2.6.2 - Attainment of Programme Outcomes and Course Outcomes as evaluated by the institution

Direct and Indirect Tools for the attainment of Course outcomes and Programme Outcomes

At the institute level following are the direct and indirect tools used for the calculation of attainment of Course Outcomes and Programme Outcomes (POs).

No.	Protocol	Description	
1	Method of Assessment	Test, Practical (Laboratory), Examination	
2	Source	Descriptive Test, Quiz, Assignment, Project, Seminar & Laboratory Record	
3	Frequency of Assessment	Descriptive Test	Twice in a sem.
		Quiz	Twice in a sem.
		Assignment	Twice in a sem.
		Project	Once during the program of study
		Seminar	Once during the program of study
		Laboratory	Weekly
4	Method of Documentation	Periodical Update (Manual) in the customized spread sheet application	
5	Method of Calculation of the Attainment	Using build-in macros with user defined formulae as prescribed by NBA	
6	Overall assessment timeline	At the end of the course	

The above process is being adopted every semester as and when the course outcomes are evaluated based on the CO – PO mapping of a particular course. Once the course outcomes are evaluated, the attainment of COs (i.e. No. of students secured more than 60% of the marks in each of the CO) is calculated and the level of attainment is categorized into L1, L2 and L3, where

- L1 = 50-59% of the students secured more than 60% of the marks of each CO;
- L2 = 60%- 69% of the students secured more than 60% of the marks of each CO;
- L3 = greater than 70% of the students secured more than 60% of the marks of each CO

With respect to attainment of POs, both direct and indirect assessment tools are used. Programme Exit Survey is the indirect tool used. Sample of this survey form and the calculation of attainment of POs for 2019-2023 batch of all the programmes is attached.

NSRIT **NADIMPALLI SATYANARAYANA RAJU INSTITUTE OF TECHNOLOGY (AUTONOMOUS)**
Estd. 2008
NAAC 'A' GRADE
(Approved by AICTE, New Delhi || Affiliated to JNTUK, Kakinada || An ISO 9001, ISO 14001 & ISO 45001 Certified Institution)
Recognized under 2(f) of the UGC Act 1956 || Accredited by NAAC with 'A' Grade (3.10/4.00)
SONTYAM, Pendurthi - Anandapuram Highway, Visakhapatnam - 531173, Ph : 9885824167, 8099464546, www.nsrit.edu.in

Department of

Academic Year:
Year/Semester:
Course Title:
Course Code:
Name of the Faculty:

