6.5.2.
The institution reviews its teaching learning process, structures & methodologies of operations and learning outcomes at periodic intervals through IQAC set up as per norms

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Any additional information:

Performance Based Appraisal System Policy(PBAS)

MAHARAJ VIJAYARAM GAPATHI RAJ COLLEGE OF ENGINEERING(AUTONOMOUS)
Vijayaram Nagar Campus, Chintalavalasa, Vizianagaram-535005, Andhra Pradesh
Accredited by NAAC with 'A' Grade & Listed u/s 2(f) & 12(B) of UGC
(Approved by AICTE, New Delhi and Permanently Affiliated by JNTUK-Kakinada)
NBA Accredited UG Courses: B.Tech(MEC), B.Tech(CIV), B.Tech(EEE), B.Tech(ECE), B.Tech(CSE), B.Tech(IT), B.Tech(MEC) & B.Tech(CHE) and PG Course: MBA

POLICY DOCUMENT ON PERFORMANCE REVIEW PROCESS FOR FACULTY

(with effect from the academic year 2015-16)

MAHARAJ VIJAYARAM GAJAPATHI RAJ (MVGR) COLLEGE OF ENGINEERING

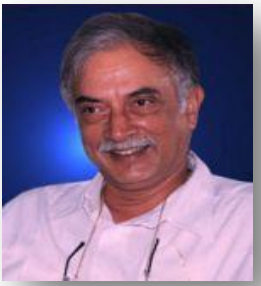
(AUTONOMOUS)

Approved by AICTE, Accredited by NBA of AICTE, NAAC with 'A' Grade of UGC, and Permanently Affiliated to JNTU-K, Kakinada

The visionaries

Late Dr. P V G Raju
Raja Saheb of Vizianagaram
Founder Chairman-MANSAS
Ex-Minister for Education and Health, Govt. of AP
Ex Member of Parliament

Dr. P. Anand Gajapathi Raju
Chairman-MANSAS
Ex-Minister for Education and Health
Govt. of AP
Ex Member of Parliament



P. Ashok Gajapathi Raju
Vice Chairman-MANSAS
Union Minister for Civil Aviation, Govt. of India
Ex-Minister for Finance, Govt. of AP

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ABBREVIATIONS:

CS: Current Semester
CS_{m-1}: Current Semester minus one (the semester before CS)
CS_{m-2}: Current Semester minus two (the semester before CS_{m-1}),
Lab: Laboratory
hrs: hours
#: number of
SAR: Self-Appraisal Report
PI: performance Indicator
MOOCs: Massive Open Online Courses
NPTEL: National Program on Technology Enhanced Learning
FDP: Faculty Development Program
WS: Work Shop
PG: Post Graduate
CO: Course Orientation
BC: Bridge Course
RC: Remedial Course
Engg: Engineering
Yr: Year
Prgm: Program
Dept: Department
Sec: Section
WL/WWL: Weekly Work Load
NA: Not Applicable
ADEs: Advanced /Design Experiment
CA: Continuous Assessment
RLCs: Remedial Lab Classes
WE: Work Equivalence
Avg: Average
J: Journal
IF: Impact Factor
GATE: Graduate Aptitude Test of Engineering
CAT: Common Aptitude Test
IES: Indian Engineering Service
SDP: Staff Development Program
MVGR: MVGR College of Engineering
NIT: National Institute of Technology
IIT: Indian Institute of Technology
IIM: Indian Institute of Management
ISSN: International Standard Serial Number
ISBN: International Standard Book Number
SW: Software
L: Lakh

Co-PI: Co-Principal Investigator
UGC: University Grants Commission
AICTE: All India Counsel for Technical Education
CSIR: Counsel of Scientific and Industrial Research
DST: Department of Science and Technology
IE: Institute of Engineers
SWOT /SWOC: Strength, Weakness, Opportunity and Threat /Challenge
MAX /Max: Maximum
MIN /Min: Minimum
ASTP: Assistant Professor
SRTP: Senior Assistant Professor
ASCP: Associate Professor
PROF: Professor
CHE: Dept of Chemical Engg
CIV: Dept of Civil Engg
CSE: Dept of Computer Science & Engg
ECE: Dept of Electronics and Communication Engg
EEE: Dept of Electrical and Electronics Engg
IT: Dept of Information Technology
MEC: Dept of Mechanical Engg
MAT: Dept of Mathematics
MCA: Dept of MCA
MBA: Dept of MBA
PHY: Dept of Physics
CHY: Dept of Chemistry
E&H: Dept of English and Humanities
MI: Month of Increment
MI_{m-1}: Month of Increment minus one (Month before MI)
ESTD: Establishment
MOBROBS: Modernization and Removal of Obsolescence
RPS: Research Promotion Scheme
SDP: Staff Development Program
FDP: Faculty Development Program

CONTENTS

1. Concept and Introduction

Any educational system believes in the premise that people are more productive when they agree on what is expected of them and receive feedback on their performance.

The success of the performance review process through self-appraisal is essentially associated with establishing a constructive dialogue between the appraisers and appraised. This can be a valuable process for both the institute and faculty as it improves communication channels between both sides.

Institutes can have the best infrastructure and can adopt and develop the best curricula, yet ultimately it is the caliber and standards of the faculty members that have the most influence on the education process.

In addition, criterion 5 of NBA (National Board Accreditation), the accreditation body for engineering programs, focuses on faculty competencies. It states that "The faculty is the heart of any educational program. They must have the competencies to cover all of the curricular and non-curricular areas of the program. Further, faculty must be in a position to accommodate adequate levels of student- faculty interaction, particularly counseling, institutes service activities, and professional development activities.

The faculty must have appropriate qualifications and must be in a position to demonstrate sufficient authority to ensure development and implementation of processes for the evaluation, assessment, and continuing improvement of the program, its educational objectives and outcomes.

2. Expectations on Faculty in Higher Educational Institutions

In any system of higher education, faculty members are expected to:

- Be responsible for course development and participate in curriculum and program development.
- Fulfill all instructional delivery as specified in the policies and procedures of the institute.
- Participate in scholarly and research activities which enhance their professional development and contribute to their discipline.
- Serve as appropriate, in the department and institute committees.
- Provide professional services to the institute and stake holding community.

And therefore, the overall competence of the faculty may have to be judged by such factors as qualifications, diversity of background, teaching methodology, ability to communicate, enthusiasm for learning, level of scholarship, and participation in activities such as professional societies.

3. Objectives of Self-Appraisal Report

With an objective to develop a simpler but more effective and relevant evaluation system, a customized version of University Grants Commission's Performance Based Appraisal System (PBAS), has been brought in. The same has been named as Annual Self-Appraisal Report (SAR) The evaluation system through SAR will have the following main aims:

- Helping faculty members recognize areas for development and improvement, and to capitalize on their areas of strength.
- Building a database that can be used for professional and career advancements.
- Provide opportunities for discussion and feedback in order to identify problems, obstacles, or difficulties that hinder progress and institution development.
- Determining the intellectual value added by each faculty member for the period of assessment

4. Basic Unit of Assessment

It is expected that a faculty member requires a total of 120 hours to teach a **theory course with a weekly workload of three hours**. The indicative split of 120 hours is as shown below:

Activities throughout the semester	Hours
Class room teaching @ 3 hours per week in a semester time of 16 weeks	: 48
Conduct of Orientation & Bridge courses and Tutorial, Make up & Remedial classes	: 24
Preparation, assignments, quizzes, projects, question papers setting, evaluation, guidance, counseling and mentoring	: 48
TOTAL	: 120

For the purpose of developing broad guidelines 'course with three hours per week' is taken as the basic unit. i.e.,

UNIT = 120 hours of engagement

Also, **HOUR = 50 minutes**

5 Work Norms (Expected Minimum Work Output)

Calculation:

Total number of days in a year		: 365
Sundays	(-)	: 52
Second Saturdays	(-)	: 12
Vacation days	(-)	: 28
Public holidays	(-)	: 12+3=15
Total working days for		: 258

