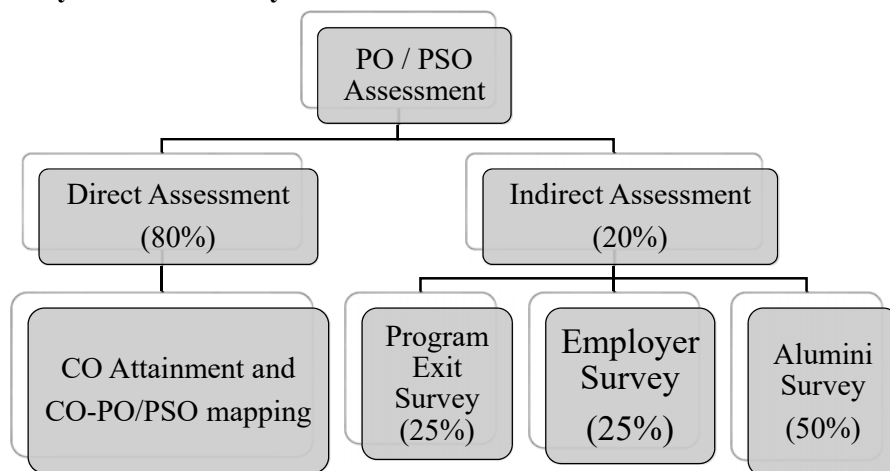


P.25 Rubrics developed to validate the POs

- List of rubrics used to validate the POs.
- List of rubrics used to validate the PSOs.
- Justification to use it and proceedings of it.

PO / PSO Assessment Rubrics:

- **Theory and Laboratory Courses:**



Figure

PO / PSO Assessment Tools:

PO / PSO assessment is done by giving 80% weightage to direct assessment and 20% weightage to indirect assessment. Direct assessment is based on overall CO attainment and CO-PO/PSO mapping. Indirect assessment is done through program exit survey, alumni survey and employer survey. Program exit survey and employer survey are given a weightage of 25% each and alumni survey is given a weightage of 50%.

The various assessment tools used to evaluate POs / PSOs and the frequency with which the assessment processes are carried out are listed in below mentioned Table.

Table: Assessment tools used for evaluation of PO and PSO attainment

PO and PSO ASSESSMENT TOOLS				
		Course Type	Assessment Methods	Frequency
		Direct (80% weightage)	Overall CO Attainment	Theory
			Assignments	Twice/Thrice per course
			End Sem Exam	Once per course

		Laboratory Examination		Daily Performance	Every lab session
				End Sem Exam	Once per course
		Seminar (7th Sem)		Presentation	Once per semester
		Project	Phase I (7th sem)	Review	Once per course
			Phase II (8th sem)	Review	Once/Twice per course
				Demonstration / Final Evaluation	Once per semester
				Evaluation by Guide	Continuous evaluation
Indirect method		Course Exit Survey	Once per course		
Indirect (20% weightage)	Surveys	Program Exit Survey		Once a year	
		Employer Survey		Once in two years	
		Alumni Survey		Once a year	

Quality / relevance of assessment tools and processes:

(i) Direct Assessment Tools and Process:

Direct CO Assessment tools are used for the direct assessment of POs and PSOs. The attainment of each PO corresponding to a particular course is determined from the attainment values obtained for each course outcome related to that PO and the CO-PO mapping values. Similarly, the values of PSO attainment are also determined.

(ii) Indirect Assessment Tools and process:

Indirect assessment is done through program exit survey, alumni survey and employer survey where program exit survey and employer survey are given a weightage of 25% each and alumni survey are given a weightage of 50%.

Program Exit Survey:

An exit survey is conducted for students who have graduated out of the department for that year. The questionnaire format in the exit survey form to evaluate the attainment of POs and PSOs is given in section (a) and the relation of POs & PSOs with each question is given in section (b).

(a) Questionnaire Format

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.

Sl. No	Overall, are you satisfied with:	Extremely Satisfied	Satisfied	Somewhat Satisfied
1	Basic knowledge in mathematics, science, Engineering and humanities.			
2	Ability to identify, design, analyze and solve Electrical engineering problems.			
3	Design/development of complex engineering problems and their solutions			
4	Conduct investigations of Complex Problems			
5	Demonstrate the ability to apply advanced technologies to solve contemporary and new Problems.			
6	Awareness to apply engineering solutions in Global, national, and societal contexts.			
7	Understanding professional engineering solutions in societal and environmental contexts			
8	Understanding of professional and ethical Responsibilities			
9	Ability to function as an effective member in multi-disciplinary teams			
10	Proficiency in the English language in both communicative and technical forms			
11	Demonstrate the ability to choose and apply appropriate resource management techniques			
12	Capable of self-education and a clear understanding of the value of updating their professional knowledge to engage in life-long Learning.			
13	Program aids in securing jobs in the fields of design, research, manufacturing, safety, quality, sales and service			
14	The program enhances creative and imaginative Skills required in Mechanical Engineering domain.			
15	The program helps to progress through advanced degree or certificate programs			
16	The program helps in innovative and entrepreneurship activities with high professional standards			