S No	JNTU No	Name	Phase - 1					Phase - 2					Univ.
			Q1	Q2	Q3	Quiz1	Assn 1	Q1	Q2	Q3	Quiz2	Assn 2	Result
1			4	2	2	6	4	4	4	2	6	4	A
2			4	2	2	6	4	4	4	2	6	4	B
3			4	2	2	6	4	4	4	2	6	4	C
4			4	2	2	6	4	4	4	2	6	4	D
5			4	2	2	6	4	4	4	2	6	4	E
6			4	2	2	6	4	4	4	2	6	4	F
7			4	2	2	6	4	4	4	2	6	4	A
8			4	2	2	6	4	4	4	2	6	4	B
9			4	2	2	6	4	4	4	2	6	4	C
10			4	2	2	6	4	4	4	2	6	4	D
11			4	2	2	6	4	4	4	2	6	4	E
12			4	2	2	6	4	4	4	2	6	4	F
13			4	2	2	6	4	4	4	2	6	4	A
14			4	2	2	6	4	4	4	2	6	4	A
15			4	2	2	6	4	4	4	2	6	4	B
16			4	2	2	6	4	4	4	2	6	4	C
17			4	2	2	6	4	4	4	2	6	4	D
18			4	2	2	6	4	4	4	2	6	4	E
19			4	2	2	6	4	4	4	2	6	4	F
20			4	2	2	6	4	4	4	2	6	4	A
21			4	2	2	6	4	4	4	2	6	4	B
22			4	2	2	6	4	4	4	2	6	4	C
23			4	2	2	6	4	4	4	2	6	4	D
24			4	2	2	6	4	4	4	2	6	4	E
25			4	2	2	6	4	4	4	2	6	4	F
26			4	2	2	6	4	4	4	2	6	4	A
27			4	2	2	6	4	4	4	2	6	4	A
28			4	2	2	6	4	4	4	2	6	4	B
29			4	2	2	6	4	4	4	2	6	4	C
30			4	2	2	6	4	4	4	2	6	4	D
31			4	2	2	6	4	4	4	2	6	4	E
32			4	2	2	6	4	4	4	2	6	4	F
33			4	2	2	6	4	4	4	2	6	4	A
34			4	2	2	6	4	4	4	2	6	4	B
35			4	2	2	6	4	4	4	2	6	4	C
36			4	2	2	6	4	4	4	2	6	4	D
37			4	2	2	6	4	4	4	2	6	4	E
38			4	2	2	6	4	4	4	2	6	4	F
39			4	2	2	6	4	4	4	2	6	4	A
40			4	2	2	6	4	4	4	2	6	4	A
41			4	2	2	6	4	4	4	2	6	4	B
42			4	2	2	6	4	4	4	2	6	4	C
43			4	2	2	6	4	4	4	2	6	4	A
44			4	2	2	6	4	4	4	2	6	4	B
45			4	2	2	6	4	4	4	2	6	4	C
46			4	2	2	6	4	4	4	2	6	4	D
47			4	2	2	6	4	4	4	2	6	4	E
48			4	2	2	6	4	4	4	2	6	4	F
49			4	2	2	6	4	4	4	2	6	4	A
50			4	2	2	6	4	4	4	2	6	4	B
51			4	2	2	6	4	4	4	2	6	4	C
52			4	2	2	6	4	4	4	2	6	4	D
53			4	2	2	6	4	4	4	2	6	4	A
54			4	2	2	6	4	4	4	2	6	4	B
55			4	2	2	6	4	4	4	2	6	4	C
56			4	2	2	6	4	4	4	2	6	4	D
57			4	2	2	6	4	4	4	2	6	4	E
58			4	2	2	6	4	4	4	2	6	4	F
59			4	2	2	6	4	4	4	2	6	4	A
60			4	2	2	6	4	4	4	2	6	4	B
61			4	2	2	6	4	4	4	2	6	4	C
62			4	2	2	6	4	4	4	2	6	4	D
63			4	2	2	6	4	4	4	2	6	4	E
64			4	2	2	6	4	4	4	2	6	4	F
65			4	2	2	6	4	4	4	2	6	4	A