Total work output expected from a faculty in an year time =

$$\frac{Number\ of\ working\ days\ in\ an\ year\ \times\ Number\ of\ hours\ in\ a\ day}{120}$$

$$= \frac{258 \times 7}{120} = 15.05 \text{ units}$$

Therefore, Expected work output for any faculty in an year = 15 units

6. Academic and other Performance Indicators

To assess quality and quantity of yearly work output, the following **Performance Indicators (PIs)** with regard to academic, co & extracurricular, research & consultancy and profession related activities are identified:

S.No.	**Quantifiable Performance Indicator (PIs)**
1	Theory Courses handled
2	Lab Course conducted
3	Student Projects undertaken
4	Student Seminars, Club Activities, Mini Reports of MBA and Bridge Courses
5	Learning materials developed
6	Training modules conducted
7	Online Certificate Courses
8	Attending FDPs such as WS /Conferences /seminars etc…
9	Organizing FDPs such as WS /Conferences /seminars etc…
10	Professional Roles
11	Students Counseling / mentorship
12	Memberships of professional bodies
13	Industrial visits
14	Chairing Sessions and Delivering Talks & Lectures
15	Any Other Outside Interaction
16	Industry Internships
17	Journal Publications
18	Conference Publications
19	Research guidance
20	Book publications
21	Patents
22	Product Design / Software Development
23	Consultancy
24	Funded Projects

7. Quantification Process of Performance Indicators

7.1. **Theory Courses**

Quantification is based on weekly work load of the course including tutorials. As remedial and make up classes conducted for the course are integral part of course delivery they shall not get included. Quantification is subject to a maximum of 1.66 units for any theory course

# hours per week as per the time table	Unit
One	0.33
Two	0.66
Three	1.00
Four	1.33
Five or more	1.66

Assessment type: Formula

Assessment parameters:

Classes held: 35%, Students feedback: 25%, Class average mark: 25% and other quality measures (like course orientation (CO), Bridge courses (BCs) & Remedial classes(RCs) 5% each in cases where they are applicable): 15%.

Depending on the class average mark the performance attainment levels are graded as follows:

Range of class average mark (in %)	Grade on performance
Above 70	Excellent
65 - 70	Very Good
60 - 65	Good
55 - 60	Average
50 - 65	Poor
40 - 50	Very Poor

The following is the layout of this PI in SAR:

	Indicate the theory courses handled during the semesters CS_{m-1} and CS_{m-2} in the respective tables below:										
	Course Details		Assessment								Score
	Subject Name	WL	Classes handled (35%)		Students Feed Back (25%)		Class Average Mark out of 100 (25%)	Quality Measures (5% each)			Awarded
	Yr & Prgm	Dept & Sec	Planned	Held	Cycle I	Cycle II		CO	BCs	RCs	Attained
	CS_{m-1}: 1st Semester-2014-15				How many theory courses were handled in CS_{m-1}:						
1											
2											
3											
4											
	CS_{m-2}: 2nd Semester-2013-14				How many theory courses were handled in CS_{m-2}:						
1											
2											
3											
4											

Options in each of the heads '*CO /BCs /RCs'* are: 1) Yes, 2) NO & 3) Not Applicable.

Note: While calculating 'class average mark' **the marks obtained by failed candidates** must also be taken care i.e., sum of the marks of failed candidates is to be added to numerator and number of such failed candidates is to be added to denominator

Note: For any theory course, **'class average mark' is always to be calculated for 100** irrespective of the mark to which it is evaluated i.e., if any particular theory course is evaluated for 70 then the 'class average mark' is to be scaled up to 100 and in case it is evaluated for 150 then it has to scaled down 100.

Note: While entering the theory courses handled in SAR, **section wise entries are to be made**. That is, if the same theory course is taught to more than one section, say for example two sections of the same year and program, then two entries are to be made otherwise 3 entries in case of three sections.

Note: **There is no threshold limit on achievements levels of this PI**

7.2. **Lab courses**

Quantification is based on number of per-week hours practically handled to complete the Lab course. Quantification is subject to a maximum of 1.50 units for any lab course

# hours per week as per the time table	Unit
One	0.16
Two	0.33
Three	0.50
Four	0.66
Five	0.83
Six or more	1.00

Assessment type: Formula

Assessment parameters:

Classes held: 40%, Students feedback: 0%, Class average mark: 35% and other quality measures (like advanced / design

experiments (ADE), Continuous Assessment (CA) & Remedial lab classes (RLCs) 5% each in cases where they are applicable): 15%.

The following is the layout of this PI in SAR:

	Indicate the lab courses handled during the semesters CS_{m-1} and CS_{m-2} in the respective tables below:										
	Course Details			Assessment							Score
	Subject Name	WL	Classes handled (40%)		Students Feed Back (0%)		Class Average Mark out of 100 (35%)	Quality Measures (25%)			Awarded
	Yr & Prgm	Dept & Sec	Planned	Held	Cycle I	Cycle II		ADE (5%)	CA (15%)	RLCs (5%)	Attained
	CS_{m-1}: 1st Semester-2014-15				How many lab courses were handled in CS_{m-1}:						
1											
2											
3											
	CS_{m-2}: 2nd Semester-2013-14				How many lab courses were handled in CS_{m-2}:						
1											
2											
3											

Options in each of the heads 'ADE / *CA /RLCs'* are: 1) Yes, 2) NO & 3) Not Applicable.

Note: As of now, students feedback is not being taken for a lab course as the existing tool is not supporting. Efforts are on to make necessary adjustments in the existing tool for the purpose. Once it is ready, appropriate weightage will be given for students feedback also.

Until such weightage for student feedback on lab courses is made 0%.

Note: While calculating 'class average mark' **the marks obtained by failed candidates** must also be taken care i.e., sum of the marks of failed candidates is to be added to numerator and number of such failed candidates is to be added to denominator

Note: For any theory course, **'class average mark' is always to be calculated for 100** irrespective of the mark for which it is evaluated i.e., if course is evaluated for 70 then the 'class average mark' is to be scaled up to 100 and in case it is evaluated for 150 then it has to scaled down 100.

Note: While entering the lab courses handled in SAR, **section wise entries are to be made**. That is, if the same lab course is handled to more than one section, say for example two sections of the same year and program, then two entries are to be made otherwise 3 entries in case of three sections.

Note: Weekly work load (WWL) of the lab course is to be indicated as per the curriculum. That is, WWL for any lab course may practically be 6 but it will be counted as 3 for quantification purpose. In case of virtual lab courses in physics it will be 2.

Note: **There is no threshold limit on achievements levels of this PI**

In case of activities other than class room courses, work equivalences are obtained. And these work equivalences (WEs) are calculated based on the expected time required to ideally perform the activity

7.3. Project Work

Work equivalence for project work is calculated via credit points associated to the project through the formula: **Per-student unit = 0.015 * Credits.** However the total work equivalence under the head of *project work* shall not exceed 1.80 units in a year for any faculty.

Level of project	Work equivalence per student	Remarks
B.Tech.	0.18 Units	12 credits
MBA	0.12 Units	8
MCA.	0.27 Units	18 credits
M.Tech.	0.54 Units	18 + 18 credits

Assessment type: Formula & Self-assessment
Assessment parameters for project work of B.Tech.

Average mark: 60%, Research output 20% and self-grading of Quality of project work: 20%.

The following is the layout of this PI in SAR:

(i)	**B.Tech Projects**: In case of B.Tech. projects, batch wise entries are to be made.						
	Have you guided any batch of B.Tech students for their projects during the period?			Yes	How many ?	1	
	Batch Details			Assessment			Score
	Batch Number	Size	Submitted?	Avg. Mark (60%)	Self-grading of quality of work (20%)	Research output is published in (20%)	
1	Batch 1						
2	Batch 2						

Options under the head *'Self-grading of quality of work'* are: 1) Advanced, 2) Moderate & 3) Below moderate

Options under the head *'Research output is published in'* are: 1) International J with IF, 2) National J with IF, 3) Journal without IF, 4) Conference proceedings & 5) Not published

Assessment parameters for project work of M.Tech. / MCA

Grade: 40%, Research output 40% and self-grading of Quality of project work: 20%.

