SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

INTERNAL QUALITY ASSURANCE MANUAL 2022

(For internal circulation only)

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OBE – OUTCOME BASED EDUCATION

"Starting with a clear picture of, what is important for the future of the student to be able to do? And then organizing curriculum, delivery and assessment to make sure learning happens".

- Outcome-based education is a system where all the parts and aspects of education are focused on the outcomes of the course. The students take up courses with a certain goal of developing skills or gaining knowledge and they have to complete the goal by end of the course.
- There is no specific style or time limit of learning. The student can learn as per their choice. The faculty members, moderators, and instructors guide the students based on the target outcomes.
- OBE focuses on what the students are able to do at the end of each course and at the end of the program.

Purpose of OBE

- Ensuring that all students are equipped with the knowledge, competence, and attributes needed to be successful when they exit the educational system after obtaining the degree.

- Organizing and implementing programs in the department/institute so that the outcomes (goals) can be achieved and maximized for all students.
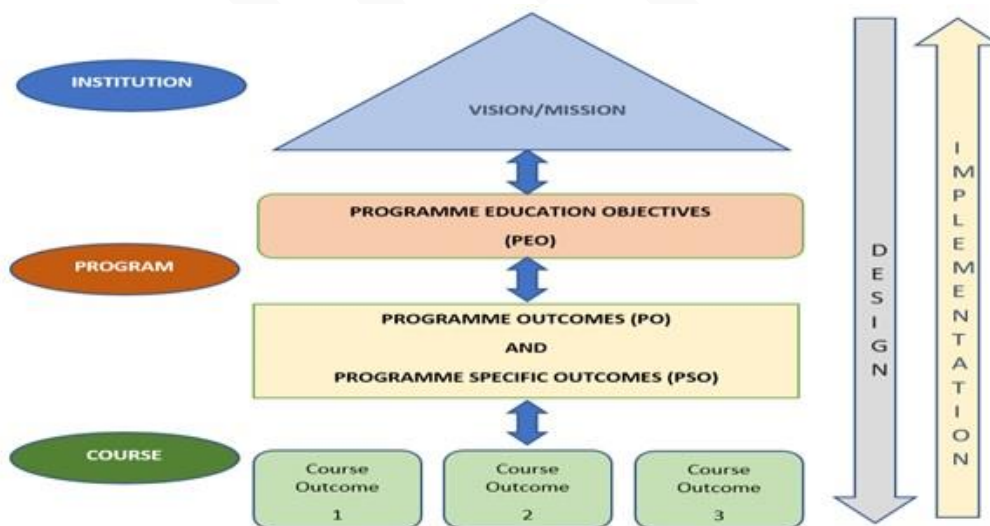
Outcome Based Education System VS Traditional Education System

- The basic aim of the traditional education system is to pass on the knowledge of the previous generation to the upcoming generation of students.

- OBE system provides expanded opportunities for the kids by following a student-centered learning approach.

Outcome-Based Approach	Traditional Teaching Approach
Learner/student-centered	Teacher-centered
Teacher's role as partner/facilitator	Teacher's role as instructor
Focus on learner's output	Focus on teacher's input
Flexible and empowering	Rigid and controlling
Emphasis on progress and overall learning	Emphasis on products
Learning outcomes/Learning programmes are seen as guides that allows teachers to be innovation and creative in achieving learning outcomes	Course objectives/Syllabus is seen rigid & non negotiable
Criterion-reference assessment	Norm-referenced assessment
Ability building and skills development	Content-based and content delivery

Why OBE?

➤ The traditional system of education focuses on teacher's inputs and presume that learning has occurred.

➤ OBE is focusing on "what the students are capable of doing". There is clarity on what is to be achieved and that achievement (outcome) is pre-determined.

➤ OBE goes beyond usual structured tasks. It demands the students to actively engaged in the learning process and demonstrate his/her skills through more challenging tasks and higher order of thinking.

➤ OBE provides a focus for assessment and help employers understand program benefits.

Benefits Of Outcome-Based Education (OBE) For Students

- Brings clarity among the teachers and students

- Every student has the flexibility and freedom of learning in their ways.

- There is more than one method of learning

- Reduces comparison among the students as everyone has a different target

- Completely involves students taking responsibility for their goals

OBE PHILOSOPHY

1. DESIGN

2. LEARNING & TEACHING

OUTCOMES

3. ASSESSMENT
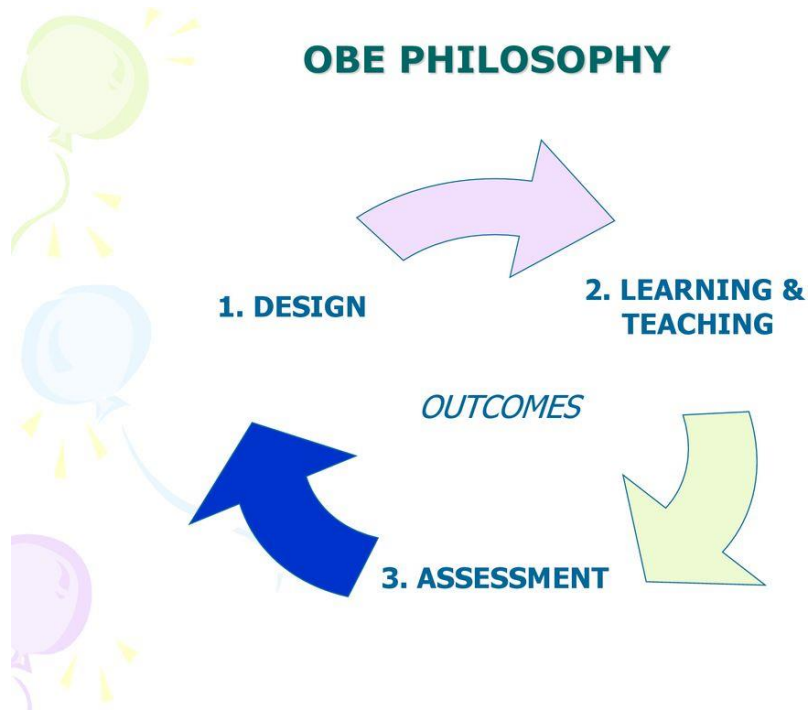
OBE Addresses Key Questions.

➢ Who are our stakeholders?

