add the details of the experiments done in the laboratory to the prescribed record book.

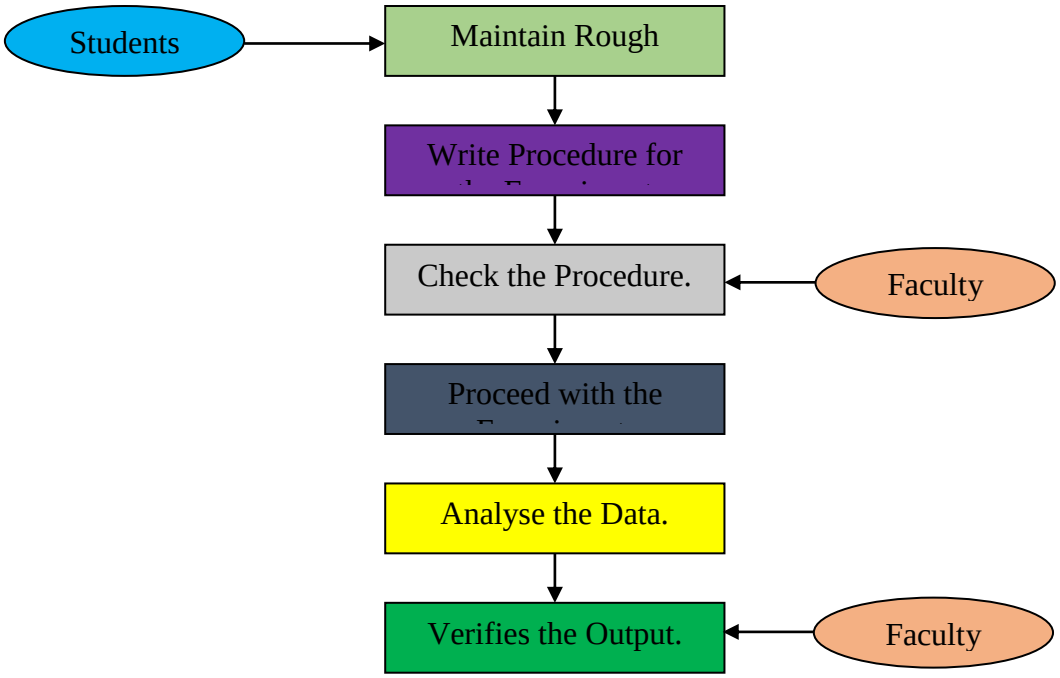

Figure: Process for conduct of experiments, record of observations and analysis of data

- The Laboratories are evaluated by the faculties for 100 marks based on their performance during the semester, internal test and record submission.
- The distribution of marks for laboratory subjects has been reflected in Table 2.2d.

Continuous Assessment	Major Examination	Total	Grade
40	60	100	.....

Table B.2.2.1h: Distribution of Marks for Laboratory Subjects

F. Student feedback of teaching-learning process and actions are taken.

- Student feedback on teaching-learning process is taken once in a semester. All the students are required to fill a feedback-form in offline apprising the faculty on a scale of 1 (low) through 5 (high).
- Lecture classes are monitored by Dean Academics, HoD and senior professors of the Department. The teaching-learning process is improved based on their constructive feedback.

- HOD counsels the faculty members who score a feedback of below 70% and motivate them to improve their skills and abilities and are mentored by the senior faculty members.
- If required training/orientation programs are conducted by professional experts to master the skills of the faculty members in the nuances of teaching, thus improving the efficiency of the teaching-learning process.
- Every year Faculty Orientation Programs (FOP) regularly conducted for newly recruited faculty for improving the efficiency of the teaching process.

Impact Analysis:

(a) The quality of teaching is very much exhibited in terms of attaining POs, PEOs to the extent of 70-80 %.
(b) The academic outcome is more than 85% students are completing their course within the stipulated time of four years.
(c) Because of the extra support of slow learners, the pass percentage is continuously increasing, and the number of backlogs students is decreasing.

A. Impact Analysis

COURSE APPRAISAL/FEEDBACK FORM

Course No & Title **Date:**
Instructor's Name **Sem:**

Please Tick in The Appropriate Box

S. No.	**Course Organisation**	Range	5	4	3	2	1	
1	Were the objectives and course plan clearly specified?	Very clearly excellent						Very Poorly
2	Was the course coverage and depth adequate?	Excellent						Very poor
3	Did the topics provide any new knowledge?	Mostly						Hardly
4	Was the prescribed study material readily available?	Very readily						Not available at all
	Presentation and interaction							
5	How were the lectures in terms of clarity and presentation of the fundamental concepts?	Excellent						Poor
6	Rate the audibility and articulation of the instructors or'2al presentation	Excellent						Poor
7	Did the instructor encourage think logically and objectively?	Very much						Never
8	Was the instructor's response to the questions asked in the class satisfactory?	Very much						Not at all
9	Rate the instructor's attitude towards teaching of this course.	Enthusiastic						Indifferent
10	Were the classes held regularly and on time?	Always						Never
11	Rate the overall quality of teaching in this course	Outstanding						Poor
	Evaluation							

12	Did the examinations reflect the courses plan?	Very closely						Poorly
13	Were the examinations of appropriate level and length?	Always						Rarely
14	Were the answer script promptly checked and returned?	Always						Rarely
15	Was the grading fair and transparent?	Mostly						Rarely
16	Did the midterm evaluation and feedback improve the understanding of this course?	Always						Rarely

NATIONAL INSTITUTE OF TECHNOLOGY, SRINAGAR (J&K)
DEPARTMENT OF CHEMICAL ENGINEERING

Sample Course Exit Survey

Name of the Program: **B. Tech: Electrical Engineering**
Academic Year
Code and Title of the Course:
Semester:
Name of the Course Teacher:

Note: Please rate the quality of course on course curriculum, course organization, teaching learning process, quality of learning material, assignments, progressive assessments, performance of faculty members and course outcomes. Rate each applicable criteria by putting points as mentioned in legend.

S. No.	**Criteria**	**Rating**		
		Good (3)	**Average (2)**	**Poor (1)**
1	**Course Curriculum**			
	Course Outcome explained			
	Depth and breadth of course content			
	Importance of course explained			
2	**Course Organization**			
	Ease of learning			
	Logically sequenced			
	Linked with previous and subsequent courses			
3	**Teaching Learning Process**			
	Introduction of topic			
	Development of content			
	Opportunity of participation			
	Quality of questions asked by teacher			
	Variety of teaching materials			
	Use of teaching aids			
	Summarization of learning			
4	**Quality of Learning Material**			
	Relevance to course outcomes			
	Coverage			
	Comprehendible			
	Variety in learning material such as handouts, case study, papers, workbook, manual, ppts			

	Reference material			
5	**Assignments**			
	Relevance to course			
	Feedback provided on assignments			
6	**Progressive Assessment**			
	Relevance of progressive test			
	Feedback provided on assignments			
7	**Performance of Faculty members**			
	Effective communication			
	Guidance and feedback			
	Time management			
8	**Course Outcome Assessment**			
	CO1:			
	CO2:			
	CO3:			
	CO4:			
	CO5:			

- The quality of teaching exhibited in terms of attaining POs, PSOs to the extent of 70-80 % in most of the courses.
- When the academic outcome is more than 75%, most students have achieved their course outcomes within the stipulated time of four years.
- Because of the extra support given to the slow learners and the weak students, the pass percentage is continuously increasing, and the number of backlogs students is decreasing.

2.2.2 Quality of End Semester Examination, Internal Semester Question Papers, Assignments and Evaluation (15)

(Mention the initiatives, implementation details and analysis of learning levels related to quality of semester question papers, assignments and evaluation)

A. Process to ensure the quality of internal semester question papers:

- All tests are conducted in strict adherence to the academic calendar.
- The question papers for each subject are set in such a way that it maps to the Course Outcomes of the respective subject.
- The question paper will be verified by the Head of the Department and may accept with or without modifications.
- The questions asked in each subject are categorized to knowledge, comprehension, application, analysis, evaluation and synthesis level.
- All course outcomes will be achieved through the tests conducted in each semester.

    - CO Coverage for Midterm Exams
    - CO Coverage for End term Exams
    - CO Attainment Calculation.