The following is the layout of this PI in SAR:

(ii)	**M.Tech/MCA Projects**: In case of M.Tech. and MCA projects, student wise entries are to be made.							
	Have you guided projects of M.Tech /MCA students during the period under reference?				Yes		How many?	
	Details of Project student			Assessment				Score
	Roll Number	Prgm	Specialisation /Dept	Submitted?	Grade (40%)	Self-grading of quality of work (20%)	Research output is published in (40%)	
1								
2								

Options under the head *'Self-grading of quality of work'* are: 1) Advanced, 2) Moderate & 3) Below moderate

Options under the head *'Research output is published in'* are: 1) International J with IF, 2) National J with IF, 3) Journal without IF, 4) Conference proceedings & 5) Not published

Assessment parameters for project work of MBA

Note: There are two types of project works in MBA, i) **Minor Report** & ii) **Major Project**. It is observed that the activity of 'minor report' does not fit into Project Work and therefore faculty of MBA engaged in minor report activity are advised to fill it in 7.4. Below is the list of assessment parameters in case of Major project of MBA

Grade: 50%, Research output 20% and self-grading of Quality of project work: 30%.

The following is the layout of this PI in SAR:

(iii)	MBA Major Projects: In case of MBA Major projects, the information pertaining to the entire group of students under one faculty can be entered in one go.							
	Have you guided major projects of MBA students during the period under reference?					Yes	How many?	11
	Specialization	Grade (50%)				Self-grading of quality of work (30%)	Research output is published in (20%)	Score
		A's	B's	C's	B's			
1								

Options under the head '*Self-grading of quality of work'* are: 1) Advanced, 2) Moderate & 3) Below moderate

Options under the head *'Research output is published in'* are: 1) International J with IF, 2) National J with IF, 3) Journal

Note: There is no threshold limit on achievements levels of this PI

7.4. Student Seminars, club activities and bridge courses

Work equivalence to this performance Indicator i.e., *student seminars/club activities* is quantified based on the number of hours students are engaged by faculty. **However, the total work equivalence under the head shall not exceed 1.00 units.**

Type of engagement	Work equivalence per hour
Bridge Course	I course hr = 2.5 hrs
Student seminars.	I seminar hr = 1.1 hrs
Club activities	I activity hr = 1.1 hrs

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR:

	Have you engaged yourself in any of the above activities during the period?						Yes	How many?	0
	Type of student engagement	Details of students benefited			Period		# Hours	Brief description about the engagement	Score
		Yr & Prgm	Dept. & Sec	#	From	To			
1									
2									
3									

Options under the head *'Type of student engagement'* are: 1) Students Seminars, 2) Student Club Activities & 3) Bridge Courses for Lateral entries.

7.5. Learning Materials Developed

Course material development is a continuous process at the department. Faculty are encouraged to continuously involve in the activity of course material development in the form of Lab manuals, Course note materials and materials of competitive exams such as GATE , CAT etc. The quantification in this regard is based on the type material and its usefulness to students. **However the total work equivalence under this PI shall not exceed 0.75 units in a year for any faculty.** Other details are shown below:

Type of material	**Work Equivalence**	
	If developed first time and made the material available to the reach of students by hosting it intranet and department website (a)	**If updation, editing and/ or revision is done to the existing material (40% of (a))**
GATE	0.20 Units	
Manuals	0.15 Units	
Any other	0.08 Units	

Note: Preparing 'note material' is regarded as a part and parcel of teaching methodology. And therefore shall not carry any score.

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR:

	Have you developed any learning materials during the period ?				Yes	How many ?	0
	Material developed	Details of students benefited			Type of involvement in developing the material	Accessibility of the material developed	Score
		Yr & Prgm	Dept. & Sec	# students			
1							
2							
3							
4							

Options under the head '*Material developed'* are: 1) GATE, 2) Lab Manual, 3) Any other.

Options under the head '*Type of involvement in developing the material'* are: 1) First time developed & 2) Revised existing material.

Options under the head '*Accessibility of the material developed '* are: 1) Hosted in intranet & 2) Copies kept in dept. library.

7.6. Training modules conducted

This Performance Indicator is quantified based on the type of module, target group and number of hours of such training as detailed below, **subject to a maximum of 1.20 units per year per faculty**

Type of the training module	Work equivalence per hour
Training to students in competitive exams such as IES, GATE, CAT etc.	I Training hr = 1.5 hrs
Training to faculty on a specific expertise	I Training hr = 1.2 hrs
Training to Non-teaching staff on a specific expertise	I Training hr = 1.1 hrs

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR:

	Have you conducted any training modules during the period ?				Yes	How many ?		0	
	Type of training module conducted	Remunerative?	Details of students benefited			Period		# Hours	Score
			Yr & Prgm	Dept. & Sec	# students	From	To		
1									
2									
3									

Options under the head *'Type of training module conducted'* are: 1) Training to students in competitive exams such as IES, GATE, CAT etc., 2) Training to faculty on a specific expertise & 3) Training to Non-teaching staff on a specific expertise.

Note: Maximum number of hours for any particular training module is limited to 30 hours

Note: Activities which are remunerative shall not carry any unit. For example, paid services such as training faculty and /or students on ADD-ON and such other courses will not carry any weightage here. These paid services are supposed to be over and above the normal work load of the faculty as these services fetch honorarium. However this activity shall be encouraged to the faculty as it will bring lots of field experience and industry readiness in them

7.7. Online Certificate Courses (like MOOCs, NPTEL etc…)

Online Certificate Courses are gradually gaining their importance these days. This PI is quantified based on the relevancy of the course to the field of specialization, duration

of such course and type of course as detailed below **subject to a maximum of 1.00 units per year per faculty**

Relevancy to the field of specialization of the faculty	Work equivalence per hour in case the course is	
	Certified (a)	Not certified (50% of (a))
Highly relevant to the field of specialization	1 online course hr = 1.2 hrs	
Supplementing to the field of specialization	1 online course hr = 1 hrs	
General course, not relevant to the field	1 online course hr = 0.5 hrs	

Note: Maximum number of hours for any particular on-line course is restricted to 48 hours
Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR:

	Have you done any such courses during the period ?					No		0
	Name of online course	Offered by	Period		Duration (in hrs.)	Certified?	Relevancy to the field of specialization	Score
			From	To				
1								
2								

Options under the head '*Relevancy to the field of specialization'* are: 1) Highly relevant to my field, 2) Supplementing my field & 3) General course, not relevant to my field

7.8. Attending FDPs

Attending FDPs such as WS/Seminars/Conferences/ MEETs/Refresher Courses/ SDPs/ training programs etc. is expected to be a regular activity for a teacher to make himself equipped with the current trends in his/her field of specialization. This PI is quantified based on duration of the activity and reputation of the host institution. **However the**

total work equivalence under this PI shall not exceed 1.00 units in a year for any faculty

Level of host Institute	Work Equivalence per day
IIT/IIM	8 hrs (a)
NIT	75% of (a)
University	60% of (a)
Other college	50% of (a)
MVGR	40% of (a)

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you attended any FDPs during the period ?				No			0
	Type of FDP attended	Level of Inst.	Title of Event	Host Institution	Period		# days	Score
					From	To		
1								0
2								0
3								0

Options under the head '*Type of FDP attended'* are: 1) Seminar, 2) Workshop, 3) Conference, 4) Refresher Course, 5) Training Program, 6) QIP, 7) FDP, 8) MEET & 9) Any other.
Options under the head '*Level of Institute'* are: 1) IIT, 2) IIM, 3) NIT, 4) University , 5) College & 6) MVGR.

7.9. Organizing FDPs

Conducting FDPs such as WS/Seminars/Conferences/ MEETs/Refresher Courses/ SDPs/ training programs etc.is quantified based on level of the activity and type of resource to organize the event. **However the total work equivalence under this PI shall not exceed 1.20 units in a year for any particular faculty**

Type of funding (External, Sponsorships & Internal)	Work equivalence per day in case the FDP is organized in the capacity of	
	Convener (a)	Coordinator (50 % of (a))
Fully externally funded	12 hrs	
Partially externally funded	10 hrs	
MVGR funds + outside Sponsorships	8 hrs	
Fully funded by MVGR	7 hrs	

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you conducted/organized any FDPs during the period ?		No				0
	Type of FDP organized	Type of funding (External, Sponsorships & Internal)	Organized in the capacity of	Period		# days	Score
				From	To		
1							
2							

Options under the head '*Type of FDP organized'* are: 1) Seminar, 2) Workshop, 3) Conference, 4) Refresher Course, 5) Training Program, 6) QIP, 7) FDP, 8) MEET & 9) Any other

Options under the head '*Type of funding (External, Sponsorships & Internal)'* are: 1) Fully externally funded, 2) Partially externally funded, 3) MVGR funds+ outside Sponsorships &4) Fully funded by MVGR.

