



Course Outcomes Assessment Process (Regulation NRI20)

Assessment is a process of providing instructors with data for improving their teaching methods and for offering their guidance and motivation to the students and to get them actively involved in their own learning. Assessment gives the essential information about what the students are learning and about the extent to which the teaching goals are met. The assessment process has adopted the two methods such as

1. Direct Assessment Method
2. Indirect Assessment Method

Assessment of Theory Courses:

Each course is evaluated by the assessment of course outcomes by direct and indirect assessment tools which were predefined. Direct assessment is carried out by Internal and external assessment and indirect assessment is carried out by the course end survey (CO learning assessment) . Fig 1 shows course assessment process for theory courses.

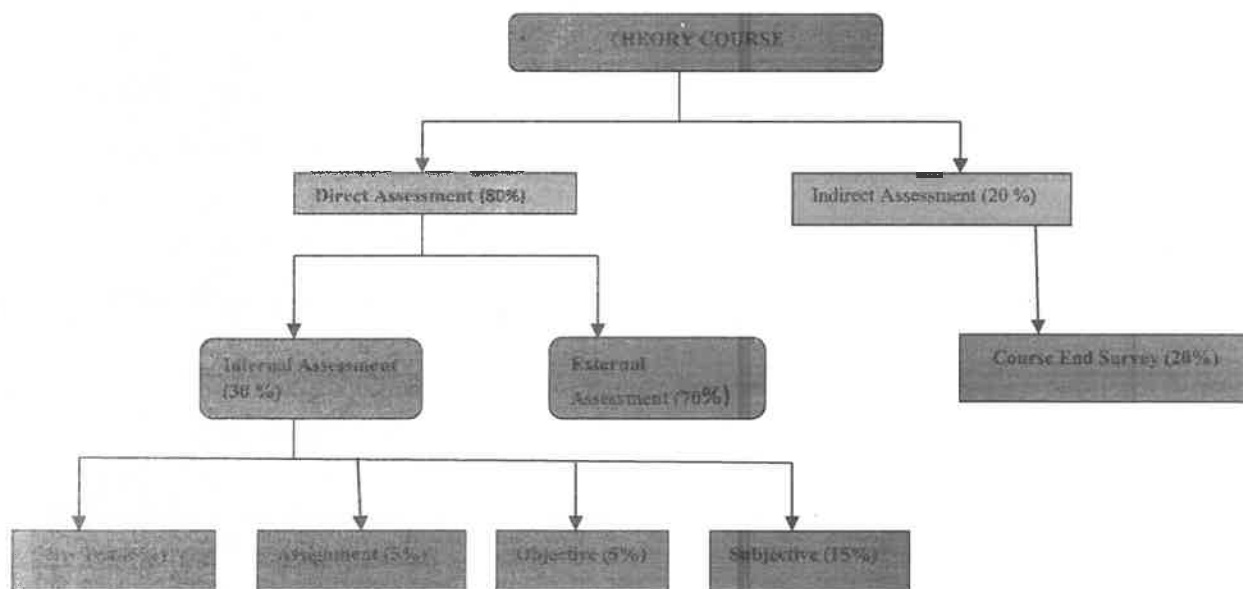


Fig 1. Course Assessment Process for Theory Course



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



I. Direct Assessment:

Direct assessment of theory courses is carried out by Internal and External assessment of each defined outcome of a course. Internal assessment by Assignment, Subjective Examinations, Objective Examinations and External Assessment by End Examination.

i. Internal Assessment:

- **Assignment:** Is a means of enhancing the learning process of the students on regular basis, which is done by direct assessment tool assignments as desired by the course coordinator after attending the teaching – learning process of particular course outcome.
- **Subjective Examinations:** Subjective examinations conducted as per the Autonomous examination cell schedule by the course coordinator for one and half an hour. Two such examinations were conducted for a course covering all the course outcomes of the course.
- **Objective Examination:** Objective exam for twenty minutes with twenty questions is conducted twice for a course with the question bank received from concerned department.
- **Class Test:** class test was conducted as per the Autonomous examination cell schedule by the course coordinator for one hour. Two such examinations were conducted for a course covering all the course outcomes of the course.

ii. External Assessment:

Semester end comprehensive examination conducted by Autonomous exam cell for three hours.

II. Indirect Assessment:

Indirect assessment of theory course is carried out by conducting survey on course learning outcomes from the students at the end of the semester.



Assessment of Practical Courses:

The Practical course assessment process is shown in Fig 2.

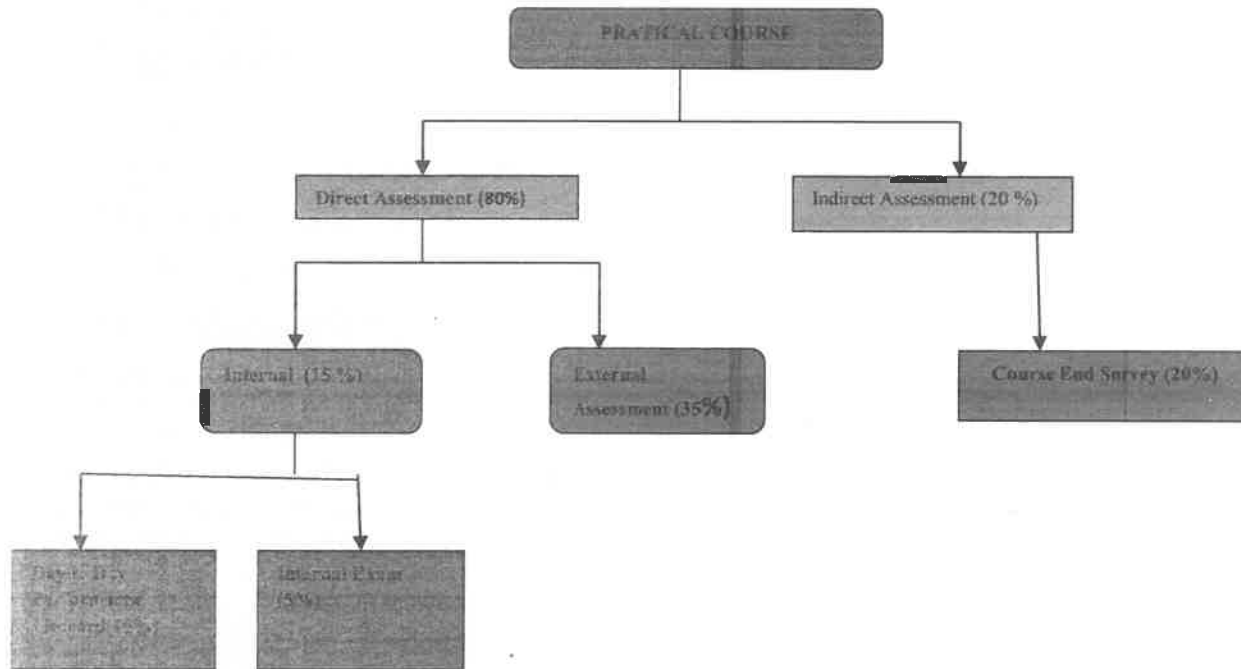


Fig : 2 Course Assessment Process for Practical Courses

I. Direct Assessment

Direct Assessment of practical courses is carried out by day to day performance, Internal and external examination.

Day to Day Evaluation: Practical courses are the courses which wets the student hands in the concepts they learned in theory classes. Day to Day performance of the student is assessed by the evaluation of experimentation results, reports presented through lab records and vivo voce conducted after the completion of experimentation.