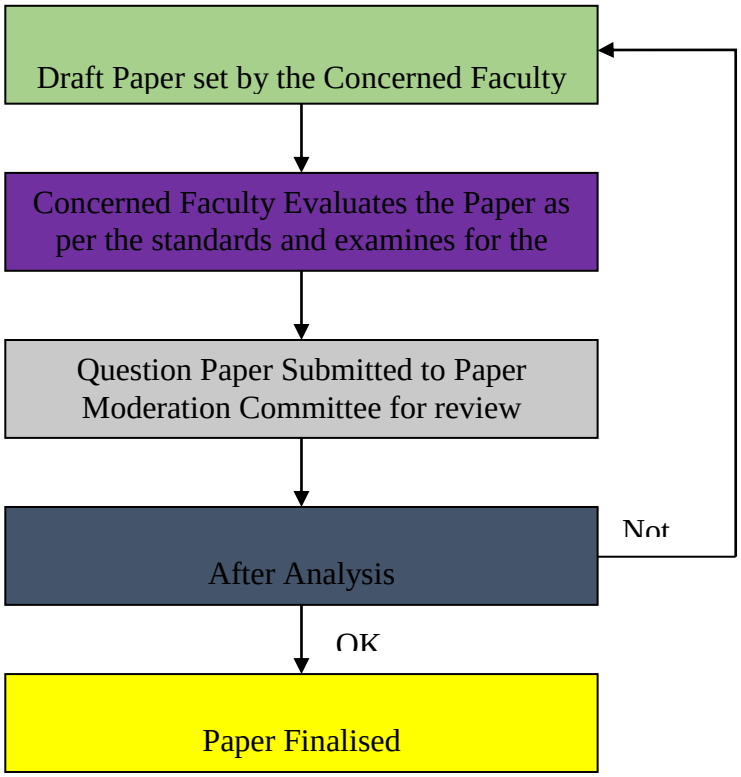

Figure: Process to Ensure the Quality of Internal Semester Question Papers

Paper Moderation Committee includes following members:

1) Head of the Department
2) Course Coordinator
3) Subject Expert

B. **To ensure the quality of the internal semester question papers the following process is adopted**:

- Regular midterm exams are held in strict adherence to the academic calendar of the institute.
- The question papers are set in such a way that the COs maps the questions asked.
- The question papers are examined and verified by the HOD to ensure the standard of the paper and ensures that the COs of the course are covered. The questions papers are modified if HOD is not satisfied with standard requirements of the question paper.
- The questions asked are well balanced to ensure that all the components such as knowledge, comprehension, application, analysis etc are encompassed.

C. To ensure the quality of the assignments following procedure is adopted:

- At least two assignments are given before midterm and after the midterm (before the commencement of the major exam)
- The assignments are designed to map the COs of the course.

- The assignments are designed to cover both theoretical and numerical portion of the course.
- The assignments cover knowledge, comprehension, application, analysis etc. of the course.
- The assignments may have questions designed by the faculty or an open book type.
- The evaluated assignments are returned to the students with the remarks of faculty so as to point out the mistakes.
- The marks earned by the students are displayed on the notice board for transparency so that the students come to know about the marks before final submission to the controller of examinations.

D. To ensure the quality of evaluation following procedure is place in the department:

- The scheme of evaluation and solution to the problems in the question papers are prepared by the respective faculty in advance.
- The CO coverage and the marks allotted are recorded by the faculty.
- The evaluated answer books are returned by the faculty to the students to ensure the transparency so that the students come to know about the marks before final submission to the controller of examinations.
- Student's feedback is received by the faculty regarding the evaluation of each question.
- The students are encouraged to discuss any doubt or discrepancy regarding the evaluation.
- The marks of the students are forwarded only when the students are satisfied with evaluation.
- It is the statutory procedure of the institute to show the evaluated answer books to the students, once the students give in writing the that they have seen the answer books. The marks are forwarded to the concerned quarters.

E. Process to ensure questions from outcomes/learning level perspective.

- For each subject, a tentative question list is prepared according to the COs.
- While setting the question paper, previous institute exam papers of at least three years are taken into consideration to avoid repetition of questions.
- While setting a question paper an attempt is made to follow Bloom's taxonomy. The questions are prepared according to the level of toughness (viz., analyzing the problems, implementation of modern tools, formulating the problems etc).

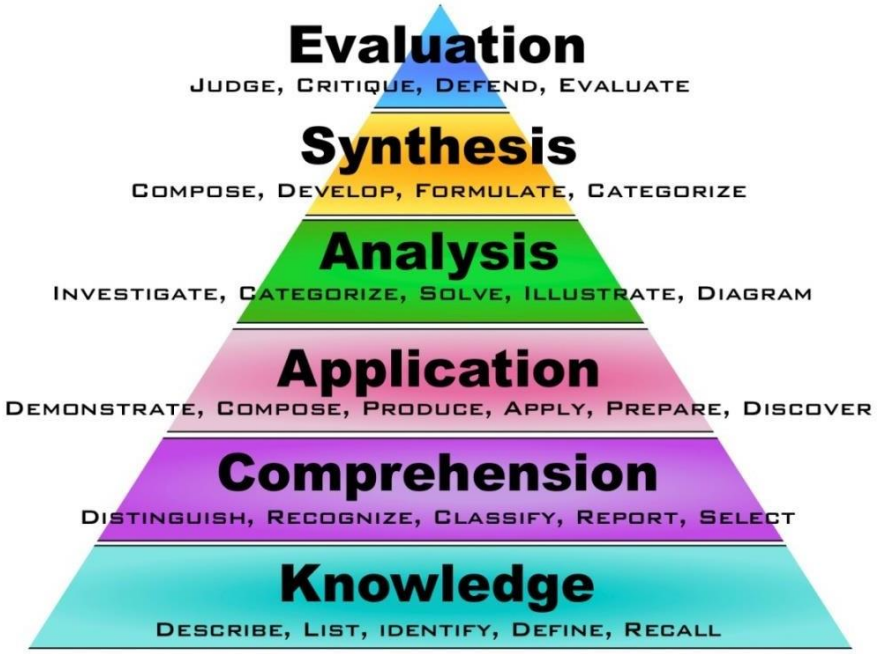

Figure: Bloom's Taxonomy Pyramid

- **The questions asked are of three categories:**

1) Approximately one third of the questions are of elementary level and can be answered by an average student, which require fundamentals of the course.
2) Approximate one third of the questions need analysis and use of content covered as per syllabus.
3) Remaining one third of the questions are based on advanced level. The solution of these questions/problems requires certain amount of critical thinking, analysis and knowledge.

Department of Electrical Engineering
National Institute of Technology, Srinagar
MAJOR EXAMINATION

Date: 18-06-2019
Course Title: Electric Machines-1 **Semester: 4th B. Tech (EE)**
Subject Code: ELE- 401 **Credits: 04**
Time: 3 Hours **Max Marks: 60**

Answer any four Questions.

CO1: Apply the basic principles of electromechanical energy conversion to Electrical Machines.
CO2: Analyze operating characteristics of various types of DC Generators.
CO3: Identify various speed control methods of DC Motor and evaluate this performance.
CO4: Analyze the performance of Transformers and selecting it for particular application.

CO:1	BTL:1	15 Marks

1. a) Distinguish between lap and wave windings **(5 Marks**)
   b) Build a diagram of DC Machine and label the component parts. Name the material. used for each component part (**5 Marks)**
   c)The following information is given for a 300KW, 600V, Long-shunt compound generator: Shunt field resistance= 75Ω, armature resistance including brush resistance = 0.03 Ω, commutating field winding resistance = 0.011Ω, series field resistance = 0.012 Ω. When the machine is delivering full load, analyze the voltage generated by the armature. **(5 Marks)**

CO:2	BTL:2	15 Marks

2. a) Write about "build-up of EMF" in self-excited generator. Mention the reasons for failure of "voltage-buildup. **(4 Marks)**
   b) In a certain sub-station, there are 5 D.C. shunt generators in parallel, each having an armature resistance of 0.1 ohms, running at the same speed and excited to give equal induced e.m.f. Each generator supplies an equal share of a total load of 250kw at a terminal voltage of 500V into a load of fixed resistance. If the field current of one generator is raised by 4%, the others remaining unchanged, calculate the power output of each machine and their terminal voltages under these conditions. Assume that the speed remains constant, and flux is proportional to filed current. **(7.5 Marks)**
   c) Draw the external characteristics of series, shunt and compound generator in the same plot and compare them? **(3.5 Marks)**

CO:3	BTL:1	15 Marks

3. a) Draw the three point starter and need of starter and explain the working of three point of starter (**5 Marks)**
   b) Illustrate any two methods of speed control of DC shunt motor. **(5 Marks)**
   c) A 230 V, D.C. Machine has Ra = 0.3Ω and Rsh 160 Ω, respectively. It is running as a motor on NO LOAD at 1000 RPM taking an armature current of 3.3 A at rated voltage. When the motor is run on FULL LOAD at rated voltage, the line current has a value of 40 Amps. Calculate the speed and torque developed for this condition, assuming that armature reaction weakens the no load flux by 4%. **(5 Marks)**

CO:4	BTL:2	15 Marks

4. a) List the condition that must be fulfilled before two transformers can be operated successfully in parallel? **(5 Marks)**

b) Derive an expression for induced e.m.f. in a transformer in terms of frequency, the maximum value of flux and the number of turns on the windings.

(2.5Marks)

c) The following readings were obtained from O.C. and S.C. tests on 8 kVA 400/ 120V, 50 – Hz transformer.

O.C. Test: (Low voltage side): 120 V; 4 A; 75 W.