Options under the head '*Organized in the capacity of'* are: 1) Convener, 2) Coordinator.

7.10. Professional roles (Acad. /Admin. /PG / Exam Cell Coordinators/Members and Conveners of Committees)

Professional related roles such as Acad./Admin./PG/Exam Cell Coordinators are quantified based on the expected work output under these designations. Committee memberships are quantified based on level of the committee and type of membership. **The total work equivalence under this PI shall not exceed 3.00 units in a year for any particular faculty.**

Type of committee	Work Equivalence
Academic /Administrative Coordinators of the departments	1.5 Units in case of THREE division branch 1.2 Units in case of TWO division branch 0.9 Units in case of SINGLE division branch including MBA 0.3 Units in case of Science & Humanities departments
Examination cell coordinator / In-Charge	1.75 Units
PG Coordinators of M.Tech. programs	0.5 Units

Other roles

Dept NBA /IQAC Coordinator	0.30 Units
Central Students feedback coordinator	0.30 Units
Class Teacher I/c	0.30 Units
Dept Exam Cell I/c Member 3 (on line server)	0.45 Units
Dept Exam Cell I/c Member 2	0.45 Units
Dept Exam Cell I/c Member 1	0.75 Units
Dept T&P Coordinator Member 2	0.75 Units
Dept T&P Coordinator Member 1	1.00 Units
Central Exam Cell Coordinator	1.75 Units

Committees

S.No.	Name of the Committee	Members (a)	Convener 3 times of (a)
1	Disciplinary	12	
2	Canteen	12	
3	Anti-Ragging	12	
4	NCC	12	
5	Grievance & Redressal	12	
6	Alumni	12	
7	EDC	12	
8	Magazine	12	
9	Transport	24	
10	Library	24	
11	Purchase	24	
12	Cultural	24	
13	NSS	24	
14	Women Empowerment Cell	24	
15	R & D	24	
16	Press and Media	24	
17	Time Table	36	
18	E-Services	36	
19	Website Maintenance	36	
20	Maintenance	48	

Assessment type: Self-assessment

Assessment parameters: Self-rating on outcomes achieved: 100%

The following are the layouts of different item under this PI in SAR

(i) **Department Coordinators**

	Are you?	Department	Admn /Acad?	Since when?	Self-rating out of 10	Score awarded	Score
1							

(ii) **PG Coordinators**

	Are you?	Department	Which PG?	Since when?	Self-rating out of 10	Score awarded	Score
1							

(iii) **Other Coordinators/In-Charges**

	Are you?	Department	Which Coordinator?	Since when?	Self-rating out of 10	Score awarded	Score
1							

(iv) **Members & Conveners of Committees**

	Are you?	Committee Name	Member/Convener?	Level	Since when?	Self-rating out of 10	Score awarded	Score
1								
2								
3								

The above layouts may include the following roles of administration: Academic and Administrative coordinators, PG coordinators, Exam Cell coordinators / In-charges, Student feedback Coordinator, Conveners & Members of Central & Department level committees.

7.11. Student Counseling / Mentorship

Mentoring/Counseling students is quantified based on number of students @ 0.03 units per student. **The total work equivalence under this PI shall not exceed 0.75 units in a year for any particular faculty**

Assessment type: Self-assessment
Assessment parameters: Self-rating on outcomes achieved: 100%

The following is the layout of this PI in SAR

	Have you been assigned with any students for counseling?								Yes		How many?	5
	Roll Number	# backlogs year and semester wise							Total # backlogs	% of attendance	Specific remarks	Score per student
		1st Yr		2nd Yr		3rd Yr		4th Yr				
		I	II	I	II	I	II	I	II				
1												

2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
Assessment													
Proper records maintained for counseling?					Yes		Self-rating on the scale of 10:				Score after self-rating		

7.12. Memberships of Professional bodies

Professional body memberships are quantified based on number of memberships and the quantum and level of involvement in the activities of the professional body. **The total work equivalence under this PI shall not exceed 0.50 units in a year for any particular faculty.**

Level of involvement	Work Equivalence per memberships
Aggressively involved	0.20 Units
Satisfactorily involved	0.10 Units
No involvement	0 Units

Assessment type: Self-assessment
Assessment parameters:
Self-rating on outcomes achieved and quantum of involvement in the activities of the professional body: 100%

The following is the layout of this PI in SAR

	Are you a member any professional body as of now?				No		0
	Professional Body	Type of Membership	Since when?	Describe your involvement as member	Self-rating on involvement		Score
1							
2							
3							

Options under the head '*Type of Membership'* are: 1) Life, 2) Annual & 3) Any other

Options under the head '*Self-rating on involvement'* are: 1) Aggressively involved, 2) Satisfactorily involved & 3) No involvement.

7.13. Industries Visited

Visiting industries is quantified based on duration of the activity and reputation and /or relevancy of the host industry. **However the total work equivalence under this PI shall not exceed 1.00 units in a year for any faculty**. Other details are shown below:

Relevancy of the host industry	Work Equivalence per day
Highly relevant	8 hrs
More or less relevant	6 hrs
Not relevant but guided the students	4 hrs

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you visited any industries during the period ?						No		2
	Name of the industry visited	Students benefited out of the visit			Relevancy of the visit to the area of specialization	Period		# days	Score
		Yr & Prgm	Dept. & Sec	# students		From	To		
1									
2									
3									

Options under the head '*Relevancy of the visit to the area of specialization'* are: 1) Highly relevant, 2) More or less relevant & 3) Not relevant but guarded the students.

7.14. Chairing Sessions and Delivering Talks & Lectures (In or outside the campus)

Outside interaction such as Chairing Sessions and Delivering Talks & Lectures has become an integral part of the business of today's teacher. **However the total work equivalence under this PI shall not exceed 1.00 units in a year for any faculty**.

Chairing sessions / delivering talks at FDPs

Quantification is based on level of platform of delivery and whether delivered in or outside the campus as detailed below:

Level of platform of delivery	**Work Equivalence per hour in case the platform of delivery is**	
	Outside campus (a)	**Inside the campus (50% of (a))**
International	1 talk / chairing hr = 10 hrs	
National	1 talk / chairing hr = 7.5 hrs	
State level	1 talk / chairing hr = 5 hrs	

The following is the layout of this PI in SAR

(i)	Have you chaired/Co-chaired any sessions or delivered TALKS during the period ?					No		2
	Geographical Level of platform of delivery	Inside or out campus	Name of the platform	Type of delivery	During the period		# such deliveries	Score
					From	To		
1								
2								
3								

Options under the head '*Geographical Level of platform of delivery'* are: 1) International Level, 2) National Level & 3) State Level.

Options under the head '*Name of the platform'* are: 1) Seminar, 2) Workshop, 3) Conference, 4) Refresher Course, 5) Training Program, 6) QIP, 7) FDP, 8) MEET & 9) Any other

Assessment type: No assessment (do it and get it)

Guest /Expert Lectures at institutions

Quantification is based on number of lecture hours delivered as detailed below:

Whether in or outside the campus	
Outside campus (a)	**Inside the campus (50% of (a))**
1 guest/expert lecture hr = 2 hrs	

The following is the layout of this PI in SAR

(ii)	Have you delivered any guest or expert LECTURES during the period under reference?					No		2
	Inside or out campus	Host institution	Who are the audience?	Type of delivery	During the period		Total # hours	Score
					From	To		
1								
2								
3								

Options under the head '*Type of delivery'* are: 1) Guest Lecture & 2) Expert Lecture

Assessment type: No assessment (do it and get it)

Note: While In-Campus activities of lecturing / training covered in ITEM NO: 7.6 shall not come under this ITEM.