#													
66			4	2	2	6	4	4	4	2	6	4	A
67			4	2	2	6	4	4	4	2	6	4	B
68			4	2	2	6	4	4	4	2	6	4	C
69			4	2	2	6	4	4	4	2	6	4	D
70			4	2	2	6	4	4	4	2	6	4	E
71			4	2	2	6	4	4	4	2	6	4	F
72			4	2	2	6	4	4	4	2	6	4	A
73			4	2	2	6	4	4	4	2	6	4	B
74			4	2	2	6	4	4	4	2	6	4	C
75			4	2	2	6	4	4	4	2	6	4	D
76			4	2	2	6	4	4	4	2	6	4	E
77			4	2	2	6	4	4	4	2	6	4	A
78			4	2	2	6	4	4	4	2	6	4	B
79			4	2	2	6	4	4	4	2	6	4	C
80			4	2	2	6	4	4	4	2	6	4	D
81			4	2	2	6	4	4	4	2	6	4	E
82			4	2	2	6	4	4	4	2	6	4	F
83			4	2	2	6	4	4	4	2	6	4	A
84			4	2	2	6	4	4	4	2	6	4	B
85			4	2	2	6	4	4	4	2	6	4	A
86			4	2	2	6	4	4	4	2	6	4	B
87			4	2	2	6	4	4	4	2	6	4	C
88			4	2	2	6	4	4	4	2	6	4	D
89			4	2	2	6	4	4	4	2	6	4	E
90			4	2	2	6	4	4	4	2	6	4	F
91			4	2	2	6	4	4	4	2	6	4	A
92			4	2	2	6	4	4	4	2	6	4	B
93			4	2	2	6	4	4	4	2	6	4	C
94			4	2	2	6	4	4	4	2	6	4	D
95			4	2	2	6	4	4	4	2	6	4	E
96			4	2	2	6	4	4	4	2	6	4	F
97			4	2	2	6	4	4	4	2	6	4	A
98			4	2	2	6	4	4	4	2	6	4	A
99			4	2	2	6	4	4	4	2	6	4	B
100			4	2	2	6	4	4	4	2	6	4	A
101			4	2	2	6	4	4	4	2	6	4	B
102			4	2	2	6	4	4	4	2	6	4	C
103			4	2	2	6	4	4	4	2	6	4	D
104			4	2	2	6	4	4	4	2	6	4	E
105			4	2	2	6	4	4	4	2	6	4	F
106			4	2	2	6	4	4	4	2	6	4	A
107			4	2	2	6	4	4	4	2	6	4	🟥
108			4	2	2	6	4	4	4	2	6	4	🟥
109			4	2	2	6	4	4	4	2	6	4	D
110			4	2	2	6	4	4	4	2	6	4	A
111			4	2	2	6	4	4	4	2	6	4	B
112			4	2	2	6	4	4	4	2	6	4	C
113			4	2	2	6	4	4	4	2	6	4	D
114			4	2	2	6	4	4	4	2	6	4	E
115			4	2	2	6	4	4	4	2	6	4	F
116			4	2	2	6	4	4	4	2	6	4	A
117			4	2	2	6	4	4	4	2	6	4	B
118			4	2	2	6	4	4	4	2	6	4	C
119			4	2	2	6	4	4	4	2	6	4	D
120			4	2	2	6	4	4	4	2	6	4	E
COs addressed			CO1	CO2	CO3	CO1-3	CO1-3	CO4	CO5	C06	CO4-6	CO4-6	CO1-6
Maximum marks			4	4	2	10	5	4	4	2	10	5	75
60% of max marks			2.4	2.4	1.2	6	3	2.4	2.4	1.2	6	3	D
No of students appeared			120	120	120	120	120	120	120	120	120	120	118
No of students who have scored >= average			120	0	120	120	120	120	120	120	120	120	84
Percentage of students above average			100	0	100	100	100	100	100	100	100	100	71.186441
			CO1	CO2	CO3			CO4	CO5	C06			
Percentage of attainment			76.95	61.9	76.949			76.95	76.95	76.95			

COs	CO statement		% of attainment
CO1			76.95
CO2			61.95
CO3			76.95

CO4				76.95
CO5				76.95
CO6				76.95
	Average percentage of attainment			74.4
	Level of attainment			3

NSRIT

FEEDBACK FORM

Exit Survey / Senior Student Survey

SU SERIES

www.nsrit.edu.in

Nadimpalli Satyanarayana Raju Institute of Technology. IQAC: Quality Management System (QMS)

NSRIT

Internal Quality Assurance Cell (IQAC)
Survey Forms
Student Exit Survey (Self-assessment on the attainment of POs)

Preamble: This form is a form of indirect assessment tool intended to gather the self-assessed scores from the students who are graduating out of NSRIT at the time of graduation with regard to the attainment of Program Outcomes (POs). POs are generally the transactional statements Graduate Attributes (GAs) which are very much essential for an engineering graduate to enhance their overall competency at the time of graduation. Further this form is intended to ensure "Whether the student has attained the minimum target performance level" fixed by the program in their own perception. The POs are furnished below, and the students are requested to grade their score on a five-point scale and requested to fill their educational experience at NSRIT.

You are also kindly requested to rate each and every question on a five-point scale and drop any specific comments, if any.