S.C. Test: (High voltage side): 9.5 V; 20 A; 110W

Obtain i) The equivalent circuit (approximate) referred to high voltage and low voltage sides,

ii) Voltage regulation and efficiency for 0.8 lagging power factor load, and

iii) The efficiency at half full – load and 0.8 power factor load. **(7.5 Marks)**

CO:4	BTL:2	15 Marks

5. a) Draw the vector diagram of a power transformer under full – load condition **(4 Marks)**

b) A 5 KVA, single – Phase transformer has a core loss of 40 watts and full load ohmic loss of 100 watts. The daily variation of the load on the transformer is as follows:

7 A.M to 1 P.M	3 kw at p.f. 0.6
1 P.M to 6 P.M	2 kw at p.f. 0.8
6 P.M to 1A.M	6 kw at p.f. 0.9
1 A.M to 7 A.M	No load.

Determine the all-day efficiency of the transformer. **(6 Marks)**

c) Sketch the speed- torque characteristics of dc shunt, series and cumulative compound motors in one figure and comment on the application and nature of characteristics.

(5 Marks)

Evaluation process: course work
Evaluation Process- Class test/ mid-term test schedules and procedures for systematic evaluation, internal assessments.

Assessment is based upon the efficacy process being followed.
Evaluation process and test schedules are all followed and monitored in accordance with the guidelines of academic section of the Institute as follows.

Mid term	Assignment	End semester exam	Grand total
30	10	60	100

But for the academic year 2019-2020 it had been differed due to abrogation of Article 370 and subsequent COVID-19 lockdown; the following evaluation schemes were adopted.

Autumn 2019:

Assignment	End semester exam	Grand total
10	90	100

Spring 2020:

Maximum SGPA in Previous Semesters	Assignments as Mid Term Examination	Comprehensive Viva-Voce Examination	Grand total
30	30	40	100

Grading criteria (Absolute Values)

A+	A	B+	B	C+	C	D
>90	81-90	71-80	61-70	51-60	40-50	<40

Seminar and Presentation Evaluation
Assessment is based upon the methodology being followed and its effectiveness.
A group of teachers along with Seminar coordinator evaluate the performance of students based on their presentation and viva-voce examination as per below format.

S. No.	Student Name	Seminar Report (40)	PPT Preparation (20)	Viva and Presentation. (40)	Total Marks (100)	Grade

Mechanism for addressing evaluation related grievances.
Assessment is based upon the efficiency of the mechanism being followed.

- A transparent evaluation mechanism is followed as the answer sheets of mid-term examinations are shown to the students one week after the exam (date as mentioned in the institute academic calendar).

- The grades are displayed on the notice board prior to its finalization and submission to the controller of examination.

2.2.3 Quality of student projects (20)

(Quality of the project is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. Processes related to project identification, allotment, continuous monitoring, evaluation including demonstration of working prototypes and enhancing the relevance of projects. Mention Implementation details including details of POs and PSOs addressed through the projects with justification)

Identification of projects and allocation methodology to Faculty Members

❖ Students are divided into groups comprising of 3-4 students.

❖ Students are directed to submit the abstract of the project proposal to the project co-coordinator.

❖ The project coordinator evaluates it and if the topic is relevant, forwards it to the evaluation committee.

❖ Otherwise, the group has to come up with a new project proposal.

❖ The student also has to submit a time schedule according to which he is planning to complete the work.

❖ If the abstract is approved, Project area is identified and faculty having specialization in that particular area is assigned to the group of students.

❖ If the proposal is rejected the group should come up with a new proposal

Types and relevance of the projects and their contribution towards the attainment of POs and PSOs (2)

S.No.	TITLE	STUDENT NAME	PROJECT GUIDE	RELEVANT PO's and PSO's	ENVIRONMENT	SAFETY	ETHICS	COST
1.	SINGLE PHASE GRID CONNECTED SOLAR PHOTOVOLTAIC	TajamulRazaq (23/13) Raja Umer (30/13)	Dr. Sheikh Javed Iqbal	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO12, PSO1, PSO2, PSO3	Y	Y	Y	Y

	SYSTEM.	Mahak Gull (45/13) Raja Owais (49/13)						
2.	SMART INTEGRATION OF SOLAR PV ARRAY WITH GRID.	Varun Paul (70/13) Arpit Dixit (54/13) SahilChandel (51/13) Naveen Kumar (53/13)	Prof. Aijaz Ahmed	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO12, PSO1, PSO2, PSO3	Y	Y	Y	Y
3.	IMPROVEMENT OF LOAD FREQUENCY USING FLYWHEEL ENERGY STORAGE.	Azeem Akbar Drabu (16/13) Gowher Hussain Wani (24/13) Nuha Bilal (41/13) Sinan Aquib Gull (47/13)	Prof. Mairajud din Mufti	PO1, PO2, PO3, PO4,PO9, PSO1, PSO2	Y	Y	Y	Y
4.	REDUCTION IN HARMONICS AND TORQUE RIPPLES OF BLDC MOTOR BY CASCADED H-BRIDGE MULTILEVEL INVERTER.	Aakash Gupta (34/13) Nandeep Kaushal (38/13) Mohd Irfan Malik (48/13) Rahul Kumar Atri (36/13)	Prof. A.H. BHAT	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
5.	NEWTON RAPHSON POWER FLOW ANALYSIS INCLUDING INDUCTION MACHINE LOAD	1.Wasim Sajad (216/14) 2.Mohd.Ajaz (217/14) 3.Achraj Gupta (263/14) 4.Vatsal Chauhan (269/14)	Prof.M.D. Mufti	PO1, PO2, PO3, PO4, PO5, PO9, PO12, PSO1, PSO2	Y	Y	Y	Y
6.	MODELLING AND PITCH CONTROL	1.Vishwnath Panda (246/14)	Prof.M.D. Mufti	PO1, PO2, PO3, PO4, PO5,				

	OF A GRID CONNECTED WIND TURBINE ALONG WITH BESS	2.Deepak Kumar (258/14) 3.Sarvoday Kumar (274/14) 4.Kushal Jayswal (665/14)		PO9, PO12, PSO1, PSO2	Y	Y	Y	Y
7.	ENHANCEMENT OF POWER SYSTEM STABILITY USING STATCOM AND D-STATCOM	1.Himanshu Bhaira (244/14) 2.Sandeep Kumar (237/14) 3.Mohit Kumar (238/14) 4.Suresh Kumar (266/14)	Prof.Aijaz Ahmed	PO1, PO2, PO3, PO4, PO5, PO9, PO12, PSO1, PSO2	Y	Y	Y	Y
8.	SOLAR PV INTEGRATION WITH GRID	1.Ajay Singh Shekhawat (241/14) 2.Gaurav Singhal (242/14) 3.Pradeep Kukreja (257/14) 4.Puneet Kumar (261/14	Prof.Aijaz Ahmed	PO1, PO2, PO3, PO4, PO5, PO9, PO12, PSO1, PSO2	Y	Y	Y	Y
9.	WIND FARM STABILITY USING STATCOM	1.Indrajeet Panwar (245/14) 2.Mahaveer (252/14) 3.Hikhama Ram (664/14)	Prof.Aijaz Ahmed	PO1, PO2, PO3, PO4, PO5, PO9, PO12, PSO1, PSO2	Y	Y	Y	Y
10.	SYSTEM STUDY ANALYSIS OF 220	1.Yasir Nisar (230/14)	Prof.S. A Lone	PO1, PO2, PO3, PO4, PO5,				

	KV NETWORK IN KASHMIR VALLEY	2.Abrar Ali (239/15) 3.Aabid Hussain (234/14) 4.Sohaib Rashid (205/14) 5.Anil Kumar (260/14)		PO9, PO12, PSO1, PSO2	Y	Y	Y	Y
11.	OPERATION AND CONTROL OF DOUBLY FED INDUCTION GENERATOR FOR WIND POWER GENERATION	1.Nowsheena Jan (275/15) 2.Amir Afzal (221/14) 3.Irfan (215/14) 4.Akashdeep (212/14)	Dr. S.J Iqbal	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO12, PSO1, PSO2, PSO3	Y	Y	Y	Y
12.	AUTOMATIC POWER FACTOR CONTROLLER	1.Naresh Bavoria (210/14) 2.Pallavi Hundal (227/14) 3.Rahul Badgal (233/14) 4.Shikha Baldotra (201/15)	Dr. S.J Iqbal	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO12, PSO1, PSO2, PSO3	Y	Y	Y	Y
13.	SERIES COMPENSATION IN 3 LIMB TRANSFORMER (SELF COMPENSATING TRANSFORMER)	1.Vishal Agrawal (272/14) 2.Dileep Kumar (235/15) 3.Ranvir Singh (236/14) 4.Mahendra Kumar (273/14)	Dr. S.J Iqbal	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO12, PSO1, PSO2, PSO3	Y	Y	Y	Y