➢ What services do we provide?

➢ What facilities and policies must be present?

➢ How do we measure our results?

➢ How do we use these results for CQI?

➢ Are we achieving our objectives and improving?

➢ Are our stakeholders satisfied?

Stake-holders – who are they?

The stake-holders for programs and for professional institutions are:

❑ Students

❑ Parents

❑ Industries

❑ Society

❑ Alumni

❑ Faculty & Staff Members

❑ Members of the Governing Body, Advisory Committees, etc.

Suggested teaching activities

- ✓ Classroom teaching
- ✓ Seminars
- ✓ Quiz
- ✓ Giving Problems/Assignments
- ✓ Projects
- ✓ Case studies
- ✓ Group discussions
- ✓ Peer tutoring

Key guidelines for outcome-based learning

- ✓ Visualization of terminologies

- ✓ Cooperative and cohesive learning

- ✓ Inquiry-based instruction

- ✓ Differentiation

- ✓ Applying Technology in the classroom

- ✓ Professional development

OBE Framework
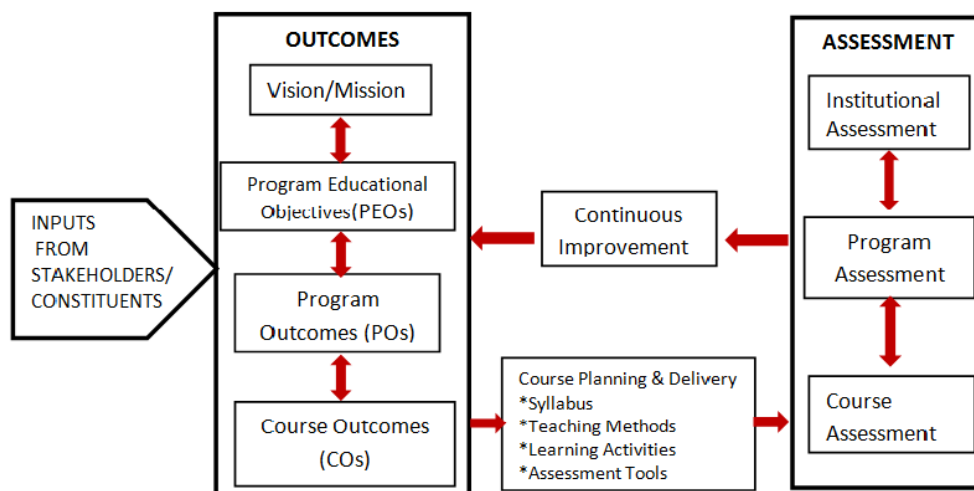
Vision

- Defines the desired or intended future state of an organization/institution in terms of its fundamental objectives and goals.
- • Vision is a long term view, describing how it aims to   position itself in the world in which it operates. It provides clear direction and decision-making criteria.
- It concentrates on the future.

Mission

- Describes what it does to achieve its vision.
- A mission statement provides details of what is to be done and answers the question: "What do we do?"

Similarly, each department shall have its Vision, Mission aligned with Institution's Vision & Mission.

How to formulate Vision and Mission Statements

Strategic plan

- ❖ Bottoms up approach

- ❖ Involve all stakeholders

- ❖ Discussion, Brain storming

- ❖ Gap analysis or SWOC analysis

- ❖ What are the immediate and long-term goals

- ❖ Evolve Vision and Mission statements based on these discussions

Program Educational Objectives – PEOs

PEOs are broad statements that describe the career and professional achievements that the program is preparing the graduates to achieve within the first few years after graduation.

Generally assessed indirectly via interaction with alumni and industry persons associated with the Program/Institute**.**

Program Outcomes - POs

Program outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge and behaviours that students acquire in their matriculation through the program.

Course Objectives & Course Outcomes - COs

A program consists of number of theory, practical and project courses. Each Course shall have a set of Course Objectives, which describe what the teacher intends to teach and are written from the teacher's point of view.   Course Outcomes are comprehensive sets of statements of exactly what the students will be able to do/achieve after the successful learning. Course Objectives and Course Outcomes are to be framed by each teacher, at the beginning of the course.

PROGRAM OUTCOMES

- **Engineering Graduates will be able to:**

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis**: 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/development of solutions**: 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. **Conduct investigations of complex problems**: 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. **Modern tool usage**: 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. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: 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. **Project management and finance**: 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.

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Structure of Course Outcomes:

Course Outcome statement may be broken down into two main components:

- **An action word** that identifies the performance to be demonstrated;

- **Learning statement** that specifies what learning will be demonstrated in the performance;

Examples of good action words to include in course outcome statements:

- Compile, identify, create, plan, revise, analyse, design, select, utilize, apply, demonstrate, prepare, use, compute, discuss, predict, assess, compare, rate, critique, outline, or evaluate

Blooms Taxonomy and Assessment

Normally the first three learning levels, namely, *remembering, understanding and applying* and to some extent the fourth level - *analyzing* are   assessed in the Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE), where students are given a limited amount of time.