Internal Examination: Almost at the end of semester after completion of all the experiments an internal examination for three hours will be conducted by the



course coordinator to assess the skills acquired by the student through theory classes and the practical sessions held.

External Assessment:

End Examination: Three hours exam conducted in the institution as per the schedule of Autonomous exam cell and in presence of external examiner. Where the performance of the student in conducting the given experiment is evaluated by the external examiner along with vivo voce conducted at the end of experimentation to understand the correlation of the experimentation and the level of knowledge acquired by the student.

II. Indirect Assessment:

Indirect assessment of lab course is carried by conducting survey on course learning outcomes from the students at the end of the semester.

Assessment of Seminar

Seminar makes students to improve their innovative and intellectual capabilities. Hence every effort is made to involve them in real time work. Evaluation is taken up through internal assessment. Assessment is done by conducting three internal reviews namely First Review, Second Review and Third Review. The Seminar course assessment process is shown in Fig 3.

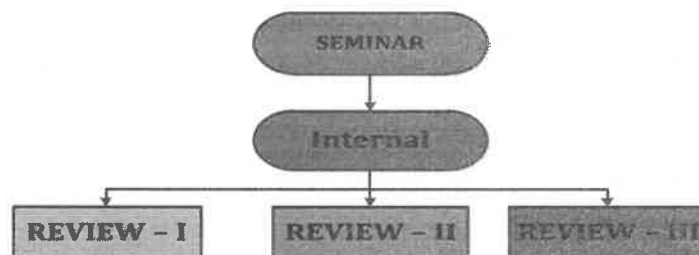


Fig : 3 Course Assessment Process for Seminar Course

- First Review: Student presents seminar topic and also mapping with the program outcomes which will be thoroughly reviewed and shall be evaluated by the seminar in charge as per the rubrics.



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



- Second Review: Students are instructed to give a PowerPoint presentation for the Seminar topic regarding Model development and work progress.
- Third Review: Students are instructed to submit Design/Experimental document of the project and give a PowerPoint presentation with Conclusions. And submit complete seminar report.
- **Rubrics for Seminar Evaluations:**

ASSESSMENT	Attainment
$\leq 90\%$	1
91 TO 94%	2
$> 95\%$	3

Assessment of Project

Project works indulge students to improve their innovative and intellectual capabilities. Hence every effort is made to involve them in real time work by conduction frequent internal reviews by the project committee. Assessment is taken up through assessments. It includes internal assessments which are carried by reviews and an external assessment which is carried by viva-voce.

Internal Assessment: Day to day activity of the project batch is monitored by the project guide. Progress of each project is assessed by the Project Review Committee (PRC) and the project guide. Internal marks are awarded based on the weekly progress, performance in the reviews and project report submitted at the end of the semesters. The PRC will assess the Individual and team performance with 7 assessment tools as follows.

1. Interim Report-1(Analysis):- Problem identification, solution to problem, SRS report submission
2. Interim Report-2(Design):- Design document for the proposed solution
3. Review1:- Presentation on Analysis and Design.
4. Interim Report-3(Coding):- Implementation and Testing of proposed design.



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



5. Interim Report-4(execution): Execution
6. Review-2:- Overall presentation of project
7. Document Submission:- verification and submission of project documentation.

External Evaluation:

External evaluation is done by the assessment of project report, presentation of project and Vivo-voce conducted by the external examiner deputed by JNTUK along with Head of the Department and guide as per the schedules.

Rubrics for Assessment of Project Evaluations:

ASSESSMENT	Attainment
$\leq 90\%$	1
91 TO 94%	2
$> 95\%$	3

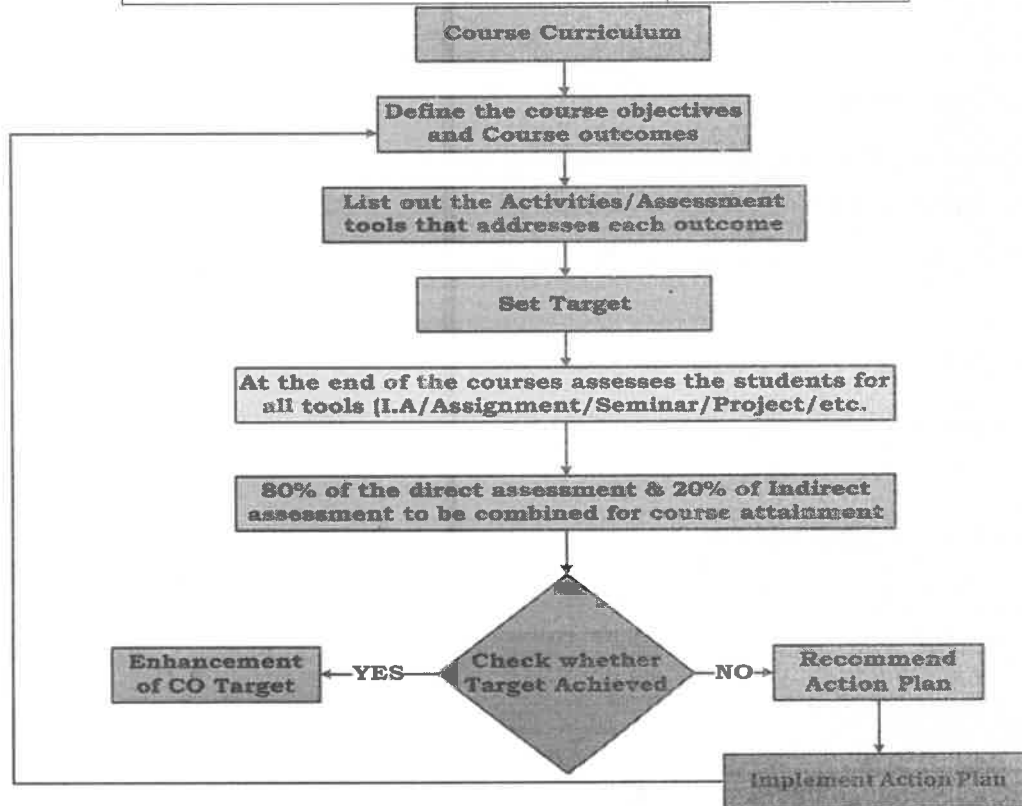


Fig 4 Course Outcome Assessment Process

**Table 1. Direct and Indirect Assessment Methods**

SI.No	Assessment Method	Description
Direct Assessment Methods		
1	Internal Assessment Test	It is a metric to continuously assess the attainment of course outcomes, students' learning domains and thus improve the teaching learning process. The Internal Assessment (IA) marks in a theory paper shall be based on two tests (Subjective Test1, Subjective Test2, Class Test 1, Class Test 2) conducted at the end of 8 and 16 weeks of each semester respectively. Best of the two tests shall be the Internal Assessment Marks for the relevant subject.
2	Internal Lab Assessment Test	Lab Assessment is a metric to mainly assess students' Practical knowledge in their coding capabilities. In the case of a Practical exam, the IA marks shall be based on the laboratory records, day to day evaluation and one internal test.
3	Theory Semester Examination	End Semester theory examinations are the metric to assess whether all the course outcomes are attained with respect to course objectives framed by the instructor. Practical semester examination focuses on conducting of programs and viva-voce.
4	Practical Semester Examination	
5	Assignment	Assignment is a metric to mainly assess students' subject knowledge in the course.
6	Seminar	The IA marks in the case of projects and Seminars in the final year, second year and third year shall be based on the evaluation by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
7	Project	
8	Project Viva Voce	Viva-voce examination in project work shall be conducted batch-wise.
Indirect Assessment Methods		
9	Course End Survey by Students	Collect information from the students to assess the learning outcomes of the course at the end of the semester.