14.	CONTROL OF SINGLE-PHASE GRID CONNECTED PHOTOVOLTAIC SYSTEM WITH MPPT	1.Uzma Dar (218/14) 2.Uzmah Javed (203/14) 3.Ifrah Parvez (226/14) 4.Bazila Mushtaq (223/14) 5.Abrar Ahmad Bhat (276/14)	Dr.S. J Iqbal	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO12, PSO1, PSO2, PSO3	Y	Y	Y	Y
15.	GSM BASED FAULT DETECTION AND MONITORING OF POWER SYSTEM	1.Azad Hamza (214/14) 2.Hilal Ahmad (224/14) 3.Aquib Manzoor (229/14) 4.Waseem Farooq (209/14)	Dr.S. J Iqbal	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO12, PSO1, PSO2, PSO3	Y	Y	Y	Y
16.	MODEL ORDER REDUCTION AND CONTROL OF LARGE-SCALE SYSTEMS	1.Rajan Gupta (750/14) 2.Amit Sharma (232/14) 3.Danish Gupta (219/14) 4.Vishal Verma (220/14)	Dr.M. A Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
17.	EVOLUTIONARY NEURAL NETWORK APPLIED TO INDUCTION MOTOR STATOR FAULT DETECTION	1.Gaurav Kumar (259/14) 2.Himanshu Bhardwaj (262/14) 3.Manisha Meena (250/14) 4.Mohit Gupta (268/14)	Dr.M. A Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y

18.	ACCELERATED SIMULATION OF POWER ELECTRONIC CONVERTERS USING MODEL ORDER REDUCTION	1.Abhishek Kumar (240/14) 2.Mrityunjay Kumar (265/14)	Dr. M. A. Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
19.	DIRECT SELF CONTROL OF INDUCTION MOTOR	1.Prabhiti 2.Hooda 3.Suman	Dr. M.A. Bazaz	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
20.	DESIGN AND SIMULATION OF A 1-PHASE AC TO 1-PHASE AC CONVERTER WITHOUT FREQUENCY RESTRICTIONS.	Taniya Manzoor (225/14)	Dr. T.N Mir	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
21.	COMPARATIVE ANALYSIS OF MODULATION STRATEGIES FOR 3-PHASE VOLTAGE SOURCE CONVERTER	1.Mohd. Zarkab Farooqi (208/14) 2.Aijaz Ahmad Khan (202/14) 3.Salman Fayaz Khan (663/14)	Dr.T. N Mir & Prof. A.H Bhat (Co-Supervisor)	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
22.	THREE-PHASE TO	1.Sohaib Shafat Qazi		PO1, PO2, PO3,				

	THREE-PHASE MATRIX CONVERTER BASED INDUCTION MOTOR DRIVE	(213/14) 2.Burooj Iqbal (206/14) 3.Adnan Farooq (211/14)	Dr.T. N Mir	PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
23.	SENSOR LESS VECTOR CONTROL OF 3-PHASE INDUCTION MOTOR	1.Akhilesh Kumar (254/14) 2.Anuj Kumar (247/14) 3.Tarun mangal (264/14) 4.Vaibhav Mishra (255/14)	Dr.T. N Mir	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
24.	Expert System for Condition Monitoring of Power Transformer Using Fuzzy Logic	1. Akash Mohan (58/15) 2. Sandeep Kumar 3. Sunil Kumar 4. Aditya Ujjawal	Prof. M. D. Mufti and Dr. Chilaka Ranga	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
25.	Single Axis Solar Tracker with Power Logger Using Bluetooth Module	1. Pradeep Meena 2. Sonu Pal 3. Sanjay Kumar 4. Shantnu Sharma	Prof. M. D. Mufti and Dr. Kushal Jagtap	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
26.	Automatic Irrigation Using Arduino and GSM Module	1. Ranjeet Singh 2. Manish Kumar Mahala 3. Aman Sinha	Prof. M. D. Mufti and Dr. Kushal Jagtap	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y

		4. Vipin Kumar Maha war						
27.	Power Quality Improvement Using DSTATCOM	1. Lokesh Meena 2. Shameem Hussain Azad 3. Surendra Kumar	Prof. Aijaz Ahmad	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
28.	Solar PV Integration with Grid	1. Ramesh Kachhwal 2. Avadhesh Soni 3. Surendra Mehru 4. Shubam Raina	Prof. Aijaz Ahmad	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
29.	Automatic Load Sharing of Transformer Using Arduino	1. Abid Hussain 2. Shubam Sindhu 3. Rohit Choor 4. Ankush Kumar 5. Pawan Kumar Meena	Prof. S. A. Lone and Dr. Kushal Jagtap	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
30.	Study And Simulation of Power System Stability Enhancement Using Governor, Excitation And AVR	1. Mouzim Mushtaq 2. Aasif Hassan Lone 3. Asmat Ali Haroon 4. Mohammad Muneeb Ul Haque	Prof. S. A. Lone	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
31.	Dynamic Modelling and Analysis of	1. Jyoti Choudhary 2. Suryansh	Prof. S. A. Lone and Dr.	PO1, PO2, PO3,				

	Induction Motor On Different Loads Using Simulink	Mishra 3. Sanika Verma 4. Neha Sharma	Asadur Rahman	PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
32.	Design Of Lab Kit, Measurement of High Resistance Using Loss of Charge Method	1. Aifa Usman 2. Raiya Manzoor 3. Jasera Jabeen 4. Tahseen Aftab 5. Gowhar Maqbool	Prof. S. A. Lone	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
33.	GSM Based Smart Energy Meter Using Arduino	1. Gulshan Kumar 2. Jaiprakash Patel 3. Mukesh 4. Rahul	Prof. S. A. Lone and Dr. Farhad Ilahi Bakhsh	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
34.	Operation And Control of Single-Phase Grid Connected PV System	1. Owais Mohi Ud Din Hurrah 2. Nisar Ahmad Malla 3. Irfan Aziz 4. Aazim Latief	Dr. S. J. Iqbal	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
35.	Control Of an Inverter Pendulum	1. Aqsa Rouf 2. Basit Gul 3. Mohammad Saleh Khan 4. Faheem Abdullah	Dr. S. J. Iqbal	PO1, PO2, PO3, PO4,PO9,PO12, PO11, PSO1, PSO2	Y	Y	Y	Y
36.	Active Disturbance Rejection Control of First and Second Order System (ADRC)	1. Akhil Verma 2. Nawaz Ahmed	Dr. M. A. Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y

37.	Performance Investigation of Vector Control Strategy for Induction Motor Drives	1. Gaurangi Chowdhary 2. Sonali Sarangal	Dr. M. A. Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
38.	Design and control of a dual axis two-wheel self-balancing robot	1. Bhadu Nath	Dr. M. A. Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
39.	Attitude Control of Quadcopter	1. Puneet Sharma 2. Rahul Jarngal 3. Rahul Kumar 4. Siddhant Shekhar	Dr. M. A. Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
40.	PWM Rectifier for Improved Power Quality AC-DC Conversion	1. Rajendra Singh 2. Dharmendra Kumar 3. Deepak Rajput 4. Saurav Kumar 5. Manish Vajpeyi	Ms. Tabish Nazir and Prof. A. H. Bhat	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
41.	Design And Analysis of A PCB Prototype Buck Boost Converter.	1. Peerzada Sibtain 2. Faisal Mohammad Ahanger 3. Simran Kerni 4. Savita Sharma	Ms. Tabish Nazir and Prof. A. H. Bhat	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
42.	Modelling Of	Sarvoday	Prof. M. D.	PO1, PO2, PO3,				

	Wind Turbine Connected to Grid and Charging and Discharging Battery Energy Storage System Using Embedded MATLAB Function	Kumar	Mufti	PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
43.	Advanced Regenerative Braking System Along with ABS in A Hybrid Vehicle	Kafeel Rabbani	Prof. S. A. Lone	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
44.	REACTIVE POWER COMPENSATION BY FIXED CAPACITOR AND STATCOM	MD Amir Khalil 69/16 Sagar Dubey 43/16 Hardik Damor 153/16 Dheeraj Kumar 100/16	Prof Aijaz Ahmad	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
45.	CONGESTION MANAGEMENT IN RESTRUCTURED POWER SYSTEM	Sanjeev Verma 205/16 Jaswinder Singh 202/16 Deepak 101/16 Aditya 131/16	Prof Aijaz Ahmad	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
46.	EFFICIENT ALGORITHM FOR TRANSIENT STABILITY OF LARGE POWER SYSTEMS	Balram Singh 186/16 Krishan Kumar 155/16 Sawrabha Verma 215/16 Adarsh Kumar Pandy 35/16	Dr Abid Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y