Higher Bloom Levels, namely, *analysis, evaluation and creation* can be assessed in extended course works or in a variety of student works like course projects, mini/ minor projects, internship experience and final year projects.

Sl No	Level	Question cues / Verbs for tests
1	Remember	list, define, tell, describe, recite, recall, identify, show, label, tabulate, quote, name, who, when, where
2	Understand	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate, interpret, discuss
3	Apply	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify
4	Analyse	classify, outline, break down, categorize, analyze, diagram, illustrate, infer, select
5	Evaluate	assess, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate
6	Create	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

CO-PO mapping (connecting COs with POs)

The mapping is a matrix with rows as COs and columns as POs.

Each element/cell of the matrix has a value in {--, 1, 2, 3}

The meaning associated with the values are as follows:

-- this CO (row) has nil/very small/insignificant contribution to the PO

1 $\rightarrow$ relevant and small significance 2 $\rightarrow$ medium or moderate and 3 $\rightarrow$ strong.

ASSESSMENT OF VARIOUS OUTCOMES

Assessment tools are direct and indirect:

Direct Assessment	Indirect Assessment
Internal Exam	Course End Survey
End Semester Exam	Program Exit Survey
Assignment, Tutorial	Alumni Survey
Course Project, Case Study	Employer Survey
Field Visit Report	
Seminar	

CO Attainment

Target for the final PO, CO attainment, Weightage for direct & indirect components, internal & external can be fixed by PAC. It may vary from program to program. Weightage for different assessment tools can be fixed by concerned faculty. It may vary from course to course.

Targets for co attainment

First time

Internal Evaluation: Average of Internal Marks for the same Course and Program in the previous3 Academic Years.

End Semester Exam: Average of End Semester Exam Marks for the same Course and Program in the previous 3 Academic Years

Subsequent Academic Years

Not less than Previous Year Target, Continuous Improvement Desirable.

Sample Target levels:

TARGET Internal: 60%, Assignment: 75%, End Sem: 55%.

Sample Weightage for Direct and Indirect Components

Direct	Indirect
80	20

Direct assessment can be done by internally and externally.

Sample weightage for internal and external   assessment.

Internal	External
30	70

Sample weightage for different direct assessment Tools (Theory)

Test1	Test2	Assignment1	Assignment 2	Univ. Exam
10	10	5	5	70

Fixing Attainment Levels

70% or more students Score More than Set Target   3

60% students Score More than Set Target   2

50% or more students Score More than Set Target   1

Less than 50% students Score More than Set Target   0

Sample CO Attainment Calculation

TARGET Internal: 60%, Assignment: 75%, End Sem: 55%.

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1. **Internal Exam**

SL.NO	NAME	MAX MARK CO1: 9, CO2:6					MAX MARK CO1:14, CO2:21					CO1 MAX MARK (23)	CO2 MAX MARK (27)	TOTAL MARKS
		PART A					PART B							
		QN1	QN2	QN3	QN4	QN5	QN6	QN7	QN8	QN9	QN10			
		CO1	CO1	CO1	CO2	CO2	CO1	CO1	CO2	CO2	CO2			
1	A	0.5	3	0	2	2	7	7	3	4	5	17.5	16	33.5
2	B	1	3	0	3	1.5	7	6	7	5	7	17	23.5	40.5
3	C	1	1	3	1	1.5	6	7	7	6	3	18	18.5	36.5
4	D	1.5	3	3	3	2	7	7	7	7	6	21.5	25	46.5
5	E	2	1.5	3	3	2	7	7	3	5	7	20.5	20	40.5
Max. Mark		3	3	3	3	3	7	7	7	7	7	23	27	50
NUMBER OF STUDENTS SCORED ABOVE TARGET (60%)												5	5	
CO ATTAINMENT												3	3	

Maximum mark for CO1 is 23

60% of 23 is 13.8

Number of students scored more than 13.8 (60%) mark is 5

More than 70 % students scored more than 60% marks.

So, CO attainment for CO1 is 3.

Likewise, attainment for CO2 can be calculated.

These calculations can be applied for other assessment tools also like internal 2, assignment 1 , 2 , Univ. exam etc.

2. **Assignment**

Roll No	Student Name	Assignment 1(15 Marks)						
		Qn1 (5 Marks)	Qn2 (5 Marks)	Qn3 (5 Marks)	CO1	CO2	CO3	Total
1	A	4.5	4	5	4.5	4	5	13.5
2	B	5	4.5	3	5	4.5	4	12.5
3	C	4	4.5	3	4	4.5	3	11.5
4	D	3.5	4	4.5	3.5	4	4.5	12
5	E	4.5	4	4	4.5	4	4	12.5
Number of students scored above target (75%)					4	5	4	
					80%	100%	80%	
CO attainment					3	3	3	

3. University Exam

Roll No	Student Name	Grade	Equivalent Mark				
			CO1	CO2	CO3	CO4	CO5
1	A	A+	85	85	85	85	85
2	B	S	90	90	90	90	90
3	C	A	80	80	80	80	80
4	D	A+	85	85	85	85	85
5	E	S	90	90	90	90	90
6	F	B+	75	75	75	75	75
7	G	B	70	70	70	70	70
8	H	S	90	90	90	90	90
9	I	P	50	50	50	50	50
10	J	S	90	90	90	90	90
Max. Marks			100	100	100	100	100
Number of students scored above target (55%)			9	9	9	9	9
			90%	90%	90%	90%	90%
CO attainment			3	3	3	3	3