7.15. Any Other Outside interaction

This PI is quantified based on the number of hours of such interactions @ 1hr per each of such hour of interaction **subject to a maximum of 0.50 units per year per faculty.**

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Do you have interaction with any outside agency during the period ?	Yes	How many?	
	Interaction with	Brief description on type, level, outcome and benefits of interaction	# hours	Score
1				
2				

Note: Number of hours of interaction is restricted to 12 hours for each entry

7.16. Industry Internships

This PI is quantified based on the number of days the teacher has undergone the industry internship @ 6 hours per day. **However the total work equivalence under this PI shall not exceed 2.00 units in a year for any faculty.**

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you undergone any industry internships in the period under reference ?		Yes		How many?	
	Industry	Description about internship	During the period		# Days	Score
			From	To		
1						
2						

7.17. Journal publications

Journal publications are quantified based on the order of authorship and IF of the journal. Only published papers are allowed under this head. Accepted paper is to wait to be claimed in the subsequent year(s) when it is published.

Range of IF	Work Equivalence per author as per their order of authorship				
	1st author/ 2nd author but 1st author is guide /3rd author but 1st & 2nd authors are guides (a)	**2nd author (75% of (a))**	**3rd author (50% of (a))**	**4th author (25% of (a))**	**5th author (15% of (a))**
No IF	0.30 Units if International 0.20 Units if National				
0 to 1.99	0.50 Units				
2.00 to 5.00	0.65 Units				
Above 5.00	0.75 Units				

Note: There is no threshold limit on achievements levels of this PI

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you got any articles published in journals during the period ?				No		0
	# authors	Position of authorship	IF	National/International?	Journal type	Year	Score
1							
2							
3							

Options under the head '*Position of authorship'* are: 1) 1st author, 2) 2nd but 1st is guide, 3) 3rd but 1st & 2nd are guides, 4) 2nd author, 5) 3rd author, 6) 4th author & 7) 5th author.

Options under the head 'Journal type' are: 1) Hard copy journal & 2) Online journal.

Note: An international journal is one, which has international Editorial board, international authors, international readership, and international subscription and is included in the standard abstracting/ indexing services.

Note: The type of IFs which will be considered is Thomas Reuters/Science Citation Index. The IFs rated by other agencies will also be considered in case their rating process is in line with that of Thomas Reuters. However the decision of scrutinizing committee with regard to IFs will be final.

7.18. Conference Publications

Conference publications are quantified based on the order of authorship and level of conference. Only published papers are allowed under this head. Accepted paper is to wait to be claimed in the subsequent year(s) when it is published. **The total work equivalence under this PI shall not exceed 1.00 units in a year for any faculty.**

Level of Conference	Work Equivalence per author as per their order of authorship				
	1st author/ 2nd author but 1st author is guide /3rd author but 1st & 2nd authors are guides (a)	**2nd author (75% of (a))**	**3rd author (50% of (a))**	**4th author (25% of (a))**	**5th author (0% of (a))**
International	0.20 Units				
National	0.15 Units				

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you got any articles published in conferences during the period ?			Yes	How many?	2	
	# authors	Position of authorship	Venue of Conference	National/ International?	Proceeding type	Year	Score
1							
2							
3							

Options under the head '*Position of authorship'* are: 1) 1st author, 2) 2nd but 1st is guide, 3) 3rd but 1st & 2nd are guides, 4) 2nd author, 5) 3rd author, 6) 4th author & 7) 5th author.

Options under the head '*Proceedings'* are: 1) Hard copy journal & 2) Online journal.

7.19. Research guidance

Research guidance is quantified based on the level research degree and level supervision. And, to be counted each year for maximum up to 4 years.

Level of Research degree	Work Equivalence		
	Supervisor (a)	Co-supervisor 1(50% of (a))	Co-supervisor 2 (30% of (a))
Ph.D.	0.90 Units		
M.Phil.	0.30 Units		

Note: There is no threshold limit on achievements levels of this PI

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Are you currently guiding any research students (Ph.D. or M.Phil.)?			Yes	How many?	2	
	Degree	University	Guide or Co-Guide?	DoR (mm/dd/yyyy)	Time lapsed	Student particulars	Score
1							
2							
3							

Options under the head '*Degree'* are: 1) Ph.D. & 2) M.Phil.

Options under the head '*Guide or Co-Guide?'* are: 1) Guide, 2) Co-Guide-1 & 3) Co-Guide-2.

7.20. Book publications

Level of Publishing house	Work Equivalence per author as per their order of authorship				
	Units for first author (a)	Second author (85% of (a))	Third author (75% of (a))	Fourth author (65% of (a))	Fourth author (55% of (a))
International	1.00 Units				
National	0.75 Units				
Regional	0.40 Units				
MVGR	0.20 Units				

Note: There is no threshold limit on achievements levels of this PI

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you authored any books in the period under reference?			Yes	How many?	1
	# authors	Position of authorship	ISSN/ISBN is there?	Level of Publishing House	Title and other particulars of the book	score
1						
2						

Options under the head '*Position of authorship'* are: 1) 1st author, 2) 2nd author, 3) 3rd author, 4) 4th author & 5) 5th author.

Options under the head '*ISSN/ISBN is there'* are: 1) Yes, 2) No.

Options under the head '*Level of Publishing House'* are: 1) International, 2) National, 3) Regional & 4) MVGR.

7.21. Patents

Procuring patents is highly encouraged . It is quantified based on its stage of filing and level of filing as detailed below:

Level of patent	Work Equivalence per patent	
	Obtained	Filed
International	5 Units	3 Units
National	4 Units	2 Units

Note: There is no threshold limit on achievements levels of this PI

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you obtained / filed any patents in the period under reference?			Yes	How many?	
	Status patent	Level of patent	Date of filing	Description of patent		Score
1						
2						

Options under the head *'Status patent'* are: 1) Obtained & 2) Filed.

Options under the head *'Level of patent'* are: 1) International & 2) National.

7.22. Product Design / SW development

It is quantified based on number of team members in the design / development activity and number of hours of involvement in the activity as detailed below:

Coordinator	**Coordinator 1**	**Coordinator 2**	**Coordinator 3**	**Coordinator 4**	**Coordinator 5**
Work Equivalence per one hour of design /development	1.5 hrs	1.0 hrs	0.75 hrs	0.5 hrs	0.25 hrs

Note: There is no threshold limit on achievements levels of this PI

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Have you designed / developed any product or software during the period?			Yes	How many?	1
	Name of Product / SW	# faculty in the team work	Position in the team	Description of the product /SW	# hrs. devoted	Score
		5	5		10	10

7.23. Consultancy

It is quantified based on number of coordinators and number of hours of involvement in the activity as detailed below:

Coordinator	Coordinator 1	Coordinator 2	Coordinator 3	Coordinator 4	Coordinator 5
Work Equivalence per one hour of consultancy	3hrs	2.5hrs	2hrs	1.5hrs	1hrs

Note: There is no threshold limit on achievements levels of this PI

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Are you currently involved in any consultancy work with outside agency?				Yes	How many?	2	
	Title of Consultancy work	Name of Granting Agency	# Coordinators involved	Position in order of coordinator-ship	Since when?	Grant/Amount mobilized	# hrs. devoted	Score
1								
2								

7.24. Funded Projects

The credit will be granted based on amount of funding and to be counted each year for a maximum of the project:

Range of External Funding	Work Equivalence		
	Units for PI (a)	Co PI -1 (75% of (a))	Co PI -2 (25% of (a))
Above 20 L	2.00 Units		
10 L - 20 L	1.50 Units		
5 L - 10 L	1.00 Units		
2 L -5 L	0.75 Units		
0.5 L - 2L	0.50 Units		
0.02 L - 0.5 L	0.30 Units		

Note: There is no threshold limit on achievements levels of this PI

Assessment type: No assessment (do it and get it)

The following is the layout of this PI in SAR

	Are you currently handling any externally funded project?	Yes	How many?	1			
	Title of project	Funded by	Period		Grant/Amount mobilized	Are you PI?	Score
			From	To			
1							
2							

Options under the head '*Funded by'* are: 1) UGC, 2) AICTE, 3) DST, 4) CSIR, 5) IE & 6) Any other.

Options under the head '*Are you PI?'* are: 1) PI, 2) Co-PI-1 & 3) Co-PI-2.