47.	CONTROL OF ROBOTIC ARM TWO-LINK MANIPULATOR BY ADRC	Siddhart Gupta 250/16 Ashish Dular 398/16 Priyanka baboria 335/16	Dr Abid Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
48.	AVR WITH ADRC	Aman Kumar 257/16 Aman Singh 329/16 MD Aphroj Alam 305/16	Dr Abid Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
49.	ACTIVE DISTURBANCE REJECTION CONTROL OF A QUADCOPTOR	Tabasum Nazir 127/16 Haseeba Maqbool 183/16 Raheel Tariq 04/16	Dr Abid Bazaz	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
50.	V/f SPEED CONTROL of INDUCTION MOTOR	Arjun Bhagat 187/16 Aman Nigam 156/16 Raj Raheshwar Kanoria 157/16 Manesh Kumar 185/16	Dr Kushal Jagtap	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
51.	PIEZOELECTRIC POWER GENERATION IN PNEUMATIC TIRES	Umar Mustaq 75/16 Owais Ali 40/16 Enayat Gul 17/16	Dr Kushal Jagtap	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y

		Mohsin Amin 161/16						
52.	POWER FACTOR IMPROVEMENT IN DISTRIBUTION SYSTEMS USING D-STATCOM'S	Aabid Ahmad Dar 292/16 Shakir Mubarak 382/16 MD Ashraf Lali 94/16 Jamsheed Javed 299/16	Dr Kushal Jagtap	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
53.	GREY WOLF OPTIMIZATION ALGORITHM FOR OPTIMAL SITING AND SIZING OF CAPACITORS	Aftab 403/16	Dr Kushal Jagtap	PO1, PO2, PO3, PO4, PO5, PO9, PSO1,PSO2	Y	Y	Y	Y
54.	REACTIVE POWER COMPENSATION USING STATCOM	Aman Deep 147/16	Dr Kushal Jagtap	PO1, PO2, PO3, PO5,PO11,PO9, PO7, PSO1, PSO2, PSO3	Y	Y	Y	Y
55.	CONDITION MONITORING OF POWER TRANSFORMER USING FUZZY LOGIC	Irshad Ahmad 152/16 Sai Ganesh 309/16 Ratan Sagar 189/16 Rahul Jaikar 337/16	Dr Chilaka Ranga	PO1, PO2, PO3, PO5,PO11,PO9, PO7, PSO1, PSO2, PSO3	Y	Y	Y	Y
56.	MODULATION TECHNIQUES FOR 1Ø-3Ø MATRIX CONVERTERS	Adarsh Kumar 10/16 Kavish Sitholiwal 332/16 Shivanshu Tripathi 105/16	Ms Tabish Mir and Prof A H Bhat (Co)	PO1, PO2, PO3, PO5,PO11,PO9, PO7, PSO1, PSO2, PSO3	Y	Y	Y	Y

		Ankit Kumar 396/16						
57.	CONTROL TECHNIQUES FOR 'CUK CONVERTER'.	Javaid Ahmad Rashi 137/16 Ubaid Bashir Wani 308/16 Aadil Hussain Hajam 290/16 Rohit Kumar Shah 11/16	Ms Tabish Mir and Prof A H Bhat (Co)	PO1, PO2, PO3, PO5,PO11,PO9, PO7, PSO1, PSO2, PSO3	Y	Y	Y	Y
58.	DESIGN AND SIMULATION OF DC- DC BUCK CONVERTER	Gowher Majeed 273/16	Ms. Tabish Mir and Dr. Amir Sheikh (ECE) (Co)	PO1, PO2, PO3, PO5,PO11,PO9, PO7, PSO1, PSO2, PSO3	Y	Y	Y	Y

Project related to Industry.

Some projects are undertaken by students in collaboration with organizations like Power Development Department (PDD), Power Development Corporation (PDC) of Jammu and Kashmir government.

Process for monitoring and evaluation

- Students are directed to maintain a project diary to record the activities they do in relation to the project.
- The Project evaluation committee and the project guide together will analyze the nature of the project during the different stages of evaluation and make sure that the work is environment-friendly, ensures safety, ethics and is cost effective.
- The type of the project selected could be an application, product, a review or a research work.
- The projects are classified into different areas and their relevance to PO's and PSO's are identified to ensure its quality.
- Students, with the help of project guide, are encouraged to publish their work in relevant journals.

RUBRIC for B.Tech Dissertation (Electrical Department)

FACULTY	MARKS OBTAINED	AREA EXAMINED
EXAMINER	20	Examines the scope and objective of the dissertation, student's knowledge and interpretation of literature. Looks for the methodology and results of the dissertation and also how the topic is being presented.
SENIOR FACULTY OF DEPARTMENT	10	Examines the quality of results obtained and the approach used for it. The way of presentation and knowledge of the topic should be appropriate.
H.O.D (HEAD OF DEPARTMENT)	20	Examines the level of understanding and originality in the analysis of project topic. The writing style and layout of the dissertation should be of good quality, with no or extremely few linguistic and typographical errors.
SUPERVISOR	50	Examines whether the project demonstrates a high level of understanding and originality in the analysis (theoretical and/or empirical). The project topic should make a significant contribution to the knowledge base of the discipline and field of study. The topic should be innovative having the future scope and the results should be appropriate and of high quality.

Process for monitoring:

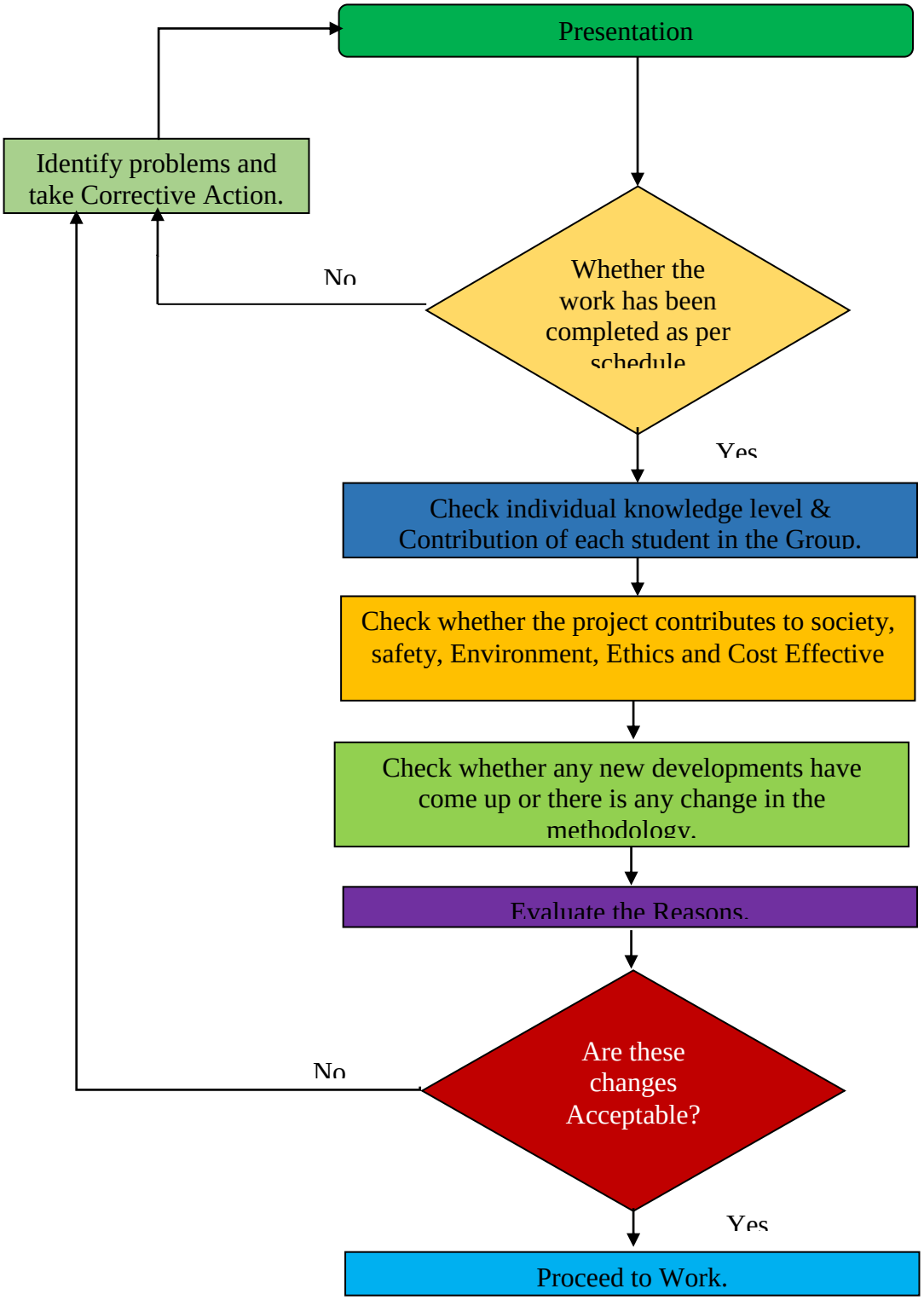

Figure: Process for Monitoring of the Student Project

Evaluation Process:

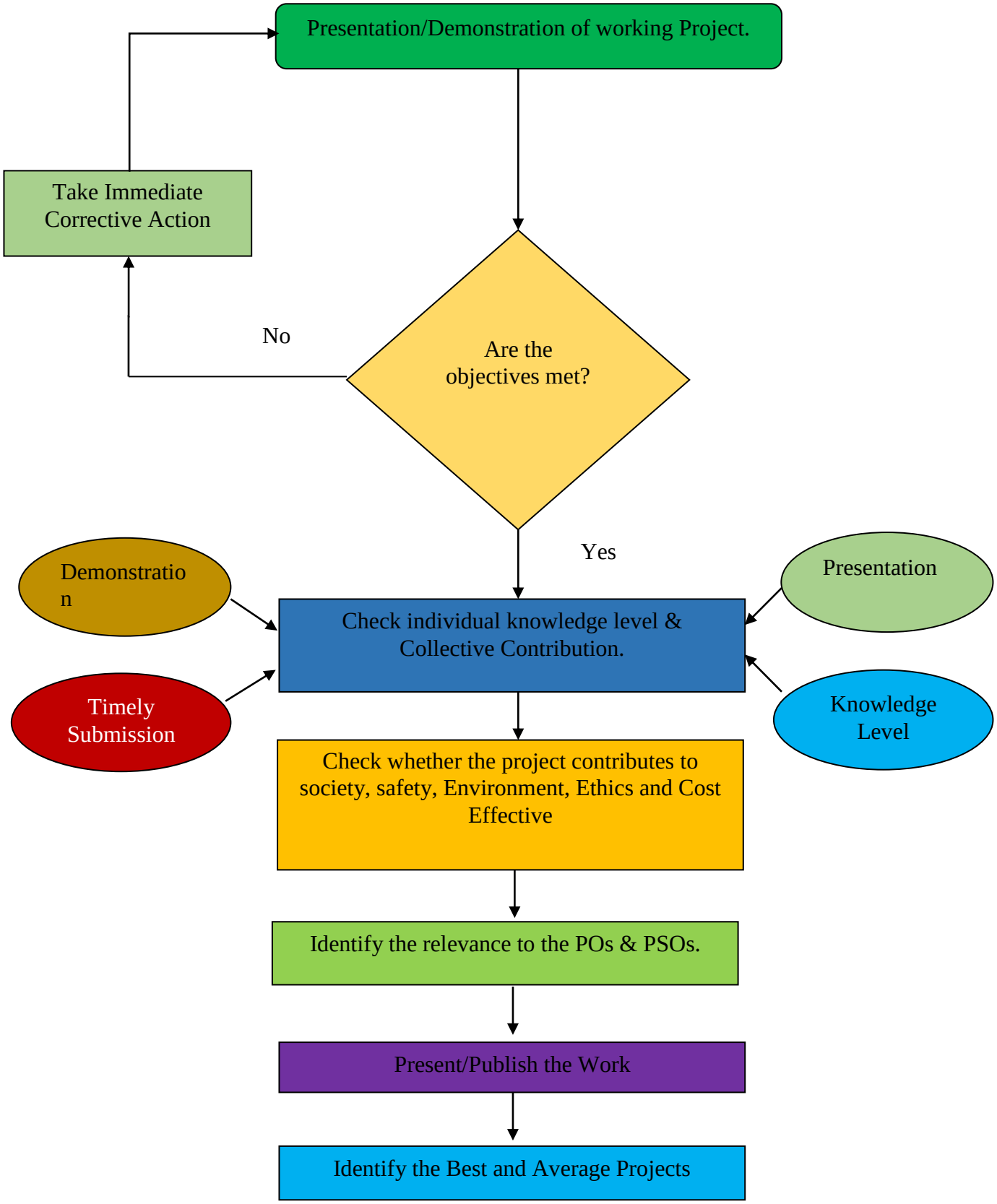

Figure: Evaluation Process of the Student Project

Members of a project group prepare and submit theirreport.

- The report records all aspects of the work, highlighting all the problems faced and the approach/method employed to solve such problems.

Final Evaluation			
	Criteria	**Marks Awarded**	**Total**
Project Evaluation Committee	Examiner	20	50
	Senior faculty of the department	10	
	Head of the department	20	
Project Guide	Continuous monitoring of performance assessed by the guide	50	50
Total Marks		**100**	**100**

Process to assess individual and team performance.

Individual learning and performance are assessed in the following ways-

Some faculty members add an individual component to group projects (e.g., a short essay, journal entries); some combine a group project with an individual test or quiz. Both group and individual performance are then reflected in the total project grade (e.g., some faculty members make the group grade worth 50% and the individual grade worth 50%; others split it 80%/20%. There is no perfect breakdown, but the grading scheme reflects goals for student learning.

Quality of completed projects/working prototypes.

Best Projects CAYm1 (2017-18)

S. NO	Title of the project	Students	Projects Conducted at	Project Guide
1	COMPARATIVE ANALYSIS OF MODULATION STRATEGIES FOR 3-PHASE VOLTAGE SOURCE CONVERTER	1.Mohd. Zarkab Farooqi (208/14) 2.Aijaz Ahmad Khan (202/14) 3.Salman Fayaz Khan (663/14)	N.I.T SRINAGAR	Dr. T. N Mir & Prof. A.H Bhat (Co-Supervisor)
2	OPERATION AND CONTROL OF DOUBLY FED INDUCTION GENERATOR FOR WIND POWER GENERATION	1.Nowsheena Jan (275/15) 2.Amir Afzal (221/14) 3.Irfan (215/14) 4.Akashdeep (212/14)	N.I.T SRINAGAR	Dr. S. J. Iqbal
3	SENSOR LESS VECTOR CONTROL OF 3-PHASE INDUCTION MOTOR	1.Akhilesh Kumar (254/14) 2.Anuj Kumar (247/14) 3.Tarun mangal (264/14) 4.Vaibhav Mishra (255/14)	N.I.T SRINAGAR	Dr. T. N. Mir

Best Projects CAYm1 (2018-19)

S. NO	Title of the project	Students	Projects Conducted at	Project Guide
1	Attitude Control of Quadcopter	1. Puneet Sharma 2. Rahul Jarngal 3. Rahul Kumar 4. Siddhant Shekhar	N.I.T SRINAGAR	Dr. M. A. Bazaz
2	PWM Rectifier for Improved Power Quality AC-DC Conversion	1. Rajendra Singh 59/15 2. Dharmendra Kumar 67/15 3. Deepak Rajput 75/15 4. Saurav Kumar 71/15 5. Manish Vajpeyi 78/15	N.I.T SRINAGAR	Prof. A. H. Bhat

3	Operation And Control of Single-Phase Grid Connected PV System	1. Owais Mohi Ud Din Hurrah 2. Nisar Ahmad Malla 3. Irfan Aziz 4. Aazim Latief	N.I.T SRINAGAR	Dr. S. J. Iqbal

Best Projects CAYm1 (2019-2020)

S. NO	Title of the project	Students	Projects Conducted at	Project Guide
1	CONTROL OF ROBOTIC ARM TWO-LINK MANIPULATOR BY ADRC	Siddhart Gupta 250/16 Ashish Dular 398/16 Priyanka baboria 335/16	N.I.T SRINAGAR	Dr Abid Bazaz
2	ACTIVE DISTURBANCE REJECTION CONTROL OF A QUADCOPTOR	Tabasum Nazir 127/16 Haseeba Maqbool 183/16 Raheel Tariq 4/16	N.I.T SRINAGAR	Dr Abid Bazaz
3	GREY WOLF OPTIMIZATION ALGORITHM FOR OPTIMAL SITING AND SIZING OF CAPACITORS	Aftab 403/16	N.I.T SRINAGAR	Dr Kushal Jagtap
4	MODULATION TECHNIQUES FOR 1ph-3ph MATRIX CONVERTERS	Adarsh Kumar 10/16 Kavish Sitholiwal 332/16 Shivanshu Tripathi 105/16 Ankit Kumar 396/16	N.I.T SRINAGAR	Ms Tabish Mir and Prof A H Bhat (Co)
5	CONTROL TECHNIQUES FOR 'CUK CONVERTER'.	Javaid Ahmad Rashi 137/16 Ubaid Bashir Wani 308/16 Aadil Hussain Hajam 290/16 Rohit Kumar Shah 11/16	N.I.T SRINAGAR	Ms Tabish Mir and Prof A H Bhat (Co)

2.2.4. Initiatives related to industry interaction (10)

(Give details of the industry involvement in the program such as industry-attached laboratories, partial delivery of appropriate courses by industry experts etc. Mention the initiatives, implementation details and impact analysis)

Industry Supported Laboratories:

- The industry supported laboratories develops best learning process using a comprehensive understanding of industry's best practices for both students and faculty.
- To strengthen interaction with industries and to keep our students are updated with the latest trends in Electrical Engineering.

1. Industry interactions help the students to acquire the practical knowledge. So, in order to improve the technical abilities various industrial activities are carried out.

The Department has entered into an agreement with the following companies/Institution.