4. Final CO Attainment

CO ATTAINMENT									
Final Direct CO Attainment Calculation						Direct Attainment 30%INT+70%UNIV	Indirect Attainment (Feedback)		Final CO Attainment (80% Direct + 20% Indirect)
Weightage	Internal (30%)				External (70%)				
Assessment Tools	Internal 1 (10%)	Internal 2 (10%)	Assignment 1 (5%)	Assignment 2 (5%)	Univ.Exam (70%)				
CO1	2	_	3	_	3	2.82	CO1	3	2.86
CO2	1	_	3	_	3	2.72	CO2	3	2.78
CO3	2	_	3	_	3	2.82	CO3	2	2.66
CO4	_	1	_	3	3	2.72	CO4	1	2.38
CO5	_	1	_	3	3	2.72	CO5	2	2.58
CO6	_	2	_	3	3	2.82	CO6	2	2.66
CO ATTAINMENT (Average of all COs)									2.6

Attainment of CO1

CO1 is addressed only in Internal exam 1, Assignment 1 and Univ. exam.

The calculation is

Attainment of Internal 1 * 10% + Attainment of Assignment 1 * 5% + Attainment of Univ.exam * 70% divided by 85%

Direct attainment = (2*.1+3*.05+3*.7)/ .85 = 2.82

Indirect attainment of CO1 is 3

Direct attainment * 80% + Indirect attainment * 20%

Final attainment = 2.8 *.8 + 3*.2 = 2.86

NB: If any CO is not attained the target, teacher should analyse the reason and propose the remedial action to be taken. Feedback form is attached in Annexure II.

CO	Target Level	Attainment Level	Observations (Why it is not reached?)	Action taken

Sample weightage for different assessment tools (Lab)

Daily evaluation/Viva	Record/Output	Internal Test	Univ. Exam
10%	10%	10%	70%

Sample attainment for Daily evaluation in Lab

Target for Daily evaluation: 60%

Roll No.	Name	Daily Evaluation (Max.Mark 60)			CO1	CO2	CO3	Total
		Day1	Day 2	Day 3				
		CO1	CO2	CO3	Max.Mark	Max.Mark	Max.Mark	Max.Mark
		CO2	CO3		60/2 =30	60/2+60/2=60	60/2+60=90	60.0
1	A	55	53	50	55/2=27.5	55/2+53/2=54	53/2+50 =76.5	(55+53+50)/3=52.7
2	B	58	55	52	58/2= 29	58/2+55/2 =56.5	55/2+52 = 79.5	55.0
3	C	50	52	48	50/2=25	50/2+52/2 =51	52/2+ 48 = 74	50.0
Number of students scoring above target (60%)					3	3	3	
Attainment					3	3	3	

PO Attainment of a Course

CO - Attainment		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CST304.1	2.86	2	1			2									
CST304.2	2.78	2	1	2	2								2	2	2
CST304.3	2.66	3	2	2	1										
CST304.4	2.38	2	2	2											
CST304.5	2.58	2	3	3	1										
CST304.6	2.66	2	2										1	2	2
PO attainment		**2.65**	**2.61**	**2.70**	**2.70**	**2.86**	**-**	**-**	**-**	**-**	**-**	**-**	**2.74**	**2.72**	**2.72**

CST304 .1 -> Course code. CO number

Attainment of CO1 of the course CST304 is 2.86

<u>Attainment of PO1</u>

(2.86 x 2 + 2.78 x 2 +2.66 x 3 + 2.38 x 2 +2.58 x 2 + 2.66 x 2)/ 13 = 2.65

Program Outcome Attainment – Calculation

- For Calculation of Program Outcome, we can use two method: (i)Direct Method (ii)Indirect Method

- Direct Method: In direct method, we take CO attainment of all courses contributing to particular Program Outcomes and then calculate the attainment based on mapping (as per course articulation matrix)

- Indirect Method: In indirect method, surveys from current passing out students (program exit survey), survey from employer (during placement), survey from industry person (if students are working as intern for some industry) to be taken.

- All this survey needs to be quantified [put questions like rate our students in the scale of 5 (5-excellent, 1-not satisfactory)]

- Indirect method too should be based on predefined levels Example;

- Level-3: *80% or above survey takers giving 4 or 5 marks*

- Level-2: *70% or above survey takers giving 4 or 5 marks*

- Level-1: *60% or above survey takers giving 4 or 5 marks*

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C101														
C102														
…..														
……														
C309														
C409														
Direct Attainment														
Indirect Attainment														
PO Attainment														

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Exit Survey												
Alumni Survey												
Employer Survey												
Average												

POs	PSO1	PSO2	-	-
Exit Survey				
Alumni Survey				
Employer Survey				
Average				

Assessment tools for Indirect Attainment of PO	
Program Exit Survey	Once/ year
Alumni Survey	Once / year
Employer Survey	Once in 3 years

PAC should analyse the PO attainment. If any PO is not attained, PAC should propose the remedial action to be taken.