7.25. Summary on PIs

S.No.	**Quantifiable Performance Indicator (PIs)**	**Assessment?**	**Type of Assessment**	**Threshold limit, if any**
1	Theory Courses handled	Yes	Formula	No Limit
2	Lab Course conducted	Yes	Formula	No Limit
3	Student Projects undertaken	Yes	Formula + self-assessment	No Limit
4	Student Seminars, Club Activities etc,..	No	Do it and get it	1.00Units
5	Learning materials developed	No	Do it and get it	0.75Units
6	Training modules conducted	No	Do it and get it	1.20Units
7	Online Certificate Courses	No	Do it and get it	1.00Units
8	Attending FDPs such as WS /Conferences /seminars etc…	No	Do it and get it	1.00Units
9	Organizing FDPs such as WS /Conferences /seminars etc…	No	Do it and get it	1.20Units
10	Professional Roles	Yes	self-assessment	3.00Units
11	Students Counseling / mentorship	Yes	self-assessment	0.75Units
12	Memberships of professional bodies	Yes	self-assessment	0.50Units
13	Industrial visits	No	Do it and get it	1.00Units
14	Chairing Sessions and Delivering Talks & Lectures	No	Do it and get it	1.00Units

15	Any Other Outside Interaction	No	Do it and get it	0.50Units
16	Industry Internships	No	Do it and get it	2.00Units
17	Journal Publications	No	Do it and get it	No Limit
18	Conference Publications	No	Do it and get it	1.00Units
19	Research guidance	No	Do it and get it	No Limit
20	Book publications	No	Do it and get it	No Limit
21	Patents	No	Do it and get it	No Limit
22	Product Design / Software Development	No	Do it and get it	No Limit
23	Consultancy	No	Do it and get it	No Limit
24	Funded Projects	No	Do it and get it	No Limit

8. Structure of Self-Appraisal Report (SAR)

Structure of Self-Appraisal Report (SAR) is proposed as follows:

Criteria		Performance Indicator (PI)
CRITERIA I Teaching Learning Evaluation Related activities	I.1	Theory Courses handled
	I.2	Lab Course conducted
	I.3	Student Projects undertaken
	I.4	Student Seminars and club Activities
	I.5	Learning materials developed
	I.6	Training modules conducted
	I.7	Online Certificate courses (Like MOOCs, NPTEL etc…) done
CRITERIA II Co-Curricular, Extracurricular And Extension Activities	II.1	Attending FDPs such as WS /Conferences /seminars etc…
	II.2	Organizing FDPs such as WS /Conferences /seminars etc…
	II.3	Professional Related Roles (Acad./Admin./PG/Exam Cell Coordinators/ Members and Conveners of Committees)
	II.4	Students Counseling / mentorship
	II.5	Memberships of professional bodies
	II.6	Industrial visits
	II.7	Chairing Sessions and Delivering

		Talks & Lectures
	II.8	Any Other Outside Interaction
	II.9	Industry Internships
CRITERIA III R&D, Consultancy and other academic activities	III.1	Journal Publications
	III.2	Conference Publications
	III.3	Research guidance
	III.4	Book publications
	III.5	Patents
	III.6	Product Design / Software Development
	III.7	Consultancy
	III.8	Funded Projects
CRITERIA IV **(NOT TO BE ASSESSED)** SWOT/SWOC and other relevant Information	IV.1	No. of Leaves availed during the period of assessment
	IV.2	What could you and/or the department do differently to help you better perform your job?
	IV.3	Describe your major accomplishments during the period of assessment
	IV.4	Future plans in respect of the following aspects
	IV.5	SWOT/SWOC analysis
	IV.6	WORK OUT PUT PLANNER for the next period of assessment

9. General Observations & Instructions to fill SAR

9.1. General observations on SAR

The above norms are means to facilitate individual faculty members to plan and regulate their own activities and also assess their performance in quantitative terms. The intent of these norms is not to control any faculty members but to help and guide activities of individuals as well as those of the

University in a manner so that work goes on smoothly through a balanced and coordinated participation of every member. The units have been assigned on the basis of expected time required to be devoted for the performance of the academic activities and also to avoid double accounting for the same / similar academic activities.

9.2. General instructions to fill SAR

1. SAR is an excel spread sheet protected by a key. It works well in MS Office- **Excel 2010 version**. And therefore users are not advised to use lower versions of Excel.

2. There is a 'dark red strip' on the extreme left side of the entire document of SAR to provide row reference.

3. Other than the red strip, '**Light greenish blue'** and '**light orange'** are the only colors predominantly used in the SAR.

4. The cells marked with 'light orange' are read only and therefore not editable. **The cells marked with 'Light greenish blue' are the only cells to be filled by faculty.**

5. Different date formats are used depending on the format requirements of the excel sheet. Appropriate date format, as is requisitioned by the sheet, is indicated either through the input message or in the cell itself.

6. By default all the entries are marked with 'No' or '0' or otherwise **kept blank**.

7. Majority of the cells, in Light greenish blue shade, are equipped with DROP DOWNS and / or INPUT messages to provide ease in filling. Users are advised to make use of these features to avoid errors in filling.

8. Do not leave anything blank. In case not applicable please write 'Not Applicable' or simply, NA..

10. Yearly Work Output & Grading of Performance

Work Output expected to produce

Every faculty irrespective of his cadre is expected to produce a minimum of 15 units of work output per year subject to fulfillment of category wise minimums as is guided by the following table:

Cadre	Cadre wise & criteria wise work output expected out a minimum of 15				
	Criteria I	Criteria II	Criteria III	Criteria IV	Total
Asst. Professor/ Sr. Asst. Professor **(70% +20% + 10)**	10.5	3.0	1.50	--	15
Assoc. Professor **(60% +25% + 15)**	9.0	3.75	2.25	--	15
Professor **(50% +30% + 20)**	7.5	4.5	3.0	--	15

Work Output expected to earn after assessment

Out of 15 units of work output produced, he has to earn a minimum of 11.25 units, (75% of 15) irrespective of his cadre. No criteria wise minimums for this 11.25.

Grading of yearly performance

Based on work output earned after assessment, the yearly performance of the faculty shall be graded as per the following table:

Range of work out put earned	Yearly grade on performance

Above 20.25	Excellent
17.25 - 20.25	Very Good
14.25 - 17.25	Good
11.25 - 14.25	Satisfactory
Below 11.25	Not satisfactory

The following are the indicative tables of work outputs expected from the faculty of different cadres:

Assistant Professor

	Performance Indicator (PI)	**Yearly work description**	**WE**
I.1	Theory Courses handled	4 theory papers	5.32
I.2	Lab Course conducted	4 Lab courses	3.00
I.3	Student Projects undertaken	1 batch of B.Tech.	1.20
I.4	Student Seminars and club Activities	At least 16 hours of student seminars	0.30
I.5	Learning materials developed	2 (note material and /or lab manual)	0.30
I.6	Training modules conducted	Minimum 25 hours training	0.52
I.7	Online Certificate courses	At least one of 64 hours duration	1.00
		TOTAL(Criteria I)	11.64
II.1	Attending FDPs such as WS /Conferences /seminars etc…	A minimum of 2 FDPs	1.00
II.2	Organizing FDPs such as WS /Conferences /seminars etc…	1 may be at institute level	0.20
II.3	Professional Related Roles	2 committee members	0.48
II.4	Students Counseling / mentorship	Maximum 25	0.75
II.5	Memberships of professional bodies	one	0.10
II.6	Industrial visits	one	0.25
II.7	Chairing Sessions and Delivering Talks & Lectures (In or outside the campus)	Desirable	
II.8	Any Other Outside Interaction	Desirable	
II.9	Industry Internships	one	0.87
		TOTAL(Criteria II)	3.65
III.1	Journal Publications	1 with or without IF	0.60
III.2	Conference Publications	one	
III.3	Research guidance	Desirable	
III.4	Book publications	Desirable	
III.5	Patents	Desirable	
III.6	Product Design / Software Development	Desirable	

III.7	Consultancy	1 at least of worth Rs. 50,000/- external grant or consultancy	0.80
III.8	Funded Projects	Desirable	
		TOTAL (Criteria III)	1.40
		Total (I + II + III)	16.69