(b) Relation of POs and PSOs with questionnaire:

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Questions	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12

PSOs	PSO1	PSO2	PSO3
Questions	Q13 & Q14	Q15	Q16

(c) Evaluation Process:

The questionnaire consists of 16 questions which are relevant for assessing each PO and PSO. The first 12 questions correspond to the 12 POs and the remaining 4 questions are for PSOs (Questions 13

& 14 are used to evaluate PSO 1, Question 15 is used to evaluate PSO 2 and Question 16 is used to evaluate PSO 3). Each question is having 3 options, namely, extremely satisfied, satisfied and somewhat satisfied, which is given marks 3, 2 and 1 respectively. The survey results are tabulated and the average values corresponding to each PO and PSO are calculated.

Employer Survey:

Feedback is taken at a frequency of once in two years from the employers who had given jobs to our graduates. The questionnaire format in the employer survey form to evaluate attainment of POs and PSOs is given in section (a) and the relation of POs & PSOs with each question is given in section(b)

(a) Questionnaire Format:

Rate the NIT SRINAGAR graduates working in your organization using the following criterion. Put a tick mark (√)

Knowledge, Skills, Abilities, Attitude and other Attributes expected out of NIT SRINAGAR graduates

Sl. No	Overall, are you satisfied with:	Extremely Satisfied	Satisfied	Somewhat Satisfied
1	Capacity for development and analysis of engineering problems and formulation of appropriate solutions, retaining professional and ethical responsibilities.			
2	Aptitude for self-education, ability to learn new skills and a clear appreciation for the value of lifelong learning to update professional Knowledge			
3	Understanding professional engineering solutions for sustainable development and their application in global, national and societal contexts.			
4	Competence for acquiring new skills and applying them in research and development			
5	Fundamental knowledge in mathematics and science and professional fluency in English both communicative and technical forms			
6	Dexterity in the differentiation of management techniques and possession of leadership skills that enable the successful function of multi-disciplinary teams			

(b) Relation of POs and PSOs with questionnaire:

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Questions	Q1& Q5	Q1	Q3	Q4	Q2& Q4	Q3	Q3	Q1	Q6	Q5	Q6	Q2

PSOs	PSO1	PSO2	PSO3
Questions	Q1, Q2, Q3, Q4	Q2, Q4	Q1, Q3, Q5, Q6

(c) Evaluation Process:

The questionnaire consists of 6 questions. These questions are relevant for assessing each PO and PSO. If multiple questions satisfy a PO, then their average is taken. A similar procedure is followed for PSOs also. Each question is having 3 options namely, extremely satisfied, satisfied and somewhat satisfied, which is given marks 3, 2 and 1 respectively. These marks are tabulated and the average values corresponding to each PO and PSO are determined.

Alumni Survey:

Feedback is taken from alumni. The questionnaire format in the alumni survey form to evaluate attainment of POs and PSOs is given in section (a) and the relation of POs & PSOs with each question is given in section (b).

(a) Questionnaire Format:

Assessment of Knowledge, Skills, Abilities, Attitude, and attributes acquired at NIT SRINAGAR.

Please rate each of the following Knowledge, skills, abilities, attitudes (K, S, A) or attribute in terms how well NIT SRINAGAR inculcated them in your education.

Sl. No	Overall, are you satisfied with:	Extremely Satisfied	Satisfied	Somewhat Satisfied
1	Basic knowledge in mathematics, science, Engineering and humanities.			
2	Ability to identify, formulate and analyze Engineering problems.			
3	Design/development of complex engineering problems and their solutions			
4	Conduct investigations of Complex Problems			
5	Demonstrate the ability to apply advanced technologies to solve contemporary and new problems.			
6	Understanding professional engineering solutions in societal and environmental contexts			
7	Awareness to apply engineering solutions in global, national, and societal contexts.			
8	Understanding of professional and ethical responsibilities.			
9	Ability to function as an effective member in multi-disciplinary teams			
10	Proficiency in the English language in both communicative and technical forms			
11	Demonstrate the ability to choose and apply appropriate resource management techniques			

12	Capable of self-education and a clear understanding of the value of updating their professional knowledge to engage in life-long learning.			
13	Program aids in securing jobs in the fields of design, research, manufacturing, safety, quality, sales and service			
14	The program enhances creative and imaginative skills required in Electrical Engineering domain.			
15	The program helps to progress through advanced degree or certificate programs			
16	The program helps in innovative and entrepreneurship activities with high professional standards			