1	Name	
2	Roll Number	
3	Name of the Program	
4	Contact No.	
5	Email ID	

A. Program Assessment

No.	Program Outcome (s)	1	2	3	4	5
1	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems					
2	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences					
3	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations					
4	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.					
5	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations					
6	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and					

No.	Parameters					
	the consequent responsibilities relevant to the professional engineering practice.					
7	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development					
8	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.					
9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.					
10	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions					
11	Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.					
12	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments					

B. Educational Experience

No.	Parameters	1	2	3	4	5
1	How you will grade the overall quality of education at NSRIT?					
2	How you will grade the quality of teachers at NSRIT in your perspective?					
3	How you will grade the effectiveness of classroom delivery?					
4	How you will grade the quality of mentoring during your course of study with the members of faculty of NSRIT?					
5	Is the mentoring helped you in travel in your career path?					
6	Whether the Institute has met your expectations what you have at the time of joining?					
7	Are you placed in any companies through campus drive or off-campus arranged by the Institute?	Yes | No				
8	How you will grade the quality of placement training provided by the Institute?					
9	How you will grade the effectiveness of industry-institute-institute interaction during your course of study?					
10	How you will grade the extra- and co- curricular activities organised by the Institute during your course of study?					
11	Any Specific Comments:					

C. Future Plan

1. Planning to join the organisation where I got offer through NSRIT. Yes | No
2. Planning to pursue Higher Education. If yes, please the tentative year. Yes | No
3. Planning to become an entrepreneur. Yes | No
4. Planning to look after my family business. Yes | No
5. Planning to prepare for competitive examination. Yes | No
6. Any other plan, please drop your response

Signature

Nadimpalli Satyanarayana Raju Institute of Technology. IQAC: Quality Management System (QMS)

NSRIT

Internal Quality Assurance Cell (IQAC)
Rubrics for Laboratory Course

Preamble: This rubric is specifically designed to assess the performance of the students in the laboratory courses where the practical excercises are being involved. The assessment broadly covers "Conduct investigations of complex problems" and more particularly "the ability" to perform experiments in a laboratory set-up (identification of equipment, initial settings for performing the required tests, perform experiment, taking necessary readings, documentation, synthesis and interpretation of results to provide solutions with valid justifications).

	Criteria	Unsatisfactory (1)	Developing (2)	Satisfactory (3)	Good (4)	Exemplary (5)	Score
A. Preparation & Observation	**Criterion #1** Ability to setup, conduct experiments and take measurements/readings and present data	Unable to identify theoretical framework, measurement techniques, testing apparatus or model. Could not discuss experimental processes and protocols	Able to identify theoretical framework, measurement techniq Developing ues, testing apparatus or model. Could discuss experimental processes and protocols	Able to use theoretical framework, measurement techniques, testing apparatus or model. Able to apply constraint and assumption into the experimental design. Able to conduct experiment correctly and collect data.	Able to develop contingency or alternative plans. Able to evaluate data and relate to engineering phenomena for decision-making.	Able to develop contingency or alternative plans and anticipate problems during experiment. Able to formulate controls and evaluate alternatives of the experiment. Able to evaluate data and relate to engineering phenomena for decision-making.	
B. Results & Interpretation	**Criterion #2** Ability to analyze the data theoretically and logically to conclude experimental results	-	Unable to select and describe the techniques or methods of analyzing the data.	Able to select and use and apply appropriate techniques or methods to analyze the data.	Able to evaluate or compare data and make meaningful conclusion	Able to combine /organise more than one set of data, interpret data and make meaningful conclusion.	
	Criterion #3 Ability to interpret and discuss any discrepancies between theoretical and experimental results	-	Unable to identify how results relate/differ from theory or previous results.	Able to identify and verify how results relate/differ from theory or previous results	Able to verify and/or validate data and relate to engineering phenomena for decision making.	Able to verify and/or validate several sets of data and relates to engineering phenomena for decision making.	
C. Viva Voce	**Criterion #4** Demonstrate the ability to effectively respond to questions	-	Unable to listen carefully to questions and does not provide an appropriate answer, or is unable to answer questions	Misunderstand the questions and does not respond appropriately to the teacher, or has some trouble in answering questions	Able to listen carefully and respond to questions appropriately	Able to listen carefully and respond to questions appropriately; is able to explain and interpret results to the teacher	
Signature of the Lab Instructor				**Total Score Secured by the Student [(A + B + C)/25] x 10**			