PO Attainment Levels and Actions for improvement

- **Level 1: Greater than 0.5 and less than 1.0(0.5>1) – Poor**
- **Level 2: 1.0>1.5 – Average**
- **Level 3: 1.5>2.0 – Good**
- **Level 4: 2.0>2.5 – Very Good**
- **Level 5: 2.5 > 3.0 - Excellent**

POs	Target Level	Attainment Level	Observations
PO1: < statement>			
PO1			
Action 1: Action N:			

Sample analysis

POs	Target Level	Attainment Level	Observations
PO2: Problem analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.8	1.7	Target level is not attained
To attain the target level, department has planned to organise more Action 1: Guest lectures Action 2: Internships Action 3: Industrial visits Action 4: Add on courses Action 5: Lecture by adjunct faculty Action 6: Additional experiments beyond curriculum			

Department Specific Documents

1. Semester Plan
2. Subject allocation and work load
3. Timetable with tutorial hour
4. Advisory Board[*1] meetings and action taken report
5. Class/Course committee meetings and action taken report
6. Tutorial Log Book
7. Internal exam QP & Scheme of evaluation (DQAC[*2] Approved)
8. PAC[*3]/DQAC meetings and action taken reports
9. Details showing the Conduct of remedial/make-up/minor/honours classes
10. CO-PO, CO-PSO mapping with justification
11. PO, PSO attainment file [*4]
12. Curriculum Gap (with Gaps and course identified to address the POs, PSOs)
13. Project (a. List of projects with guides and students b. Panels, rubrics and marks of evaluation c. PO, PSO attainment)
14. Details of Placement / Higher education of students
15. Details of faculty evaluation and action taken on it
16. Department library documents
17. Result Analysis[*5]
18. Feedback (Every activity /Exit/Alumni/Employer/Parents)
19. Student feedback after course
20. Budget allocation and utilization

1. Advisory Board

Advisory board provides guidance and direction to the members of faculty regarding the overall development of the department.

Responsibilities:

1. Be informed about the program(s); its students, curriculum, services/supports, and activities, and inform others.
2. Identify and present opportunities for students and/or host students for capstone projects or experiences.
3. Assist with placement of program graduates.
4. Share developments in the field.
5. Provide support and advice to program(s), assist in the development of new programs, and identify best-practice standards.

It is mandatory that Advisory board members should meet minimum once in an year and can convene meeting as and when the need arises.

Committee should be reconstituted in every three years.

2. Department Quality Assurance Cell (DQAC)

Department Quality Assurance cell is constituted in every department to internalize a quality culture in the department in line with IQAC. Members of the DQAC are nominated by the HOD. IQAC representative may serves as DQAC co-ordinator.

Duties and Responsibilities:

- To approve the course plan prepared for various programmes.
- To chalk out yearly plans at the beginning of the academic year and to assure the implementation of activities planned.
- To ensure course delivery in conformity with course plan.
- To coordinate with IQAC for the submission of required data and information
- To do scrutiny of question papers for continuous evaluation.
- To conduct discussions on the various topics on Quality parameters periodically within the department to improve the quality in all the aspects of the department.

3. Program Assessment Committee (PAC)

The PAC has been formed for monitoring of different departmental activities. The PAC consists of HoD and 2-3 faculty members of the department, who periodically monitor the departmental activities and evaluate different parameters.

The Functions of PAC are as follows:

- Monitoring the activities of the department to check whether they are achieving the Vision and Mission.
- Suggesting way and means to reduce the curriculum gaps in achieving PO's and PSO's.
- Evaluates and monitors attainment of Program Outcomes (POs), Program Specific Outcomes (PSO), Program Educational Objectives (PEOs).
- Planning of co-curricular activities for attainment of POs.
- Monitors the CEP [Curriculum Enrichment Program] carried out before the start of every semester in the department with assessment pertaining to student learning and development.
- Prepares periodic reports on program related activities, status reports for key stakeholder.
- Communicate achievement of POs, PSOs and PEOs with students and concern stakeholders on regular basis.
- Set the target level for PO attainment and proposes necessary changes/actions for continuous improvements.
- To invite qualified personnel from industry and academia to enrich the deficient areas of teaching leaning process for development of efficient teaching methodology.
- Motivating the faculty and students towards attending workshops, developing projects, working models, participating in National Level project competition, paper publications and engaging in research activities.
- Conduct surveys, interaction with faculty, coordinators and other stake holders.
- Arrangement for feedback response and surveys from students, parents and other stakeholders.

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It is mandatory that PAC should meet minimum once in a semester and can convene meeting as and when the need arises.

Committee should be reconstituted in every three years.

5. __PO/PSO Attainment File__

Once the university result is published, each faculty should prepare PO attainment of respective course and keep it in their course note file. One copy of the same is to be kept in the dept PO attainment file.

The group tutor is directed to consolidate the PO attainment of all the courses in that particular semester and it should be filed in the PO attainment file.

Once a batch completes the program, the GT should consolidate all the semester PO attainments so that the PAC can analyse and assess whether all the POs are attained. If there is a gap in any PO attainment, PAC can suggest remedial action to improve the attainment in the subsequent batches.

6. __Result Analysis File__

The result analysis can be documented in a single box file with separate flags for each batch of students.

Staff Files

- Course file
- Personal file

Course File

Content of Course File

Sl.No.	Content	Flag
1	Front Page	
2	Course Information Sheet	A
3	Course Diary	B
4	Learning Materials	C
5	Question paper and Scheme of evaluation for	D
A	1st and 2nd internal exam	
B	All assignments (min2)	
C	Make-up tests/Re-tests given (if any	
6	Sample answer sheets (at least one excellent, one good and one marginal pass) for all internal exams and assignments given	E
7	Previous University Question Papers	F
8	Sample tutorial sheets, quiz or any other assessment done	G
9	Industrial relevance of the course, if any	H
10	Weak student analysis and action taken report	I
11	CO – PO attainment sheet and action taken report	J

Content of Course diary

Sl. No.	Content
1	Time table with tutorial hr
2	Syllabus
3	Course Plan
4	Year Calendar
5	Tutorial Log
6	Attendance of students
7	Marks awarded for internal exam, assignments etc.
8	Internal evaluation and sessional marks awarded
9	Subject coverage and mode of instruction
10	Remedial/ Make-up class/Tutorial engaged

Personal File

Content of personal file

1. Appointment order
2. Resume
3. Certificates of qualification
4. Experience certificates (if any)
5. Achievements (Awards / recognition)
6. Certificates of courses/FDPs attended
7. Details of Publications
8. Additional duties / responsibilities (work order)
9. FDP organized/ Activities coordinated

Annexure I

1. Minutes of Meeting

MINUTES OF -------MEETING		
Subject	Meeting No:3/2022	
Venue:	Date:	Time:
Members Present		
1. 2. 3.	4. 5. 6.	
Members Absent		
1.		
Agenda: 1 2.		