Associate Professor

	Performance Indicator (PI)	Yearly work description	WE
I.1	Theory Courses handled	4 theory papers	5.32
I.2	Lab Course conducted	2 Lab courses	1.50
I.3	Student Projects undertaken	1 batch of B.Tech.	1.50
I.4	Student Seminars and club Activities	At least 16 hours of student seminars	0.30
I.5	Learning materials developed	2	0.30
I.6	Training modules conducted	Minimum 25 hours training	0.52
I.7	Online Certificate courses	At least one of 64 hours duration	1.00
		TOTAL(Criteria I)	10.44
II.1	Attending FDPs such as WS /Conferences /seminars etc…	A minimum of 2 FDPs	0.50
II.2	Organizing FDPs such as WS /Conferences /seminars etc…	1 may be at institute level	0.60
II.3	Professional Related Roles	2 committee members	1.00
II.4	Students Counseling / mentorship	Maximum 25	0.75
II.5	Memberships of professional bodies	one	0.10
II.6	Industrial visits	one	0.25
II.7	Chairing Sessions and Delivering Talks & Lectures	one	0.50
II.8	Any Other Outside Interaction	Desirable	
II.9	Industry Internships	one	0.30
		TOTAL(Criteria II)	4.00
III.1	Journal Publications	1 with or without IF	1.00
III.2	Conference Publications	one	0.50
III.3	Research guidance	Desirable	
III.4	Book publications	one	0.75
III.5	Patents	Desirable	
III.6	Product Design / Software Development	one	1.00
III.7	Consultancy		0.70
III.8	Funded Projects	1 at least of worth Rs. 50,000/- external grant or consultancy	0.60

		TOTAL(Criteria III)	4.55
		Total (I + II + III)	18.99

Professor

	Performance Indicator (PI)	Yearly work description	WE
I.1	Theory Courses handled	3 theory papers	3.99
I.2	Lab Course conducted	2 Lab courses	1.50
I.3	Student Projects undertaken	1 batch of B.Tech. 1 M.Tech. project	1.50
I.4	Student Seminars and club Activities	At least 16 hours of student seminars	0.30
I.5	Learning materials developed	2	0.30
I.6	Training modules conducted	Minimum 25 hours training	0.52
I.7	Online Certificate courses	desirable	
		TOTAL(Criteria I)	8.11
II.1	Attending FDPs such as WS /Conferences /seminars etc…	one	0.50
II.2	Organizing FDPs such as WS /Conferences /seminars etc…	1 may be an external funded	1.20
II.3	Professional Related Roles	2 committee members	1.20
II.4	Students Counseling / mentorship	Maximum 25	0.75
II.5	Memberships of professional bodies	one	0.30
II.6	Industrial visits	one	
II.7	Chairing Sessions and Delivering Talks & Lectures	one	0.50
II.8	Any Other Outside Interaction	Desirable	
II.9	Industry Internships		
		TOTAL(Criteria II)	4.45
III.1	Journal Publications	2with or without IF	2.00
III.2	Conference Publications	one	0.50
III.3	Research guidance	one	
III.4	Book publications	one	0.75
III.5	Patents	one	2.00
III.6	Product Design / Software Development	one	1.00
III.7	Consultancy		0.70
III.8	Funded Projects	1	0.60
		TOTAL(Criteria III)	7.55
		Total (I + II + III)	20.11

11. Review Process & Scheduling

11.1. Applicability

The evaluation system through SAR shall apply to all faculty members of the institution who are drawing regular scales

11.2. Commencement & Periodicity

Review process through annual SAR shall come into force with immediate effect (i.e., from the month of July 2015). This review process is conducted annually in the month of increment. The outcome of the evaluation is confidential and is by no means a way to compare one faculty member against another.

11.3. Venue

Note: Venue of the review shall normally be CONFERENCE HALL of the ADMN BLOCK unless otherwise informed

11.4. Scheduling

Every year in the month of July Blank formats will be supplied to the HoD for onward transmission to the faculty in the department. **The period of assessment will always be the IMMEDIATELY PRECEDING ACADEMIC YEAR**. The following table depicts scheduling and the flow of actions expected to be taken up by the Faculty, HoD concerned and ESTD SEC before the REVIEW getting scheduled:

STEP I

Action-1 by ESTD SEC

Soft copies of appropriate versions of the following documents be forwarded to the mail IDs of HoDs of all the departments as e-mail attachments on 1st July every year.

1. Self-Assessment Report (SAR)
2. Policy Document
3. Work Output Planner
4. HoDs Appraisal

STEP II

Action-1 by HoD

The soft copies thus received (S. Nos 1, 2 & 3 but not 4 of the list in Step I) are in turn be forwarded to the respective mail IDs of all the faculty in the department, expect for those faculty in probationary period of one year.

STEP III

Action-1 by Faculty

The following activities be taken up by faculty upon receiving the formats:

1. Go through the policy document in detail particularly “Instructions to fill SAR”.
2. Fill the SAR by scrupulously following the instructions therein in Policy document.
3. The Filled in SAR be reverted back to the mail ID of the HoD for data validation in a week’s time (i.e., on or before 7th July)

STEP IV

Action-2 by HoD

The following activities be taken up by HoD upon receiving the filled in formats:

1. The filled in SARs thus received from all the faculty be thoroughly reviewed on line with the help of the senior faculty in the department including academic coordinator for necessary data validation.
2. After making appropriate adjustments, corrections, modifications etc…, be done wherever necessary, all of them be kept in one folder
3. The folder be named as "Validated SARs of XXX dept", and be reverted back to ESTD. SEC. on or before 15th of July
4. HoD fills his appraisal on the faculty of his department and they be kept in one separate folder and also be forwarded to ESTD. SEC. on or before 15th of July

STEP V

Action-2 by ESTD SEC

The following activities be taken up by ESTD SEC upon receiving the validated SARs & HoDs appraisals:

1. Print outs of SAR, HoDs appraisal and Review Board Remarks be taken.
2. All the three be kept/joined together faculty wise
3. Scheduling for reviews be done either month of Increment wise or otherwise based on the amount of yearly work output rendered by the faculty, at the discretion of the review board
4. Scheduling of reviews for individual faculty be communicated to the respective HoDs

STEP VI

Action-2 by Faculty

He prepares himself with the following documents /files to be produced at the time of review.

1. All supporting documents in line with the credentials claimed / facts stated in the SAR
2. All reports and plan(s) of actions as is requisitioned by the 'review board remarks' which were automatically popped up while filling SAR
3. Filled in WORK OUT PUT planner for the next period of assessment

Note: Faculty shall not send his /her filled in SAR directly to ESTD SEC.

Note: The entire process will go on ONLINE. No hard copies shall be submitted either by faculty or the department.

Note: Print out of filled in SAR be taken by ESTD SEC just before the review.

11.5. Review Board Members

Re view Board comprises of the following ex-officio member:

HoD-Concerned	Member
DEAN-FDP	Member
DEAN-R&D	Member
DEAN-TP&PG	Member
APAC	Member Coordinator
VPAC	Member
PRINCIPAL	Chairman

12. Documents to be Made Available at Time of Review

1. **Fill in Annual Self-Appraisal Report (Version: 01)**
2. **Work out put Planar for the next period of assessment**
3. **HoD's Appraisal on the faculty**
4. All documents supporting the credential claimed in the SAR including the following:
   - Course & Subject Files of all the theory subjects taught in the period of assessment
   - Lab Files of all the lab subjects handled in the period of assessment
   - Copies of student feedback on all the theory subjects taught in the period of assessment
   - All the records pertaining to students counseling
   - Any other document(s)/ file(s) in support of the credentials specified in the report

13. References

1 **Performance Based Appraisal System (PBAS**) recommended by University Grants Commission (UGC)

2 **A primer for University & College Teachers** by Dr. M. Adithan & Dr. R. Murugavel

3 **Annual Self-Assessment report** implemented in PUNJABI UNIVERSITY, PATIALA

4 **Performance Based Appraisal System (PBAS**) Proforma for Calculating Academic Performance Indicator (API) Score, Nagpur University ,Nagpur

5 **Faculty Appraisal and Development System** of GGS Indraprasta University, New Delhi

Sample PBAS Format-Self Assessment Report(SAR)