Rubrics for B. Tech. Project

Review #	Agenda	Assessment	Review Assessment Weight age	Overall Weight age
Review 1	Project Synopsis / Proposal Evaluation	Rubric R1	2% (4)	25% (50)
Review 2	Mid-Term Project Evaluation	Rubric R2	6% (12)	
Review 3	End Semester Internal Project Evaluation	Rubric R3	6% (12)	
Review 4	Project Report Evaluation	Rubric R4	6% (12)	
Review 5	Evaluation by Guide	Rubric R5	5% (10)	
		External Evaluation	75% (150)	75% (150)
		Total	100% (100)	100% (100)

Rubric #R1: Project Synopsis/Proposal Evaluation

Maximum Marks*: 4

		Level of Achievement				
		Excellent (4)	Good (3)	Average (2)	Poor (1)	Score
a	Identification of Problem Domain and Detailed analysis of Feasibility, Objectives and Methodology of Project Proposal	Detailed and extensive explanation of the purpose and need of the project Detailed and extensive explanation of the specifications and the limitations of the existing systems All objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are clearly specified	Good explanation of the purpose and need of the project Collects a great deal of information and good study of the existing systems; Good justification to the objectives; Methodology to be followed is specified but detailing is not done	Average explanation of the purpose and need of the project; Moderate study of the existing systems; collects some basic information Incomplete justification to the objectives proposed; Steps are mentioned but unclear; without justification to objectives	Moderate explanation of the purpose and need of the project Explanation of the specifications and the limitations of the existing systems not very satisfactory; limited information Only Some objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are not specified properly	

*Maximum Marks Rubric1 =4 =a (4)
Rubric3 =12= a(4)+ b(4)+ c(4)
Rubric5 =10= a (4) + b (6)

Rubric2 =12= a (4) + b (4) + c (4)
Rubric4 =12= a(4)+ b(4)+ c(4)

Rubric #R2: Mid-term Project Evaluation

Maximum Marks*: 12

		Level of Achievement				
		Excellent (4)	Good (3)	Average (2)	Poor (1)	Score
a	Design Methodology	Division of problem into modules and good selection of computing framework Appropriate design methodology and properly justification	Division of problem into modules and good selection of computing framework Design methodology not properly justified	Division of problem into modules but inappropriate selection of computing framework Design methodology not defined properly	Partial division of problem into modules and inappropriate selection of computing framework Design methodology not defined properly	
b	Planning of Project Work	Time frame properly specified and being followed	Time frame properly specified but being followed partly	Time frame properly specified, but not being followed	Time frame not properly specified	
c	Demonstration and Presentation	Objectives achieved as per time frame Contents of presentations are appropriate and well arranged Proper eye contact with audience and clear voice with good spoken language	Objectives achieved as per time frame Contents of presentations are appropriate but not well arranged Satisfactory demonstration, clear voice with good spoken language but eye contact not proper	Objectives achieved as per time frame Contents of presentations are appropriate but not well arranged Eye contact with few people and unclear voice	Objectives not achieved as per time frame Contents of presentations are not appropriate Demonstration not satisfactory	

*Maximum Marks Rubric1 =4 =a (4)
Rubric3 =12= a(4)+ b(4)+ c(4)
Rubric5 =10= a (4) + b (6)

Rubric2 =12= a (4) + b (4) + c (4)
Rubric4 =12= a(4)+ b(4)+ c(4)