Table 2. Course Outcome Assessment methodology, tools and frequency of use for direct and indirect method

Cours	Descriptio	Assessment type	Frequen	Evaluati on done	Revie
-------	------------	-----------------	---------	------------------	-------



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212



URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in

e	n				cy	by	wer
Theor y (Direc t)	It is a process to assess the attainment of course outcomes, student's learning domains and thus improve the teaching – learning process.	Internal	Day to Day Assessments	Left to Course Instructor	Minimum one for each outcome	Course Instructor	PAC
		Assessment	MID-I,	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			MID-II				
			Quiz-I,	Objective type	Twice for course mid and end of semester	Course Instructor	PAC
			Quiz-II				
			Class Test I	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			Class Test II				
External Assessment	Course End /University Examination	Descriptive type	Once in a semester at the end	University			
Theor y (Indir ect)		CO learning Assessment	Course end survey on outcomes		Once in a semester at the end	Course Instructor	PAC
Practi cal	provide students with	Internal Assessment	Experimentation, viva, Record		For every experiment	Course Instructor	PAC



(Direct)	firsthand experience with course concepts and with the opportunity to explore methods used in their discipline.	Internal exam	After completion of all experiments	Course Instructor	PAC				
						External Assessment	Course End /University Examination	Once in a semester at the end	University appointed external
						CO learning Assessment	Course end survey on outcomes	Once in a semester at the end	Course Instructor PAC
Practical	To encourage students in developing their skills and move them towards research.	Internal Assessment	First Review	Once per course during the semester	Seminar In charge	PAC			
(Indirect)			Second Review						
			Third Review						
Project	Enhance student learning goals, including standards based content and skills such as critical thinking/problem solving,	Internal Assessment	First Review	For Problem Identification	Once per course during the semester	Project Review committee			



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469686, Email : principal@nriit.edu.in



collaborati on and self- managem ent		Second Review			
		Third Review			
		Fourth Review			
		Fifth Review			
		Sixth review			
		Seventh review			
	External Assessment	Viva Voice	Once in a semester at the end	University appointed external	

Signature of the Program Coordinator

Signature of the Principal

PRINCIPAL
NRI Institute of Technology
Pothavarappadu (V), Agiripalli (V)



Program Outcomes and Program Specific Outcomes Assessment Process (Regulation NRA20)

In quality teaching and learning process, mapping and attainment is becoming an important phase. The compliance of continuous improvement can be done by deciding action plan for weak attainment.

Program Outcomes (POs) and Program Specific Outcomes (PSOs) are broader statements than COs that describe what the students are expected to attain after their graduation. The program outcomes are assessed with the help of course outcomes of the relevant Courses through direct and indirect methods.

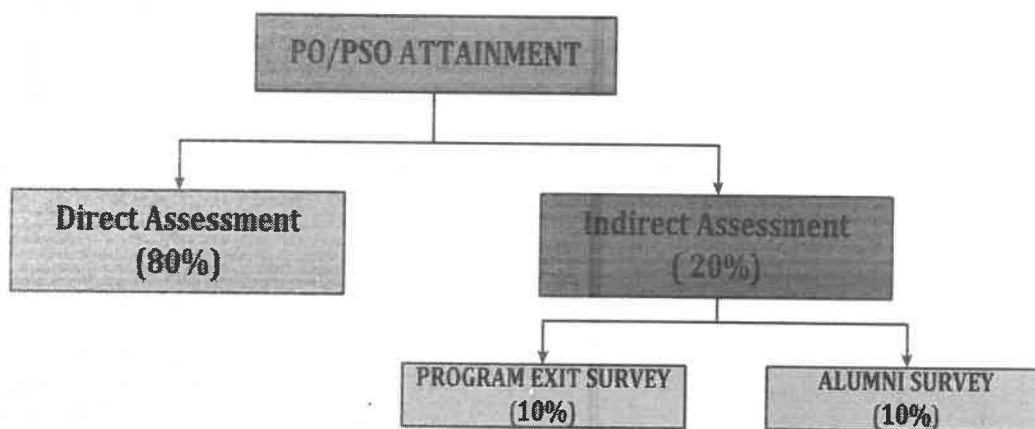


Fig 1. PO/PSO Attainment

Direct Assessment Method

Direct measures are assessed through direct examinations or observations of student knowledge or skills against measurable course outcomes. Throughout the semester the faculty records the performance of each student in attaining each course outcome.

Indirect Assessment Method

Indirect assessment strategies are implemented by embedding them in the Program exit survey, and Alumni Survey. Finally, program outcomes are assessed with above mentioned data.



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Direct Assessment Method

Direct measures are assessed through direct examinations or observations of student knowledge or skills against measureable course outcomes. Throughout the semester the faculty records the performance of each student in attaining each course outcome.

Indirect Assessment Method

Indirect assessment strategies are implemented by embedding them in the Program exit survey, and Alumni Survey. Finally, program outcomes are assessed with above mentioned data.

PO/PSO Assessment Weightage:

Direct attainment is through CO assessment through courses which is given a weight age of 80% and indirect Attainment is through surveys given a weightage of 20%.

Table 1. PO/PSO Assessment Weightage

Sno	Assessment Method	Assessment	Contribution weight age	
1	Direct	CO Assessment through courses	80%	80%
2	Indirect	Program Exit Survey	10%	20%
		Alumni feedback	10%	

Use of Rubrics for Evaluation and Assessment of POs &PSOs:

The Course/Program outcomes are difficult to measure such as assessing critical thinking, creativity, analytical skills, and problem solving etc. Hence the department has adopted Rubrics to assess the POs and COs wherever appropriate. The Rubric criteria are either developed by Program Assessment Committee.



PO/PSO assessment is done by giving 80% weight age to direct assessment and 20% weight age to indirect assessment.

i). **Direct assessment:** Direct assessment is done through direct assessment tools mentioned below table which is carried to PO/PSO as direct attainment through courses.

Table 2. POs & PSOs Direct and Indirect Assessment Methods

SI.No	Assessment Method	Description
Direct Assessment Methods		
1	Internal Assessment Test	It is a metric to continuously assess the attainment of course outcomes, students' learning domains and thus improve the teaching learning process. The Internal Assessment (IA) marks in a theory paper shall be based on two tests (Subjective Test1, Subjective Test2, Class Test 1, Class Test 2) conducted at the end of 8 and 16 weeks of each semester respectively. Best of the two tests shall be the Internal Assessment Marks for the relevant subject.
2	Internal Lab Assessment Test	Lab Assessment is a metric to mainly assess students' Practical knowledge in their coding capabilities. In the case of a Practical exam, the IA marks shall be based on the laboratory records, day to day evaluation and one internal test.
3	Theory Semester Examination	End Semester theory examinations are the metric to assess whether all the course outcomes are attained with respect to course objectives framed by the instructor. Practical semester examination focuses on conducting of programs and viva-voce.
4	Practical Semester Examination	
5	Assignment	Assignment is a metric to mainly assess students' subject knowledge in the course.
6	Seminar	The IA marks in the case of projects and Seminars in the final year, second year and third year shall be based on the evaluation by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
7	Project	
8	Project Viva Voce	Viva-voce examination in project work shall be conducted batch-wise.
Indirect Assessment Methods		
9	Program Exit survey	Collect the feedback about the program at the time of graduation.
10	Alumni Survey	Collect variety of information about program satisfaction from the graduate