MOUs Signed by N.I.T Srinagar N.I.T Srinagar signed MOU with

- National Innovation Foundation-India, Ahmadabad
- I.I.T Roorkee
- N.I.T Silchar
- N.I.T Durgapur
- N.I.T Jalandhar
- N.I.T Hamirpur
- Central Glass & Ceramic Research Institute (CGCRI) Kolkata
- N.I.T Surat
- National Institute of Hydrology Roorkee
- MNNIT Allahabad
- ALTTC BSNL Ghaziabad

Faculty Industry interaction: Guest lectures by various industry Experts for Partial delivery of the Courses

A few special lectures were organized by the department during the assessment years which include:

- 'Solar Photovoltaic System- Role of Power Electronics' on 29th of April 2017 by Prof. Zainul Salam, Professor, Centre of Electrical Engineering Systems (CEES), Universiti Teknologi Malaysia.
- 'How to Publish Research Work in High Impact Journals' on 1st of May 2017 by Prof. Zainul Salam, Professor, Centre of Electrical Engineering Systems (CEES), Universiti Teknologi Malaysia.

Industry involvement in the partial delivery of any regular courses for students.

To strengthen interaction with industries and to keep our students updated with the latest trends in Electrical Engineering, the Department undertakes technical visits to industries around and power stations/generating station/ grid stations etc to practice aspects of various course contents.(Couse No: PSP- 701P, PSP- 701, PSP -704)

Implementation

Sl. No	Event	Name of the Organization	Date/ Period	Status
1	2-days workshop on MATLAB	MATHWORKS	5th to 6th March 2017	Successful
2.	One Week Short Term Course on Renewable Energy in Science, Engineering and Technology-2019	Department of Electrical Engineering, NIT Srinagar	1st to 5th July, 2019	Successful
3.	One Week Short Term Course on Introduction to MATLAB, PSCAD and LaTeX for Researchers	Department of Electrical Engineering, NIT Srinagar	24th to 28th April, 2019	Successful
4.	One week Workshop on Power electronics: Applications in Renewable Energy Systems	Department of Electrical Engineering, NIT Srinagar	22nd to 26th April, 2019	Successful
5.	One Week Workshop on Introduction and Basics of Programming skill using MATLAB and PYTHON	Department of Electrical Engineering, NIT Srinagar	27th to 31st May, 2019	Successful
6.	Two Day Workshop on Scientific and Technical Documentation Using LATEX	Department of Electrical Engineering, NIT Srinagar	8th to 9th June, 2019	Successful
7.	Basic Programming Skill Using MATLAB and PHYTHON	Department of Electrical Engineering NIT Srinagar	8th -9th June,2019	Successful
8.	Introduction to MATLAB, PSCAD and LaTeX for researchers under TEQIP-III	Department of Electrical Engineering NIT Srinagar	24th -28th June,2019	Successful
9.	One-week STC on “Renewable Energy in Science, Engineering and Technology (RESET-2019)”	Department of Electrical Engineering NIT Srinagar	1st -5th July,2019	Successful
10.	One-week Online Faculty Development Program on	Department of Electrical Engineering NIT Srinagar	25th -30th July, 2020	Successful

	Soft Computing Techniques - 2020 (SCT-2020) under TEQIP-III			
11.	One Week STC on Application of Artificial Intelligence in Electrical Energy Systems	Department of Electrical Engineering NIT Srinagar	17th -21st August, 2020	Successful
12.	One-week STC on "Recent Techniques in Condition Monitoring of Electrical Apparatus".	Department of Electrical Engineering NIT Srinagar	7th -11th Sept,2020	Successful
13.	One-week STC on "Large Scale Grid Integration of renewable sources; Challenges, issues, modelling and solutions" under TEQIP-III	Department of Electrical Engineering NIT Srinagar	23rd -27th Sept,2020	Successful
14.	One week e-Workshop on "Smart Power & Energy Systems"	Department of Electrical Engineering NIT Srinagar	30th Oct-3rd Nov,2020	Successful
15.	One week workshop on "Application of MATLAB in Engineering Applications"	Department of Electrical Engineering NIT Srinagar	26th -30th Nov, 2020	Successful
16.	One week e-Workshop on "Power System Control – A Smart Approach"	Department of Electrical Engineering NIT Srinagar	11th -15th Dec, 2020	Successful

Impact analysis of industry-institute interaction and actions are taken thereof.

- The effectiveness of this practice can be gauged by the great response of the participants of the workshops.
- Students picked up what they learned at the workshops to implement their own final year projects.
- Students gained from this exposure to incorporate an entrepreneurial spirit and project-based thinking.
- The students are provided with the feedback forms to rate their industrial training/internship. It is done to identify the level of achievement.
- The feedback is obtained from students at the end of 8thsemester to assess the achievement of the objectives of the industrial training/ summer training/internship/ industrial tour.

2.2.5 Initiatives related to industry internship/summer training (10)

Objectives:

- Internship is introduced to make the students to expose to different environment.
- It makes the students to know the industrial /real time problems.
- It helps the students in solving/understanding real-life problems through application of engineering analysis, design, evaluation and creation.
- It changes the behavioural aspects of student and make him/her ready to face Industry.
- It provides a good platform on the job training to the students and to develop a network which will be useful in enhancing their career prospects.

Initiatives:

- Identification of relevant Electrical Engineering by Communicating with the companies through stake holders.
- Inviting the companies for internship cum placement drive.
- Orientation by HOD and directorate of Internships before sending student to industry.
- Distribution of Internship manuals and Internship Allotment orders to the students.

Impact Analysis:

1. The attitude, knowledge and skills of students are improved so that they can be fit into any kind of organizations.
2. The ability to apply was improved with internship program, as where they applied theoretical knowledge what they learnt in the classroom.
3. Practical knowledge was improved through which they have elevated their career opportunities.
4. Placement opportunities were improved.

Industrial training/tours for students (2)

The faculties of the department constantly try to interact with industries like PDC,
PDD of J&K Govt, etc. for industrial visit.

Sl. No.	Name of the Site	Date of Visit
1	LOWER JHELUM POWER PROJECT, BARAMULLAH	31/10/2015
2	UPPER SIND HYDEL PROJECT, KANGAN	14/06/2015
3	URI POWER STATION, GINGLE	17/09/2015
4	LOWER JHELUM POWER PROJECT, BARAMULLAH	27/09/2017

Industrial /Internship /summer training of more than two weeks and post-training Assessment.

The students are encouraged to take up internship programs during their semester break. Faculty members give their guidelines, suggestions and scope and contact details of an internship. They also help the students by interacting with the industry experts; provide the student's recommendation letters and other necessary supports. The alumni coordinator constantly interacts with alumni those who are working in the industries and request them to provide the necessary guidelines and supports for their junior's internship.

SL. NO	NAME OF THE STUDENT	CERTIFICATION /TRAINING DETAILS	ORGANIZATION	DURATION	DATE
1.	Adil Mohi-u-Din Bhat (155/11)	In-Plant Training	PGCIL, 400/220 KV Wagoora substation	51 days	26/12/13 to 14/2/14
2.	Shahid Hussain Kumar (82/11) Suhail Majeed (122/11)	In-Plant Training	Upper Sind Hydro Electric Stage-II, Kangan	8 weeks	05/02/14
3.	Junaid Farooq (126/11)	In-Plant Training	Uri Power Station, Gingle, Baramulla	62 days	15/12/13 to 15/02/14
4.	Rajbir Singh (62/11)	In-Plant Training	PGCIL, 400/220 KV Wagoora substation	51 days	26/12/13 to 14/2/14
5.	Mr. Mohd Umar Farooq (118/11)	In-Plant Training	200 MVA, 132/33 KV Grid Station Pampore	64 days	13/12/13 to 14/02/14
6.	Md. Mozahir Hassan (474/11)	In-Plant Training	IOCL, Barauni Oil Refinery, Begusarai, Buhar	42 days	21/12/13 to 31/01/14
7.	Tariq Aziz Sofi	In-Plant Training	BHEL, Haridwar	47 days	16/12/13 to 31/1/14
8.	Sh. Aaqib Ali Abbas (205/12)	In-Plant Training	PGCIL, 400/220 KV Wagoora substation	43 days	15/12/14 to 26/01/15
9.	Burhanul Majeed (223/12)	In-Plant Training	Lower Jhelum Hydel Project, J&K	64 days	22/12/14 to 24/02/15
10.	Abid Hussain Lone	In-Plant Training	132/33 KV Grid Station Wanpoh	46 days	01/01/15 to 15/02/15