	Subject	Action By	Action Date
1			
2			
3			

Meeting adjourned at pm

Signature   Signature
Name   Name
(…….Coordinator)   HoD/PRINCIPAL

2. Action Taken Report

ACTION TAKEN REPORT

The following gives a detailed report of the suggestions /decisions as reived in the meeting held on……... and the action taken based on those suggestions /decisions by the institution/ department/committee.

SL. No	SUGGESTIONS/DECISIONS	ACTION TAKEN	DATE

Signature

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

3. Surveys for Indirect Assessment of POs &PSOs

    a) Exit Survey

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

STUDENT EXIT SURVEY

Please rate each of the following items in terms how well your education at SNGCE prepared you for them.

Sl.No.	Overall, are you satisfied with:	Excellent (3)	Good (2)	Fair (1)
1	Basic knowledge in mathematics, science, Engineering and humanities.			
2	Ability to identify, design, analyse and solve ……………. 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 team.			
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.			
-	PSO 1			
-	PSO2			

Relation of POs and PSOs with questionnaire:

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

PSOs	PSO1	PSO2	
QNs			

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b) Alumni Survey

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

ALUMNI SURVEY

a) Name   :

b) Year of Graduation   :

c) Branch   :

d) Present Address   :

e) Email-ID   :

f) Current Professional Status   : Working/Not working/Higher Studies/ Other

g) If working, then please provide your employment details:
   (Please send appointment letter copy to the HOD at the earliest)
        Name of organization:
        Designation:
        Date of joining:
h) Select your placement type: On-Campus / Off-Campus / Other

i) Are you self-employed?

j) If yes, please provide the details:

………………………………………………………………………………………

k) Whether undergone higher education: Yes/No
   (If yes, please send Admission details at the earliest)
l)To what extent your college education in SNGCE contributed and prepared you in the following skills:
   (The responses to this question will help Dept of……………to improve the outcome-based education system currently being followed.)

Sl. No	Overall rating	Excellent (3)	Good (2)	Fair (1)
1	Applying knowledge of mathematics/basic science/engineering fundamentals to solve real world problems			
2	Analysing a problem and design and develop a real-world solution			
3	Usage of current technology and modern tools.			
4	Ability to assess societal, health safety, legal and cultural issues in the industry.			
5	Ability to adopt professional ethics and management skills as a part of your career			
6	Working effectively as an individual or as a team member.			
7	Ability to communicate and present your professional work effectively?			

m) Your Positive/Negative Comments:

n) Your suggestions for the Improvement of the Institution:

Relation of POs and PSOs with questionnaire:

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
QNs												

PSOs	PSO1	PSO2	
QNs			

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

c) Employer Survey

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

Employer Survey

a) Name of the Organization   :

b) Name of the Officer and Designation

c) Name of the Employee   :

d) Rate the SNGCE graduates working in your organization using the following criterion. Put a tick mark (√) Knowledge, Skills, Abilities, Attitude and other Attributes expected out of SNGCE graduates.

Sl.No.	Overall, are you satisfied with:	Excellent (3)	Good (2)	Fair (1)
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 team			

e) What are your advices for further improvements on our candidates?

Relation of POs and PSOs with questionnaire:

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
QNs	Q1 &5	Q1q	Q3	Q4	Q2 &4	Q3	Q3	Q1	Q6	Q5	Q6	Q2

PSOs	PSO1	PSO2	PSO3
QNs			

SIGNATURE   SEAL OF THE COMPANY

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

4. Analysis of PO attainment

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

PO Attainment Levels and Actions for improvement

Batch :   Class :   Academic Year :

POs	Target Level	Attainment Level	Observations
PO1: < statement>			
PO1			
Action 1: Action 2: - - Action N:			

Signature

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

5. Feedback

a) Feedback on facilities

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

Feedback on Facilities

(Identity of student is optional)

a) Name of the Student   :

b) Branch and Year   :

c) Please provide your comments on the following:

1.	College Infrastructure	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
2.	Teaching aids	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
3.	Department Resources	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
4.	Faculties helpfulness	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
5.	Library Facilities	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
6.	Computing and Internet Facilities	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
7.	Sports, Extra Curricular Facilities	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
8.	Personality/Communications Skills Development Facilities	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
9.	Placement Opportunities	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
10.	Transport Facilities	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
11.	Mess/Canteen Facilities	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
12.	Feedback system	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
13.	Medical Facility	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
14.	Discipline standards in the College	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
15.	Grievance Redressal	: ☐ Excellent ☐ Good ☐ Average ☐ Fair
16.	Overall rating of the College	: ☐ Excellent ☐ Good ☐ Average ☐ Fair

e) Your Positive/Negative Comments:

f) Your suggestions for the Improvement of the Institution/Department:

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

b) Parents' Feedback

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

FEEDBACK - PARENTS
(Identity of parent and student is optional)

a) Name of the Parent :

b) Present Address :

  Phone Number :

  Email-ID :

c) Name of the Student :

d) Branch and Year :

e) Please provide your comments on the following:

1. College Infrastructure : ☐ Excellent ☐ Good ☐ Average ☐ Fair
2. Teaching imparted to your ward : ☐ Excellent ☐ Good ☐ Average ☐ Fair
3. Department Resources : ☐ Excellent ☐ Good ☐ Average ☐ Fair
4. Faculties helpfulness : ☐ Excellent ☐ Good ☐ Average ☐ Fair
5. Library Facilities : ☐ Excellent ☐ Good ☐ Average ☐ Fair
6. Computing and Internet Facilities : ☐ Excellent ☐ Good ☐ Average ☐ Fair
7. Sports, Extra Curricular Facilities : ☐ Excellent ☐ Good ☐ Average ☐ Fair
8. Personality/Communications Skills : ☐ Excellent ☐ Good ☐ Average ☐ Fair
9. Development Facilities : ☐ Excellent ☐ Good ☐ Average ☐ Fair

10. Placement Opportunities : ☐ Excellent ☐ Good ☐ Average ☐ Fair
11. Transport Facilities : ☐ Excellent ☐ Good ☐ Average ☐ Fair
12. Mess/Canteen Facilities : ☐ Excellent ☐ Good ☐ Average ☐ Fair
13. Feedback on ward's Progress : ☐ Excellent ☐ Good ☐ Average ☐ Fair
14. Grievance Redressal : ☐ Excellent ☐ Good ☐ Average ☐ Fair
15. Discipline standards in the College : ☐ Excellent ☐ Good ☐ Average ☐ Fair
16. Overall rating of the College : ☐ Excellent ☐ Good ☐ Average ☐ Fair

e) Your Positive/Negative Comments:

f) Your suggestions for the Improvement of the Institution/Department:

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c) Feedback on IV

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

FEEDBACK FORM - INDUSTRIAL VISIT

Name & Class of Student :……………………………………………………………….

Date(s) of visit:……………………………………………………………………………

Name of Industry:………………………………………………………………………

Location:………………………………………………………………………………….

Faculty Accompanied:………………………………………………………………….

Please indicate your level of agreement with the statement listed below.

A. The objectives of the visit were clearly defined?
   1. Strongly disagree   2. Disagree   3. Neutral   4. Agree   5. Strongly Agree

B. Participation and interaction were encouraged during the visit?
   1. Strongly disagree   2. Disagree   3. Neutral   4. Agree   5. Strongly Agree

C. The visit was well organized and the flow was very good.
   1. Strongly disagree   2. Disagree   3. Neutral   4. Agree   5. Strongly Agree

D. The objective of the visit is full filled.
   1. Strongly disagree   2. Disagree   3. Neutral   4. Agree   5. Strongly Agree

E. The industry selected was according to level of the academic level of your group.
   1. Strongly disagree   2. Disagree   3. Neutral   4. Agree   5. Strongly Agree

Any Comment (if any):

Signature of Student

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d) Feedback on Internship

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME

<u>FEEDBACK FORM FOR INTERNSHIP</u>

Date:…………………….

Name & Class of the Student:………………………………………………………………………………………………

Name of the company:……………………………………………………………………………………………..

Dates of Training:

From Date:………………………….   To Date:………………………………………..

Please tick the appropriate rating

Sl. No.	Question	Excellent	Good	Satisfactory
1.	Basic theoretical knowledge acquired from the training			
2	The level of practical knowledge acquired from the training			
3	The interactive skills acquired from training			
4	The skill to think innovatively acquired from training			
5	The ability to work as a team acquired from training			
6	Hospitality and Facilities of the industry			
7	Overall experience			

Any Suggestions for improvement?

Signature of Student

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6. Feedback Action Taken Report

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

<DEPT NAME>

<STUDENTS' /ALUMNI/PARENT/ EMPLYER> FEEDBACK AND ACTION TAKEN REPORT

The following gives a detailed report of the feedback as received by the ……. on……... and the action taken for those feedback by the institution/ department during.

SL. No	FEEDBACK	ACTION TAKEN	DATE

Signature

Annexure II

1. Course information sheet

PROGRAM:	SEMESTER: CREDITS:
COURSE:	COURSE TYPE: CORE /ELECTIVE / BREADTH/ S&H
COURSE CODE: REGULATION:	CONTACT HOURS: 3+1 (Tutorial) hours/Week.

UNIT	DETAILS	HOURS
I		
II		
III		
IV		
V		
VI		
VII		
VIII		
	TOTAL HOURS	

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM

COURSE OBJECTIVES:

1	
2	
3	
4	
5	

COURSE OUTCOMES:

SNO	DESCRIPTION	PO(1..12) & PSO(1..2) MAPPING
Cxxx.1		
Cxxx.2		
Cxxx.3		
Cxxx.4		
Cxxx.5		

1. IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

SNO		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
Cxxx.1															
Cxxx.2															
Cxxx.3															
Cxxx.4															
Cxxx.5															
Cxxx*															

PO1	Engineering Knowledge	PO8	Ethics
PO2	Problem Analysis	PO9	Individual & Team Work
PO3	Design & Development	PO10	Communication Skills
PO4	Investigations	PO11	Project Management & Finance
PO5	Modern Tools	PO12	Life Long Learning
PO6	Engineer & Society	PSO1	
PO7	Evironment & Sustainability	PSO2	

JUSTIFICATION FOR MAPPING

SNO	PO/PSO MAPPED	JUSTIFICATION
Cxxx.1		
Cxxx.2		
Cxxx.3		
Cxxx.4		
Cxxx.5		
Cxxx		

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS, POs (if any)