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Table 3. PO/PSO Frequency of Direct Assessment tools

Course	Description	Assessment Type			Frequency	Evaluation Done	Reviewer
Theory (Direct)	It is a process to assess the attainment of course outcomes, student's learning domains and thus improve the teaching – learning process.	Internal Assessment	Day to Day Assessments	Left to Course Instructor	Minimum one for each outcome	Course Instructor	PAC
			MID-I,	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			MID-II				
			Quiz-I,	Objective type	Twice for course mid and end of semester	Course Instructor	PAC
			Quiz-II				
			Class Test-I	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			Class Test-II				
External Assessment	Course End /University Examination	Descriptive type	Once in a semester at the end	University			
Theory (Indirect)		CO learning Assessment	Course end survey on outcomes		Once in a semester at the end	Course Instructor	PAC
Practical	provide students with firsthand experience with course concepts and with the opportunity to explore methods	Internal Assessment	Experimentation, viva, Record		For every experiment	Course Instructor	PAC
(Direct)			Internal exam		After completion of all experiments	Course Instructor	PAC
		External Assessment	Course End /University Examination		Once in a semester at the end	University appointed external	
Practic		CO learning	Course end survey		Once in a	Course	PAC



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



al (Indire ct)	used in their discipline.	Assessment	on outcomes		semester at the end	Instructor	
Semin ar	To encourage students in developing their skills and move them towards research.	Internal Assessment	First Review	For title and abstract finalizati on	Once per course during the semester	Seminar In charge	PAC
			Second Review				
			Third Review				
Project	Enhance student learning goals, including standards based content and skills such as critical thinking/pr oblem solving, collaborati on and self- managemen t	Internal Assessment	Interim Report I	For Analysis of Problem	Once per course during the semester	Project Review committe e	PAC
			Interim Report II Review I				
			Interim Report III Interim Report IV				
			Review II				
			Document Submission				
		External Assessment	Viva Voice	Once in a semester at the end	University appointed external		
Note: Program Assessment Committee (PAC) Project Review Committee (PRC)							

ii) **Indirect Assessment:** It is done through exit survey, alumni survey, each given a weight age of 10%.

Table 4. PO/PSO Frequency of Indirect Assessment tools

Assessment	Assessment type	Frequency
Indirect	Program Exit survey	Once in a academic Year
	Alumni Survey	



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



The Step-by-step process for assessing Program Outcomes and Program Specific Outcomes is shown in the **Table 5**

Table 5. Process for Assessing Program Outcomes and Program Specific Outcomes

Step 1: The program coordinator analyses each outcome into elements (different abilities specified in the outcome) and a set of attributes are defined for each element. (actions that explicitly specify mastery of the abilities specified). In addition generate well designed surveys to assess the outcome.
Step 2: For each outcome define performance indicators (Assessment criteria) and their targets.
Step 3: Identify / Select courses that address the outcome (each course contributes to at least one of the outcomes). Hence, each outcome is assessed in several courses to ensure that students acquire an appropriate level in terms of knowledge / skills of an outcome
Step 4: The course owner collects the qualitative and quantitative data and uses for continual process of outcome assessment.
Step 5: The Program Assessment Committee analyze the collected data. If the assessed data meets the performance target which are specified in Step 2 , the outcome is attained , otherwise consider Step 6 . For the Next Batch increase 5% of attainment value if the PO/PSO attained if not attained retain the same value
Step 6: The Department Assessment Committee recommends content delivery methods / course outcomes /curriculum improvements as needed.

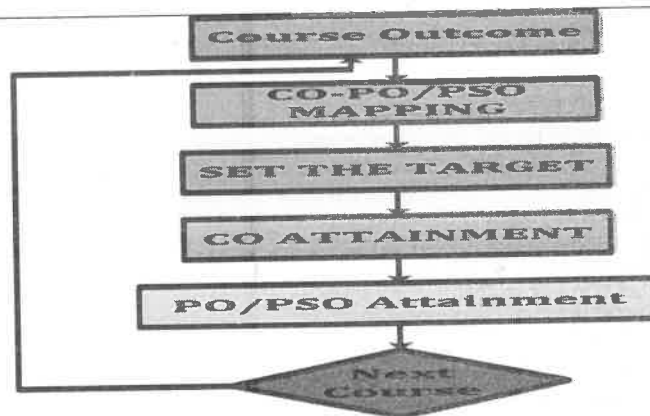


Fig 2. Process of Program Outcome Assessment



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in

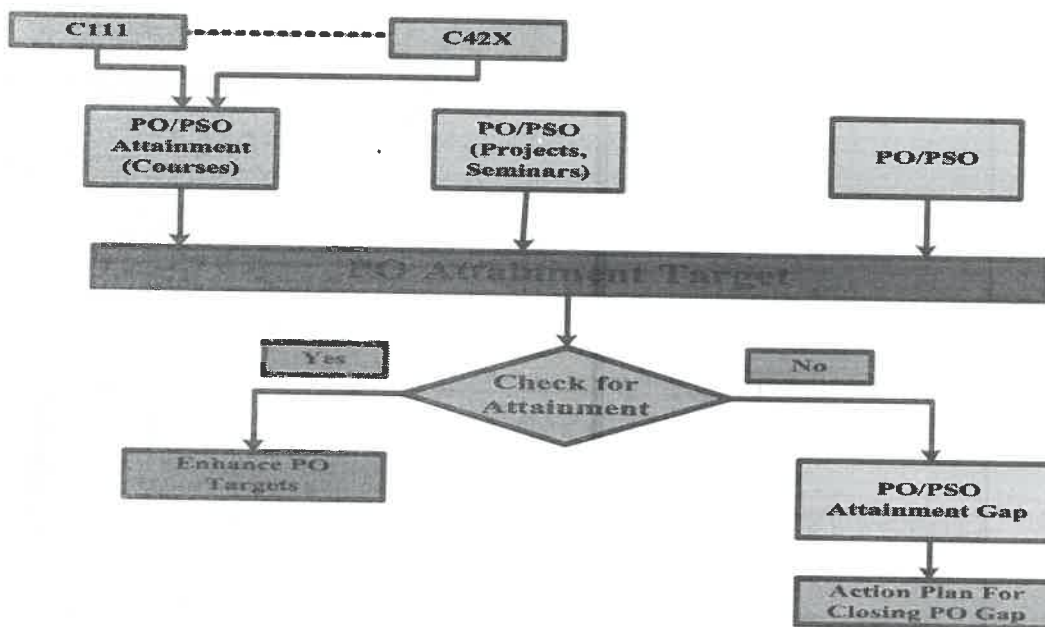


Fig 3 Outlines of steps before PO / PSO Attainment

Signature of the Program Coordinator

Signature of the Principal

PRINCIPAL
NRI Institute of Technology
Pothavarappadu (V), Agiripalli !!