Rubric #R3: End Semester Internal Project Evaluation

Maximum Marks*: 12

		Level of Achievement				
		Excellent (4)	Good (3)	Average (2)	Poor (1)	Score
a	Incorporation of Suggestions	Changes are made as per modifications suggested during mid term evaluation and new innovations added	Changes are made as per modifications suggested during mid term evaluation and good justification	All major changes are made as per modifications suggested during mid term evaluation	Suggestions during mid term evaluation are not incorporated	
b	Project Demonstration	All defined objectives are achieved Each module working well and properly demonstrated All modules of project are well integrated and system working is accurate	All defined objectives are achieved Each module working well and properly demonstrated Integration of all modules not done and system working is not very satisfactory	All defined objectives are achieved Modules are working well in isolation and properly demonstrated Modules of project are not properly integrated	Only some of the defined objectives are achieved Modules are not in proper working form that further leads to failure of integrated system	
c	Presentation	Contents of presentations are appropriate and well delivered Proper eye contact with audience and clear voice with good spoken language	Contents of presentations are appropriate and well delivered Clear voice with good spoken language but less eye contact with audience	Contents of presentations are appropriate but not well delivered Eye contact with only few people and unclear voice	Contents of presentations are not appropriate and not well delivered Poor eye contact with audience and unclear voice	

*Maximum Marks Rubric1 =4 =a (4)
Rubric3 =12= a(4)+ b(4)+ c(4)
Rubric5 =10= a (4) + b (6)

Rubric2 =12= a (4) + b (4) + c (4)
Rubric4 =12= a(4)+ b(4)+ c(4)

Rubric #R4: Project Report Evaluation

Maximum Marks*: 12

		Level of Achievement				Score
		Excellent (4)	Good (3)	Average (2)	Poor (1)	
a	Project Report	Project report is according to the specified format References and citations are appropriate and well mentioned	Project report is according to the specified format References and citations are appropriate but not mentioned well	Project report is according to the specified format but some mistakes In-sufficient references and citations	Project report not prepared according to the specified format References and citations are not appropriate	
b	Description of Concepts and Technical Details	Complete explanation of the key concepts and strong description of the technical requirements of the project	Complete explanation of the key concepts but in-sufficient description of the technical requirements of the project	Incomplete explanation of the key concepts and in-sufficient description of the technical requirements of the project	Inappropriate explanation of the key concepts and poor description of the technical requirements of the project	
c	Conclusion and Discussion	Results are presented in very appropriate manner Project work is well summarized and concluded Future extensions in the project are well specified	Results are presented in good manner Project work summary and conclusion not very appropriate Future extensions in the project are specified	Results presented are not much satisfactory Project work summary and conclusion not very appropriate Future extensions in the project are not specified	Results are not presented properly Project work is not summarized and concluded Future extensions in the project are not specified	

*Maximum Marks Rubric1 =4 =a (4)   Rubric2 =12= a (4) + b (4) + c (4)
Rubric3 =12= a(4)+ b(4)+ c(4)   Rubric4 =12= a(4)+ b(4)+ c(4)
Rubric5 =10= a (4) + b (6)

Maximum Marks*: 10

Level of Achievement					
		Excellent (4)	Good (3)	Average (2)	Poor (1)	Score
a	Technical Knowledge and Awareness related to the Project	Extensive knowledge and awareness related to the project	Fair knowledge and awareness related to the project	Lacks sufficient knowledge and awareness	Poor knowledge and no awareness related to project	

Level of Achievement					
		Excellent (6)	Good (5)	Average (3)	Poor (1)	Score
b	Regularity and Attendance	Reports to the guide regularly and consistent in work	Reports to the guide very often but not very consistent	Reports to the guide but lacks consistency	Irregular and inconsistent in work	

*Maximum Marks Rubric1 =4 =a (4)　　　　　　　　　　　　Rubric2 =12= a (4) + b (4) + c (4)
Rubric3 =12= a(4)+ b(4)+ c(4)　　　　　　　　　　　　　Rubric4 =12= a(4)+ b(4)+ c(4)
Rubric5 =10= a (4) + b (6)