11.	Gowhar Ahmad Mir (225/12)	In-Plant Training	Lower Jhelum Hydel Project, J&K	64 days	22/12/14 to 24/02/15
12.	Gaurangi Gargi Chowdhary (39/15)	In-Plant Training	IISc, Bangalore	53 days	20/12/17 to 10/02/18
13.	Aditya Ujjawal (57/15)	In-Plant Training	BHEL, Haridwar	28 days	23/12/17 to 19/1/18
14.	Abid Hussain (26/15)	In-Plant Training	Salal power station, Jyotipuram (NHPC Ltd.)	29 days	23/01/18 to 20/02/18
15.	Rohit Choor (22/15)	In-Plant Training	DMRC	27 days	13/12/17 to 08/01/18
16.	Swastik Sharma	In-Plant training	BSNL Ghaziabad	4 weeks	15/07/19 to 09/08/19
17.	Ayush Dogra	In-Plant training	BSNL Ghaziabad	4 weeks	15/07/19 to 09/08/19
18.	Shubam Pal	In-Plant training	BSNL Ghaziabad	4 weeks	15/07/19 to 09/08/19
19.	Abhishek Kumar	In-Plant training	BSNL Ghaziabad	4 weeks	15/07/19 to 09/08/19
20.	Harinath Prajapati	In-Plant training	BSNL Ghaziabad	4 weeks	15/07/19 to 09/08/19
21.	Sudhir Kumar	In-Plant training	BSNL Ghaziabad	4 weeks	15/07/19 to 09/08/19
22.	Atanu Gain	In-Plant training	BSNL Ghaziabad	4 weeks	11/07/19 to 09/08/19
23.	Gautam Kishore	In-plant training	NTPC	1 month	23/12/2015 to 23/01/16
24.	Vivek Vikram Singh	In-plant training	NTPC badarpur	40 days	22/12/2014 to 31/01/2015
25.	Harsh Prasad	In-plant training	Usha Martin Ranchi	6 weeks	05/01/2015 to 19/02/2015
26.	Chirag Gupta	In-plant training	Reliance industries	45 days	15/12/2014 to 30/01/2015
27.	Dinesh Saini	In-plant training	KSTPS-KOTA	6 weeks	22/12/2014 to 05/02/2015
28.	Rahul Prajapati	In-plant training	KCK thermal training institute rajasthan	33 days	28/12/2015 to 30/01/2016
29.	Rahul Kumar	In-plant training	NHPC SALAL	25 days	11/01/2016 TO 05/02/2016
30.	Neeraj Kumar	In-plant training	NHPC SALAL	5 weeks	28/12/2015 to 03/02 /2015

31.	Rakesh Kumar	In-plant training	Northwestern Railways Jaipur	28 days	28/12/2015 to 25/01/2016
32.	Gaurav Kishore	In-plant training	NTPC Barh	1 month	23/12/2015 to 23/01/2016
33.	Anamika Chakrabarty	In-plant training	IOCL Gujrat	39 days	22/12/2014 to 31/01/2015
34.	Anshul Sharma	In-plant training	NTPC Badarpur	09 weeks	08/12/2015 to 12/02/2016
35.	Mohd Irfan Malik	In-plant training	NHPC salal	6 weeks	23/12/2015 to 03/02/2016
36.	Rahul Kumar	In-plant training	HP Enterprise Noida	4 weeks	21/01/2016 to19/02/2016
37.	Akhilesh Kumar	In-plant training	NTPC Noida	1 month	15/12/2015 to 15/01/2016
38.	Amit Kashyap	In-plant training	PDD Gladni Jammu	4 weeks	09/01/2016 to 09/02/2016
39.	Vivek Kumar Singh	In-plant training	Ultra tech cements kotputli	2 months	24/12/2015 to 24/02/2016
40.	Ali Akbar	In-plant training	PGCIL Samba	6 weeks	10/01/2015 to 24/02/2015
41.	Neha Dogra	In-plant training	PDD Gladni Jammu	4 weeks	09/01/2016 to 09/02/2016
42.	Ayush kumar	In-plant training	NTPC Badarpur	39 days	22/12/2014 to 31/01/15
43.	Sinan Aquib Gull	In-plant training	Advanced tech India ltd	6 weeks	15/01/2016 to 27/02/2016
44.	Rajeev Kumar	In-plant training	NTPC Barh	1 month	15/12/2015 to 15/01/2016
45.	Manohar kumar	In-plant training	NTPC Barh	1 month	15/12/2015 to 15/01/2016
46.	Mohammad Muneer Dar	In-plant training	PGCIL	4 weeks/1 month	20/12/2019 to 10/2/20
47.	Sahib Dawood	In-plant training	CSIR - CSIO	4 weeks/1 month	26/12/2019 to 6/2/2020
48.	Rather Aadil Ahmad	In-plant training	CSIR Chandigarh	4 weeks/1 month	26/12/2019 to 6/2/2020
49.	SHAHID NAZIR AHANGER	In-plant training	PGCIL WAGOORA	4 weeks/1 month	26/12/2019 to 6/2/2020
50.	Mayur Ameriya	In-plant training	BHEL HARIDWAR. IOCL BARAUNI REFINERY	4 weeks/1 month	1/1/2020 to 30/1/2020
51.	Muneeb Mushtaq Sheikh	In-plant training	PGCIL New Wanpoh Kashmir	4 weeks/1 month	18/11/2020 to 16/12/2020

52.	Aditya Avi	In-plant training	IOCL, Barauni	4 weeks/1 month	1/1/2020 to 30/1/2020
53.	Aditya Avi	In-plant training	BHEL, Haridwar	4 weeks/1 month	5/9/2019 to 4/10/2019
54.	Ramhari Yadav	In-plant training	NHPC Limited Faridabad, Department of Aerospace Engineering IISc Bangalore, PGCIL Allahabad	4 weeks/1 month	3/9/2019 to 26/10/2019
55.	Dheeraj Kumar	In-plant training	Bharat Heavy Electricals limited (BHEL) Haridwar	4 weeks/1 month	9/9/2019 to 8/10/2019
56.	Saurav Kumar	In-plant training	Sagacious IP	4 weeks/1 month	4/1/2021 to 1/3/2021
57.	Saurav Kumar	In-plant training	Sail Bokaro, BHEL Haridwar, Mithla Motors	4 weeks/1 month	17/12/2018 to 12/1/2019
58.	VISHAL KATIYAR	In-plant training	BHEL HARIDWAR	4 weeks/1 month	7/9/2019 to 6/10/2019
59.	Hanzal Manzoor	In-plant training	PGCIL Wagoora	4 weeks/1 month	20/12/2019 to 10/2/20
60.	SHIV SAGAR MEENA	In-plant training	BHARAT HEAVY ELECTRICALS LIMITED, RANIPUR, HARIDWAR	4 weeks/1 month	9/9/2019 to 8/10/2019
61.	AMIT KUMAR PRAJAPATI	In-plant training	Power grid(pgcil)	4 weeks/1 month	26/12/2019 to 25/1/2020
62.	Aditya Sadhotra	In-plant training	BHEL	4 weeks/1 month	7/9/2019 to 6/10/2019
63.	Sofi Abdul Waheed	In-plant training	IIT DELHI	4 weeks/1 month	1/1/2020 to 10/2/2020
64.	Rishabh Kumar Sharma	In-plant training	NTPC, Western Central Railways, CSIR-CSIO, Joy of giving Society	4 weeks/1 month	19/12/2018 to 18/01/2019
65.	Moonisa yousuf	In-plant training	JKPTCL	4 weeks/1 month	20/12/2019 to 15/2/20
66.	Yawer Sultan	In-plant training	PGCIL	4 weeks/1 month	20/12/2019 to 10/2/20
67.	Shahid qadir	In-plant training	PGCIL	4 weeks/1 month	20/12/2019 to 10/2/20
68.	Mohammad Salik	In-plant training	Electrical Engineering Department, IIT Delhi	4 weeks/1 month	1/1/2020 to 10/2/2020
69.	Sahib Dawood	In-plant training	Bharat Heavy Electricals Limited Haridwar	4 weeks/1 month	9/9/2019 to 8/10/2019
70.	Sanjay Kumar Bhagat	In-plant training	Bharat Heavy Electricals Limited	4 weeks/1 month	7/9/2019 to 6/10/2019

71.	Ravi shankar	In-plant training	IISc bangalore	4 weeks/1 month	05/9/2019 to 4/10/2019
72.	Nitesh Yadav	In-plant training	BHEL (BHARAT HEAVY ELECTRICALS LIMITED)	4 weeks/1 month	9/9/2020 to 8/10/2020
73.	Jawahar Bashir	In-plant training	Jkptc Bemina	4 weeks/1 month	20/1/2020 to 1/3/2020
74.	Vishal dwivedi	In-plant training	BHEL	4 weeks/1 month	26/12/2019 to 6/2/2020
75.	Amir ahmad baba	In-plant training	Power grid corporation of India limited	4 weeks/1 month	20/12/2019 to 10/2/20

Impact analysis of industrial training

❖ The purpose of those internships is not only to get acquainted with the culture of companies but also to realize something of importance for the company visited.

❖ Working in a group within the company, it is expected that the trainee gets a better insight into the practical aspects of the industry.

SUMMARY:

Criteria	**Sub-Criteria**	**Max. score**	**Obtained /Claimed score**
2.1	2.1.1	10	10
	2.1.2	5	5
	2.1.3	5	5
	2.1.4	10	10
2.2	2.2.1	15	15
	2.2.2	15	15
	2.2.3	20	20
	2.2.4	10	10
	2.2.5	10	10
Total score		100	100

Marks claimed: 100 out of 100.