CTO



Course Outcomes Assessment Process (Regulation NRI18)

Assessment is a process of providing instructors with data for improving their teaching methods and for offering their guidance and motivation to the students and to get them actively involved in their own learning. Assessment gives the essential information about what the students are learning and about the extent to which the teaching goals are met. The assessment process has adopted the two methods such as

1. Direct Assessment Method
2. Indirect Assessment Method

Assessment of Theory Courses:

Each course is evaluated by the assessment of course outcomes by direct and indirect assessment tools which were predefined. Direct assessment is carried out by Internal and external assessment and indirect assessment is carried out by the course end survey (CO learning assessment) . Fig 1 shows course assessment process for theory courses.

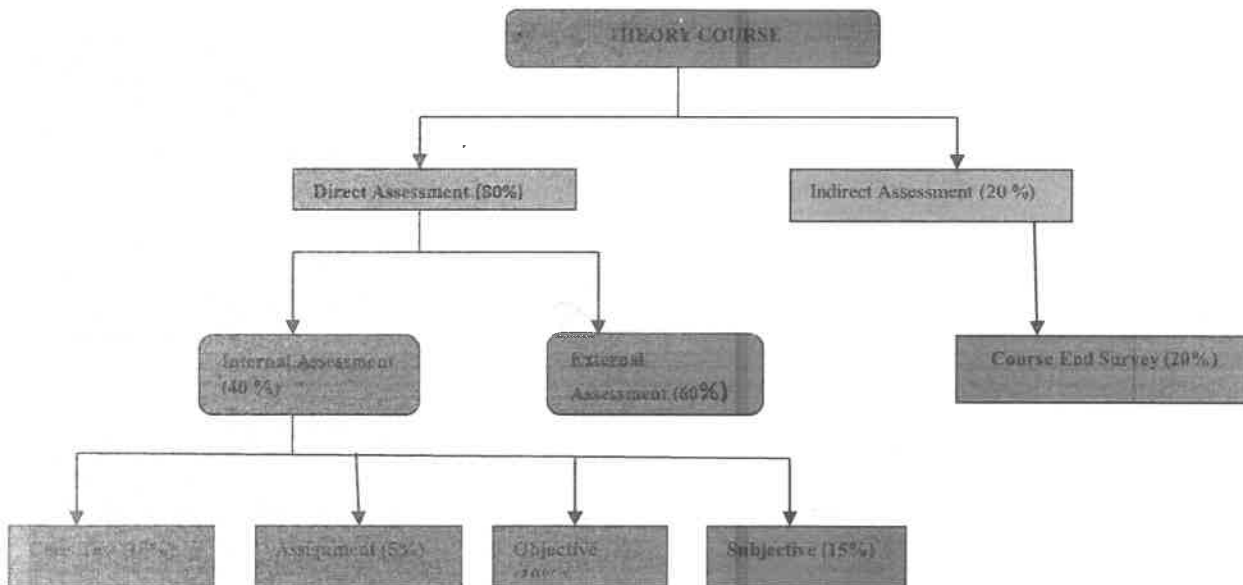


Fig 1. Course Assessment Process for Theory Course



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



I. Direct Assessment:

Direct assessment of theory courses is carried out by Internal and External assessment of each defined outcome of a course. Internal assessment by Assignment, Subjective Examinations, Objective Examinations and External Assessment by End Examination.

i. Internal Assessment:

- **Assignment:** Is a means of enhancing the learning process of the students on regular basis, which is done by direct assessment tool assignments as desired by the course coordinator after attending the teaching – learning process of particular course outcome.
- **Subjective Examinations:** Subjective examinations conducted as per the Autonomous examination cell schedule by the course coordinator for one and half an hour. Two such examinations were conducted for a course covering all the course outcomes of the course.
- **Objective Examination:** Objective exam for twenty minutes with twenty questions is conducted twice for a course with the question bank received from concerned department.
- **Class Test:** class test was conducted as per the Autonomous examination cell schedule by the course coordinator for one hour. Two such examinations were conducted for a course covering all the course outcomes of the course.

ii. External Assessment:

Semester end comprehensive examination conducted by Autonomous exam cell for three hours.

II. Indirect Assessment:

Indirect assessment of theory course is carried out by conducting survey on course learning outcomes from the students at the end of the semester.



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Assessment of Practical Courses:

The Practical course assessment process is shown in Fig 2.

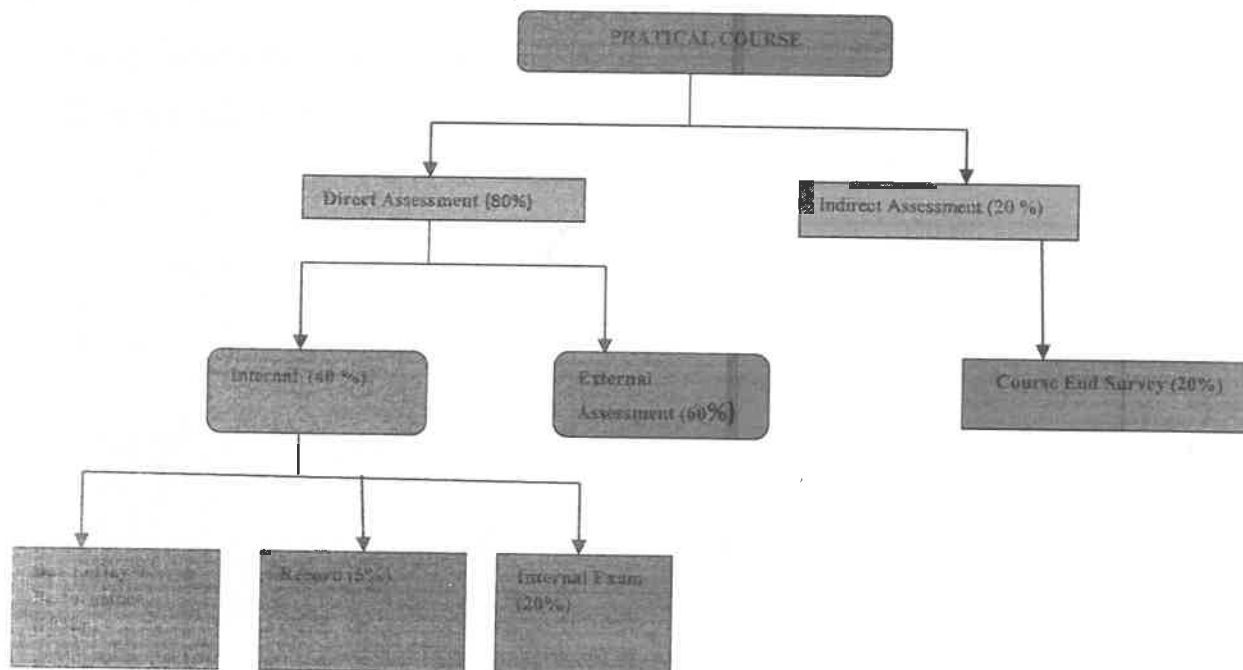


Fig : 2 Course Assessment Process for Practical Courses

I. Direct Assessment

Direct Assessment of practical courses is carried out by day to day performance, Internal and external examination.

Day to Day Evaluation: Practical courses are the courses which wets the student hands in the concepts they learned in theory classes. Day to Day performance of the student is assessed by the evaluation of experimentation results, reports presented through lab records and vivo voce conducted after the completion of experimentation.

Internal Examination: Almost at the end of semester after completion of all the experiments an internal examination for three hours will be conducted by the course coordinator to assess the skills acquired by the student through theory classes and the practical sessions held.