(b) Relation of POs and PSOs with questionnaire:

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Questions	Q1	Q2	Q3	Q4	Q5	Q7	Q6	Q8	Q9	Q10	Q11	Q12

PSOs	PSO1	PSO2	PSO3
Questions	Q13 & Q14	Q15	Q16

(c) Evaluation Process:

The questionnaire consists of 16 questions which are relevant for assessing each PO and PSO. The first 12 questions are used to evaluate the 12 POs and the remaining 4 questions are for evaluating PSOs (Questions 13 & 14 are used to evaluate PSO 1, Question 15 is used to evaluate PSO 2 and Question 16 is used to evaluate PSO 3). Each question is having 3 options, namely, extremely satisfied, satisfied and somewhat satisfied, which is given marks 3, 2, and 1 respectively. These marks are tabulated and the average value is shown.

**DEPARTMENT OF ELECTRICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR**

Minutes of the Meeting

Minutes of the meeting of the Departmental faculty members held on 6th February 2017, at 12p.m. in the departmental committee room of Electrical Engineering.

Following members attended the meeting:

- | | |
|--|----------|
| 1. Prof. S. A. Lone
Professor & Head
Department of Electrical Engineering | Chairman |
| 2. Prof. M. D. Mufti
Professor
Department of Electrical Engineering | Member |
| 3. Prof. Abdul Hamid Bhat
Professor
Department of Electrical Engineering | Member |
| 4. Dr. Sheikh Javed Iqbal
Associate Professor
Department of Electrical Engineering | Member |
| 5. Dr. M. A. Bazaz
Assistant Professor
Department of Electrical Engineering | Member |

Following points were discussed:

1. Direct and Indirect Assessment of Course Outcomes:

The members deliberated upon the method for Course Assessment. It was decided that Direct and Indirect assessment of courses will be adopted as per the following Rubric:

Theory Courses:

CO Assessment will be done through two components: Direct Component and Indirect Component. Weightage of the direct Assessment will be 80% while as that of Indirect Component will be 20%. The Direct component will comprise of End-Term, Mid-term and Continuous Assessment with a weightage of 60%, 30% and 10% respectively. Indirect assessment will be done through course exit survey. Proforma for course exit survey was discussed and agreed upon as is given in Annexure I.

Project/Seminar Course

The direct component for Project & Seminar will be done through Demonstration, Viva and Presentation with a combined weightage of 100%. Indirect assessment will be done through course exit survey.

Laboratory / Practical Courses

For laboratory courses, the assessment will be done similarly, through two components: Direct Component and Indirect Component with weightage of 80% & 20% respectively. The Direct component will comprise of End semester evaluation and Continuous Assessment with a weightage of 60% and 40% respectively. Just like in case of theory, Indirect assessment will be done through course exit survey.

2. Direct & Indirect Assessment of Program Objectives (PO) and Program Specific Outcomes (PSO):

Following rubric shall be adopted for Direct & Indirect Assessment of POs and PSOs

Theory and Laboratory / Practical Courses:


Assessment of POs and PSOs will be done through two components: Direct Component and Indirect Component. Weightage of the direct Assessment will be 80% while as that of Indirect Component will be 20%. The Direct component will be formulated through CO Attainment and CO-PO/PSO mapping. Indirect assessment will be done through Program exit survey, Employer Survey and Alumni Survey with a weightage of 25%, 25% & 50%. Proforma for program exit survey, employer survey and Alumni Survey were discussed and agreed upon as is given in Annexure II.

3. **Examination and Evaluation:** The Department in line with the Institute policy adopts & shall adhere to the following evaluation module:
- ❖ Under the continuous assessment, Class test, Assignments & Attendance shall be given weightage and one mid exam will be conducted of all courses.
 - ❖ The mid-term examination duration will be 90 minutes. The mid-term paper shall comprise of three questions and all the questions in the mid-term paper need to be attempted. The maximum marks for this exam are 30.
 - ❖ The end-term examination will be of 180 minutes duration. The end-term paper shall comprise of five questions and out of five questions, four need to be attempted. The maximum marks for this exam will be 60.
 - ❖ Examination papers shall be set by following the Bloom's taxonomy (understand, Apply, Analyze and create) in line with COs and POs.
 - ❖ Oral assessment shall be done for assessment of projects.

RUBRIC for B.Tech Dissertation (Electrical Department)

Final Evaluation			
Project Evaluation Committee	Criteria	Marks Awarded	Total
	Examiner	20	50
	Senior faculty of the department	10	
	Head of the	20	

	department		
Project Guide	Continuous monitoring of performance assessed by the guide	50	50
Total Marks		100	100

Head 
 Department of Electrical Engineering

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