SNO	DESCRIPTION	PROPOSED ACTIONS
1		
2		
3		
4		
5		

PROPOSED ACTIONS: TOPICS BEYOND SYLLABUS/ASSIGNMENT/INDUSTRY VISIT/GUEST LECTURER/NPTEL ETC

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

WEB SOURCE REFERENCES:

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

ASSESSMENT METHODOLOGIES-DIRECT

☐ ASSIGNMENTS	☐ STUD. SEMINARS	☐ TESTS/MODEL EXAMS	☐ UNIV. EXAMINATION
☐ STUD. LAB PRACTICES	☐ STUD. VIVA	☐ MINI/MAJOR PROJECTS	☐ CERTIFICATIONS
☐ ADD-ON COURSES	☐ QUIZ	☐ CASE STUDY	☐ GROUP DISCUSSION

ASSESSMENT METHODOLOGIES-INDIRECT

☐ ASSESSMENT OF COURSE OUTCOMES (BY FEEDBACK, ONCE)	☐ STUDENT FEEDBACK ON FACULTY (TWICE)
☐ ASSESSMENT OF MINI/MAJOR PROJECTS BY EXT. EXPERTS	☐ OTHERS

TARGET FOR DIFFERENT DIRECT ASSESSMENT TOOLS

TEST	TUTORIAL	ASSIGNMENT	QUIZ	UNIV.EXAM

WEIGHTAGE FOR DIFFERENT DIRECT ASSESSMENT TOOLS

TEST1	TEST2	ASSIGNMENT1	ASSIGNMENT 2	UNIV.EXAM

Prepared by   **Approved by**
(Faculty)   **(HOD)**

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

2. Internal Exam Question Paper

Sree Narayana Gurukulam College of Engineering, Kadayiruppu
<Dept. Name>

< Exam Name>

Program:		Semester:	
Couse Name		Batch:	
Course Code:		Time:	
Date:		Max.Marks:	
Faculty Name:			

COURSE OUTCOMES		Bloom's Category Level
CO1		L1: Remember
CO2		
CO3		
.		

Qn.No	Part A (Answer All Questions)	Marks	KL	CO
	Part B			

Bloom's Category Level	Marks in QP	Marks in Syllabus
Level1: Remember		
Leve2: Understand		
-		
-		

DQAC/HoD

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3. Assignment Question Paper

Sree Narayana Gurukulam College of Engineering, Kadayiruppu
\<Dept. Name\>
\< Assignment\>

Program:		Semester:	
Course Name:		Batch:	
Course Code:		Time:	
Date:		Max.Marks:	
Faculty Name:			

Qn.No	Questions	Marks	CO	PO/PSO

4. CO Attainment

A) Attainment of each assessment tool

Sree Narayana Gurukulam College of Engineering, Kadayiruppu

<Dept Name>

< Internal Test / Assignment / Viva/Univ. Exam>

Program:		Batch:	
Academic Year		Semester:	
Course Code:		Weightage:	
Course Name:		Max. Marks:	
Faculty Name:		Target:	

SL.NO	NAME	PART A					PART B					CO1 MAX MARK (23)	CO2 MAX MARK (27)	TOTAL MARKS
		QN1	QN2	QN3	QN4	QN5	QN6	QN7	QN8	QN9	QN10			
		CO1	CO1	CO1	CO2	CO2	CO1	CO1	CO2	CO2	CO2			
1	A													
2	B													
3	C													
4	D													
5	E													
Max. Mark														
NUMBER OF STUDENTS SCORED ABOVE TARGET (60%)														
CO ATTAINMENT														

Faculty   HoD

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

B) CO Attainment

C)

Sree Narayana Gurukulam College of Engineering, Kadayiruppu

<Dept Name>

Program:		Batch:	
Academic Year		Semester:	
Course Name:		Course Code:	
Faculty Name:		Target:	

CO ATTAINMENT									
Final Direct CO Attainment Calculation						Direct Attainment 30%INT+70%UNIV	Indirect Attainment (Feedback)		Final CO Attainment (80% Direct + 20% Indirect)
Weightage	Internal (30%)				External (70%)				
Assessment Tools	Internal 1 (%)	Internal 2 (%)	Assignment 1 (%)	Assignment 2 (%)	Univ.Exam (%)				
CO1									
CO2									
CO3									
CO4									
CO5									
CO6									
CO ATTAINMENT (Average of all COs)									

Faculty   HoD

5. Teacher's feedback on CO Attainment

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

FEEDBACK

Department	
Semester	
Batch	
Assessment Year	

Branch	
Course Name	
Course Code	
Faculty Name	

CO	Target Level	Attainment Level	Observations (Why it is not reached?)	Action taken

Faculty   HoD

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

6. End Course Survey

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

Indirect Assessment of Course Outcomes (Course Survey)

Department: Year/ Semester: Date:

Course Code: Course Name: Class:

Name of Student: Roll No.

Sl.NO	Course Outcomes	3 (Excellent)/2 (Good) /1 (Fair)	Remarks (if any)
1			
2			
3			
4			
5			
6			

Signature of student

SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

Indirect Assessment of Course Outcomes – Feedback from Students

Department: Year/ Semester: Date:

Course Code: Course Name: Class:

CO1	
CO2	
-	
-	
-	
-	

Roll NO	Name of Student	3 (Excellent)/2 (Good) /1 (Fair)						Remarks (if any)
		CO1	CO2	-	-	-	-	
1	X							
2	Y							
3	Z							
	Average							

IQAC, SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING, KADAYIRUPPU

NB: These are the minimum guidelines/requirements/formats suggested to meet IQAC standards uniformly in the institution. Further detailing or additions can be made on the above guideline based on special practices followed in the department.