External Assessment:

End Examination: Three hours exam conducted in the institution as per the schedule of Autonomous exam cell and in presence of external examiner. Where the performance of the student in conducting the given experiment is evaluated by the external examiner along with vivo voce conducted at the end of experimentation to understand the correlation of the experimentation and the level of knowledge acquired by the student.

II. Indirect Assessment:

Indirect assessment of lab course is carried by conducting survey on course learning outcomes from the students at the end of the semester.

Assessment of Seminar

Seminar makes students to improve their innovative and intellectual capabilities. Hence every effort is made to involve them in real time work. Evaluation is taken up through internal assessment. Assessment is done by conducting three internal reviews namely First Review, Second Review and Third Review. The Seminar course assessment process is shown in Fig 3.

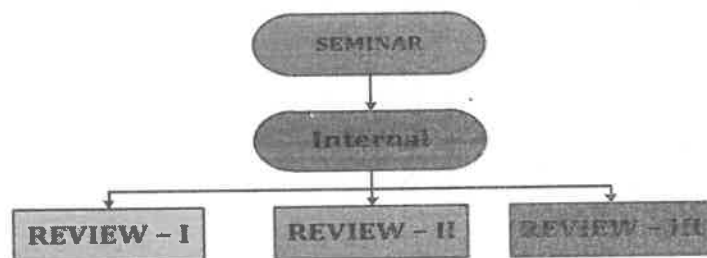


Fig : 3 Course Assessment Process for Seminar Course

- First Review: Student presents seminar topic and also mapping with the program outcomes which will be thoroughly reviewed and shall be evaluated by the seminar in charge as per the rubrics.
- Second Review: Students are instructed to give a PowerPoint presentation for the Seminar topic regarding Model development and work progress.



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



- Third Review: Students are instructed to submit Design/Experimental document of the project and give a PowerPoint presentation with Conclusions. And submit complete seminar report.

- **Rubrics for Seminar Evaluations:**

ASSESSMENT	Attainment
<=90%	1
91 TO 94%	2
>95%	3

Assessment of Project

Project works indulge students to improve their innovative and intellectual capabilities. Hence every effort is made to involve them in real time work by conduction frequent internal reviews by the project committee. Assessment is taken up through assessments. It includes internal assessments which are carried by reviews and an external assessment which is carried by viva-voce.

Internal Assessment: Day to day activity of the project batch is monitored by the project guide. Progress of each project is assessed by the Project Review Committee (PRC) and the project guide. Internal marks are awarded based on the weekly progress, performance in the reviews and project report submitted at the end of the semesters. The PRC will assess the Individual and team performance with 7 assessment tools as follows.

1. Interim Report-1(Analysis):- Problem identification, solution to problem, SRS report submission
2. Interim Report-2(Design):- Design document for the proposed solution
3. Review1:- Presentation on Analysis and Design.
4. Interim Report-3(Coding):- Implementation and Testing of proposed design.
5. Interim Report-4(execution): Execution
6. Review-2:- Overall presentation of project



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



7. Document Submission:- verification and submission of project documentation.

External Evaluation:

External evaluation is done by the assessment of project report, presentation of project and Vivo-voce conducted by the external examiner deputed by JNTUK along with Head of the Department and guide as per the schedules.

Rubrics for Assessment of Project Evaluations:

ASSESSMENT	Attainment
$\leq 90\%$	1
91 TO 94%	2
$> 95\%$	3

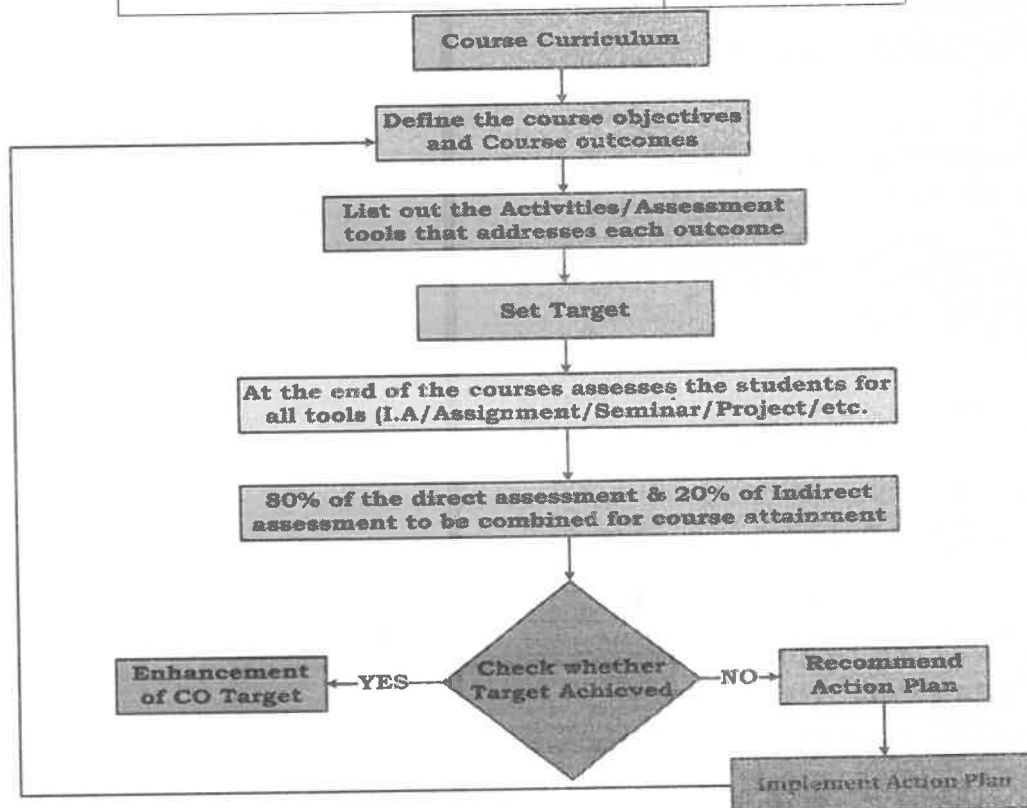


Fig 4 Course Outcome Assessment Process



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Table 1. Direct and Indirect Assessment Methods

Sl.No	Assessment Method	Description
Direct Assessment Methods		
1	Internal Assessment Test	It is a metric to continuously assess the attainment of course outcomes, students' learning domains and thus improve the teaching learning process. The Internal Assessment (IA) marks in a theory paper shall be based on two tests (Subjective Test1, Subjective Test2, Class Test 1,Class Test 2) conducted at the end of 8 and 16 weeks of each semester respectively. Best of the two tests shall be the Internal Assessment Marks for the relevant subject.
2	Internal Lab Assessment Test	Lab Assessment is a metric to mainly assess students' Practical knowledge in their coding capabilities. In the case of a Practical exam, the IA marks shall be based on the laboratory records, day to day evaluation and one internal test.
3	Theory Semester Examination	End Semester theory examinations are the metric to assess whether all the course outcomes are attained with respect to course objectives framed by the instructor. Practical semester examination focuses on conducting of programs and viva-voce.
4	Practical Semester Examination	
5	Assignment	Assignment is a metric to mainly assess students' subject knowledge in the course.
6	Seminar	The IA marks in the case of projects and Seminars in the final year, second year and third year shall be based on the evaluation by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
7	Project	
8	Project Viva Voce	Viva-voce examination in project work shall be conducted batch-wise.
Indirect Assessment Methods		
9	Course End Survey by Students	Collect information from the students to assess the learning outcomes of the course at the end of the semester.



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Table 2. Course Outcome Assessment methodology, tools and frequency of use for direct and indirect method

Course	Description	Assessment type			Frequency	Evaluation done by	Reviewer
		Internal	Day to Day Assessments	Left to Course Instructor			
Theory (Direct)	It is a process to assess the attainment of course outcomes, student's learning domains and thus improve the teaching – learning process.	Internal	Day to Day Assessments	Left to Course Instructor	Minimum one for each outcome	Course Instructor	PAC
		Assessment	MID-I,	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			MID-II				
		Assessment	Quiz-I,	Objective type	Twice for course mid and end of semester	Course Instructor	PAC
			Quiz-II				
		Assessment	Class Test I	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			Class Test II				
External Assessment	Course End /University Examination	Descriptive type	Once in a semester at the end	University			
Theory (Indirect)	CO learning Assessment	Course end survey on outcomes		Once in a semester at the end	Course Instructor	PAC	



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Practical	provide students with firsthand experience with course concepts and with the opportunity to explore methods used in their discipline.	Internal Assessment	Experimentation, viva, Record		For every experiment	Course Instructor	PAC
(Direct)			Internal exam		After completion of all experiments	Course Instructor	PAC
		External Assessment	Course End /University Examination		Once in a semester at the end	University appointed external	
Practical		CO learning Assessment	Course end survey on outcomes		Once in a semester at the end	Course Instructor	PAC
(Indirect)							
Seminar	To encourage students in developing their skills and move them towards research.	Internal Assessment	First Review	For title and abstract finalization	Once per course during the semester	Seminar In charge	PAC
	Second Review						
	Third Review						

Faint text at the bottom left of the page, possibly a footer or additional contact information.



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212



URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in

Project	Enhance student learning goals, including standards based content and skills such as critical thinking/problem solving, collaboration and self-management	Internal Assessment	First Review	For Problem Identification	Once per course during the semester	Project Review committee	PAC
			Second Review				
			Third Review				
			Fourth Review				
			Fifth Review				
			Sixth review				
			Seventh review				
		External Assessment	Viva Voice	Once in a semester at the end	University appointed external		

Signature of the Program Coordinator

Signature of the Principal

PRINCIPAL
NRI Institute of Technology
Pothavarappadu (V), Agiripalli (M)



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Program Outcomes and Program Specific Outcomes Assessment Process (Regulation NRI18)

In quality teaching and learning process, mapping and attainment is becoming an important phase. The compliance of continuous improvement can be done by deciding action plan for weak attainment.

Program Outcomes (POs) and Program Specific Outcomes (PSOs) are broader statements than COs that describe what the students are expected to attain after their graduation. The program outcomes are assessed with the help of course outcomes of the relevant Courses through direct and indirect methods.

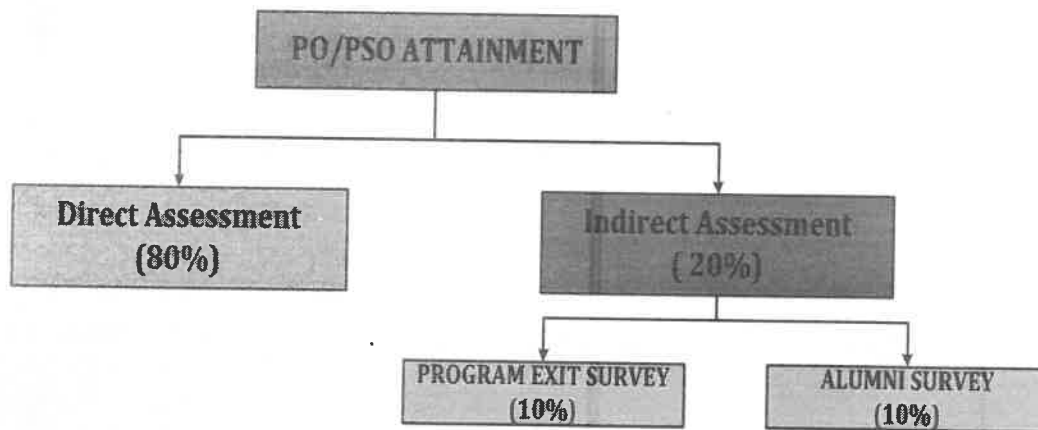


Fig 1. PO/PSO Attainment

Direct Assessment Method

Direct measures are assessed through direct examinations or observations of student knowledge or skills against measurable course outcomes. Throughout the semester the faculty records the performance of each student in attaining each course outcome.

Indirect Assessment Method

Indirect assessment strategies are implemented by embedding them in the Program exit survey, and Alumni Survey. Finally, program outcomes are assessed with above mentioned data.



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nrit.edu.in



Direct Assessment Method

Direct measures are assessed through direct examinations or observations of student knowledge or skills against measurable course outcomes. Throughout the semester the faculty records the performance of each student in attaining each course outcome.

Indirect Assessment Method

Indirect assessment strategies are implemented by embedding them in the Program exit survey, and Alumni Survey. Finally, program outcomes are assessed with above mentioned data.

PO/PSO Assessment Weightage:

Direct attainment is through CO assessment through courses which is given a weight age of 80% and indirect Attainment is through surveys given a weightage of 20%.

Table 1. PO/PSO Assessment Weightage

Sno	Assessment Method	Assessment	Contribution weight age	
1	Direct	CO Assessment through courses	80%	80%
2	Indirect	Program Exit Survey	10%	20%
		Alumni feedback	10%	

Use of Rubrics for Evaluation and Assessment of POs &PSOs:

The Course/Program outcomes are difficult to measure such as assessing critical thinking, creativity, analytical skills, and problem solving etc. Hence the department has adopted Rubrics to assess the POs and COs wherever appropriate. The Rubric criteria are either developed by Program Assessment Committee.



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



PO/PSO assessment is done by giving 80% weight age to direct assessment and 20% weight age to indirect assessment.

i).Direct assessment: Direct assessment is done through direct assessment tools mentioned below table which is carried to PO/PSO as direct attainment through courses.

Table 2.POs &PSOs Direct and Indirect Assessment Methods

SI.No	Assessment Method	Description
Direct Assessment Methods		
1	Internal Assessment Test	It is a metric to continuously assess the attainment of course outcomes, students' learning domains and thus improve the teaching learning process. The Internal Assessment (IA) marks in a theory paper shall be based on two tests (Subjective Test1, Subjective Test2,Class Test 1,Class Test 2) conducted at the end of 8 and 16 weeks of each semester respectively. Best of the two tests shall be the Internal Assessment Marks for the relevant subject.
2	Internal Lab Assessment Test	Lab Assessment is a metric to mainly assess students' Practical knowledge in their coding capabilities. In the case of a Practical exam, the IA marks shall be based on the laboratory records, day to day evaluation and one internal test.
3	Theory Semester Examination	End Semester theory examinations are the metric to assess whether all the course outcomes are attained with respect to course objectives framed by the instructor. Practical semester examination focuses on conducting of programs and viva-voce.
4	Practical Semester Examination	
5	Assignment	Assignment is a metric to mainly assess students' subject knowledge in the course.
6	Seminar	The IA marks in the case of projects and Seminars in the final year, second year and third year shall be based on the evaluation by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
7	Project	
8	Project Viva Voce	Viva-voce examination in project work shall be conducted batch-wise.
Indirect Assessment Methods		
9	Program Exit survey	Collect the feedback about the program at the time of graduation.
10	Alumni Survey	Collect variety of information about program satisfaction from the graduate



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



Table 3. PO/PSO Frequency of Direct Assessment tools

Course	Description	Assessment Type			Frequency	Evaluation Done	Reviewer
Theory (Direct)	It is a process to assess the attainment of course outcomes, student's learning domains and thus improve the teaching – learning process.	Internal Assessment	Day to Day Assessments	Left to Course Instructor	Minimum one for each outcome	Course Instructor	PAC
			MID-I,	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			MID-II				
			Quiz-I,	Objective type	Twice for course mid and end of semester	Course Instructor	PAC
			Quiz-II				
			Class Test-I	Descriptive type	Twice for course mid and end of semester	Course Instructor	PAC
			Class Test-II				
External Assessment	Course End /University Examination	Descriptive type	Once in a semester at the end	University			
Theory (Indirect)	CO learning Assessment	Course end survey on outcomes	Once in a semester at the end	Course Instructor	PAC		
Practical	provide students with firsthand experience with course concepts and with the opportunity to explore methods	Internal Assessment	Experimentation, viva, Record	For every experiment	Course Instructor	PAC	
(Direct)			Internal exam	After completion of all experiments	Course Instructor	PAC	
		External Assessment	Course End /University Examination	Once in a semester at the end	University appointed external		
Practic		CO learning	Course end survey	Once in a	Course	PAC	



AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



al (Indire ct)	used in their discipline.	Assessment	on outcomes		semester at the end	Instructor	
Semin ar	To encourage students in developing their skills and move them towards research.	Internal Assessment	First Review	For title and abstract finalizati on	Once per course during the semester	Seminar In charge	PAC
			Second Review				
			Third Review				
Project	Enhance student learning goals, including standards based content and skills such as critical thinking/pr oblem solving, collaborati on and self- managemen t	Internal Assessment	Interim Report I	For Analysis of Problem	Once per course during the semester	Project Review committe e	PAC
			Interim Report II				
			Review I				
			Interim Report III				
			Interim Report IV				
		Review II					
		Document Submission					
		External Assessment	Viva Voice		Once in a semester at the end	University appointed external	
Note: Program Assessment Committee (PAC) Project Review Committee (PRC)							

ii) **Indirect Assessment:** It is done through exit survey, alumni survey, each given a weight age of 10%.

Table 4. PO/PSO Frequency of Indirect Assessment tools

Assessment	Assessment type	Frequency
Indirect	Program Exit survey	Once in a academic Year
	Alumni Survey	



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



The Step-by-step process for assessing Program Outcomes and Program Specific Outcomes is shown in the **Table 5**

Table 5. Process for Assessing Program Outcomes and Program Specific Outcomes

<p>Step 1: The program coordinator analyses each outcome into elements (different abilities specified in the outcome) and a set of attributes are defined for each element. (actions that explicitly specify mastery of the abilities specified). In addition generate well designed surveys to assess the outcome.</p>
<p>Step 2: For each outcome define performance indicators (Assessment criteria) and their targets.</p>
<p>Step 3: Identify / Select courses that address the outcome (each course contributes to at least one of the outcomes). Hence, each outcome is assessed in several courses to ensure that students acquire an appropriate level in terms of knowledge / skills of an outcome</p>
<p>Step 4: The course owner collects the qualitative and quantitative data and uses for continual process of outcome assessment.</p>
<p>Step 5: The Program Assessment Committee analyze the collected data. If the assessed data meets the performance target which are specified in Step 2 , the outcome is attained , otherwise consider Step 6. For the Next Batch increase 5% of attainment value if the PO/PSO attained if not attained retain the same value</p>
<p>Step 6: The Department Assessment Committee recommends content delivery methods / course outcomes /curriculum improvements as needed.</p>

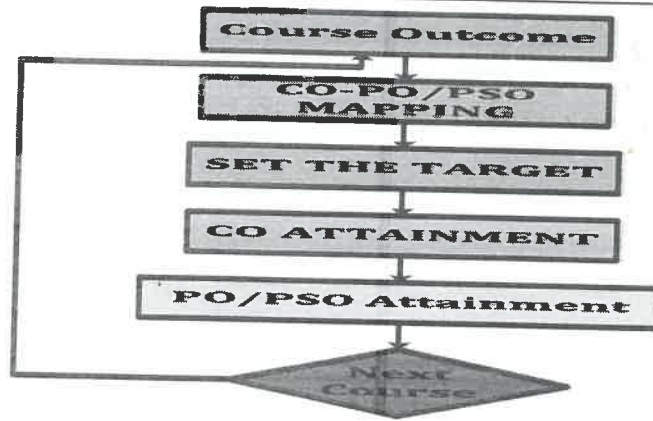


Fig 2. Process of Program Outcome Assessment

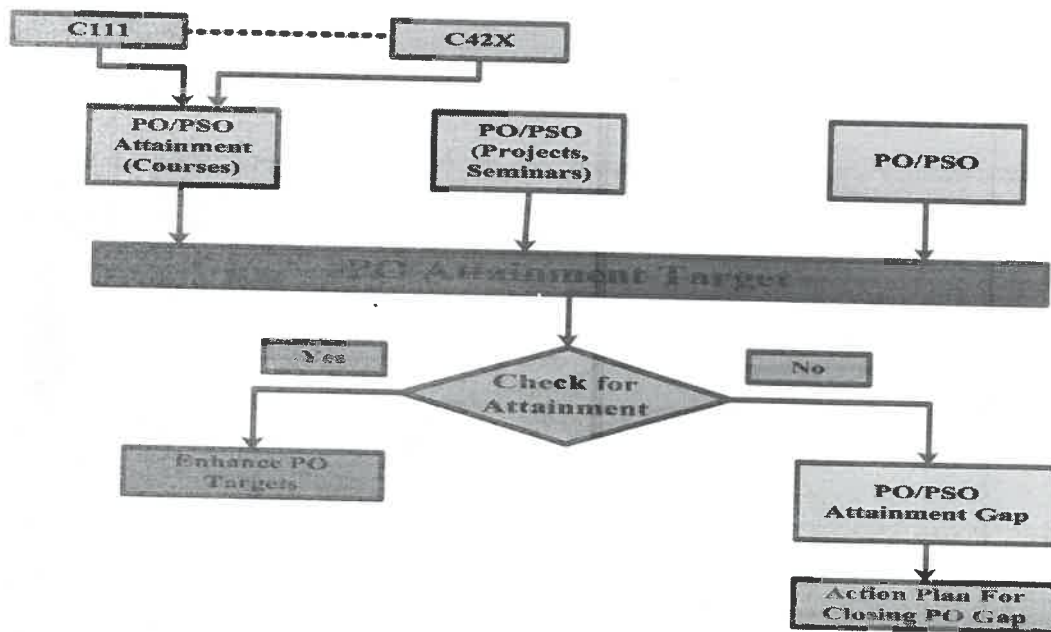


Fig 3 Outlines of steps before PO / PSO Attainment

Signature of the Program Coordinator

Signature of the Principal

PRINCIPAL
NRI Institute of Technology
Pothavarappadu (V), Agiripalli (M)



NRI INSTITUTE OF TECHNOLOGY

AUTONOMOUS

Accredited : NAAC with "A", NBA (CSE, ECE & EEE)

**Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada
Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212**

URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2459666, Email : principal@nriit.edu.in



[Handwritten signature]