MAHARAJ VIJAYARAM GAPATHI RAJ COLLEGE OF ENGINEERING(AUTONOMOUS)
Vijayaram Nagar Campus, Chintalavalasa, Vizianagaram-535005, Andhra Pradesh
Accredited by NAAC with 'A' Grade & Listed u/s 2(f) & 12(B) of UGC
(Approved by AICTE, New Delhi and Permanently Affiliated by JNTUK-Kakinada)
NBA Accredited UG Courses: B.Tech(MEC), B.Tech(CIV), B.Tech(EEE), B.Tech(ECE), B.Tech(CSE), B.Tech(IT), B.Tech(MEC) & B.Tech(CHE) and PG Course: MBA

ANNUAL SELF ASSESSMENT REPORT-SAR

(In line with PBAS of UGC)

MVGR College of Engineering (Autonomous)

Version:02 | Revised on 06.09.2016

Faculty Name:	Drop↓			DoJ (mm/dd/yyyy):	05-12-2005
Designation:	Drop↓		Dept. Drop↓	Month of Increment:	Drop↓

Period of Assessment: 0

CATEGORY I TEACHING LEARNING EVALUATION RELATED ACTIVITIES

I.1 THEORY COURSES HANDLED: 0

Indicate the theory courses handled during the semesters CSm-1 and CSm-2 in the respective tables below:

	Course Details			Assessment Parameters								Score
	Subject Name		WL	Classes handled (35%)		Students Feed Back (25%)		Class Average Mark out of 100 (25%)	Quality Measures (5% each)			Awarded
	Yr & Prgm	Dept & Sec		Planned	Held	Cycle I	Cycle II		CO	BCs	RCs	Attained
	CSm-1:	Drop↓		Drop↓		How many theory courses were handled in CSm-1:						0
1				1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
2				1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
3				1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
4				1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
	CSm-2:	Drop↓		Drop↓		How many theory courses were handled in CSm-2:						0
1			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
2			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
3			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
4			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0

NOTE: In case Semester end examination marks are not yet announced, 'Class Average Mark' can be filled with an EXPECTED VALUE and the same be explicitly indicate / stated in the REMARKS below:

Remarks, if any?	

I.2 LAB COURSES CONDUCTED: 0

Indicate the lab courses handled during the semesters CSm-1 and CSm-2 in the respective tables below:

	Course Details			Assessment perameters								Score
	Subject Name		WL	Classes handled (40%)		Students Feed Back (0%)		Class Average Mark out of 100 (35%)	Quality Measures (25%)			Awarded
	Yr & Prgm	Dept & Sec		Planned	Held	Cycle I	Cycle II		ADE (5%)	CA (15%)	RLCs (5%)	Attained
	CSm-1:	Drop↓		Drop↓		How many lab courses were handled in CSm-1:						0
1			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
2			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
3			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
4			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
	CSm-2:	Drop↓		Drop↓		How many lab courses were handled in CSm-2:						0
1			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0

2			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
3			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0
4			0	1	1				Drop↓	Drop↓	Drop↓	0
	Drop↓	Drop↓		0		0		0	0	0	0	0

Remarks, if any?

I.3 STUDENT PROJECT WORKS UNDERTAKEN 0

(i) B.Tech Projects: In case of B.Tech. projects, batch wise entries are to be made.

Have you guided any batch of B.Tech students for their projects during the period? Yes How many ? 0

	Batch Details			Assessment Perameters			Score
	Batch Number	Batch Size	Submitted?	Avg. Mark (60%)	Self-Rating of quality of work (20%)	Research output is published in (20%)	
1	Batch 1		Drop↓		Drop↓	Drop↓	0
				0	0	0	0
2	Drop↓		Drop↓		Drop↓	Drop↓	0
				0	0	0	0

Remarks, if any?

(ii) M.Tech/MCA Projects: In case of M.Tech. and MCA projects, student wise entries are to be made.

Have you guided projects of M.Tech /MCA students during the period under reference? No 0

	Details of Project student				Assessment Perameters			Score
	Roll Number	Program	Specialisation /Dept	Submitted ?	Grade (40%)	Self-Rating of quality of work (20%)	Research output is published in (40%)	
1		Drop↓	Drop↓	Drop↓		Drop↓	Drop↓	0
					0	0	0	0
2		Drop↓	Drop↓	Drop↓		Drop↓	Drop↓	0
					0	0	0	0

Remarks, if any?

(iii) MBA Major Projects: In case of MBA Major projects, the information pertaining to the entire group of students under one faculty can be entered in one go.

Have you guided major projects of MBA students during the period under reference? No 0

	Specialisation	Grade (50%)				Self-grading of quality of work (30%)	Research output is published in (20%)	Score
		A's	B's	C's	D's			
1	Drop↓				1	Drop↓	Drop↓	0
		0		0		0	0	0

Remarks, if any?

I.4 STUDENT SEMINARS, CLUB ACTIVITIES, MINI REPORTS BRIDGE COURSES ETC… ENGAGED WITH 0

Have you engaged yourself in any of the above activities during the period? No 0

	Type of student engagement	Details of students benefited			Period-dd/mm/yy		# Hours	Brief description about the engagement	Score
		Yr & Prgm	Dept & Sec	#	From	To			
1	Drop↓	Drop↓	Drop↓						0
2	Drop↓	Drop↓	Drop↓						0
3	Drop↓	Drop↓	Drop↓						0

NOTE: Mini Reports of MBA departments can be entered here. Total # hrs a teacher engaged in those projects in an year time can be indicated to get appropriate score.

Remarks, if any?

I.5 LEARNING MATERIALS DEVELOPED 0

Have you developed any learning materials during the period ? No 0

	Material developed	Details of students benefited			Type of involvement in developing the material	Accessibility of the material developed	Score
		Yr & Prgm	Dept & Sec	# students			
1	Drop↓	Drop↓	Drop↓		Drop↓	Drop↓	0
2	Drop↓	Drop↓	Drop↓		Drop↓	Drop↓	0
3	Drop↓	Drop↓	Drop↓		Drop↓	Drop↓	0
4	Drop↓	Drop↓	Drop↓		Drop↓	Drop↓	0

NOTE: Preparing 'note material' is regarded as a part and parcel of teaching methodology. And therefore shall not carry any score.

Remarks, if any?

I.6 TRAINING MODULES CONDUCTED — 0

Have you conducted any training modules during the period ?									No		0
	Type of training module conducted	Remunerative?	Details of students benefited			Period		# Hours	Score		
			Yr & Prgm	Dept & Sec	# students	From	To				
1	Drop↓	Drop↓	Drop↓	Drop↓					0		
2	Drop↓	Drop↓	Drop↓	Drop↓					0		
3	Drop↓	Drop↓	Drop↓	Drop↓					0		

NOTE Activities which are renumarative shall not carry any score.

Remarks, if any?

I.7 ONLINE CERTIFICATE COURSES (Like MOOCs, NPTEL etc...) DONE — 0

Have you done any such courses during the period ?								No		0
	Name of online course	Offered by	Period		Duration (in hrs.)	Certified?	Relevancy to the field of specialization		Score	
			From	To						
1						Drop↓	Drop↓		0	
2						Drop↓	Drop↓		0	

Remarks, if any?

CATEGORY II CO & EXTRACURRICULAR AND EXTENSION ACTIVITIES

II.1 FDPs SUCH AS WORKSHOPS/CONFERENCES /SEMINARS etc… ATTENDED — 0

Have you attended any FDPs during the period ?							No		
	Type of FDP attended	Level of Inst	Title of Event	Host Institution	Period-dd/mm/yy		# days	Score	
					From	To			
1	Drop↓	Drop↓						0	
2	Drop↓	Drop↓						0	
3	Drop↓	Drop↓						0	
4	Drop↓	Drop↓						0	
5	Drop↓	Drop↓						0	

Remarks, if any?

II.2 FDPs SUCH AS WS /CONFERENCES /SEMINARS etc… ORGANIZED — 0

Have you conducted/organised any FDPs during the period ?						No		0
	Type of FDP organised	Type of funding (External, Sponsorships & Internal)	Organised in the capacity of	Period-dd/mm/yy		# days	Score	
				From	To			
1	Drop↓	Drop↓	Drop↓				0	
2	Drop↓	Drop↓	Drop↓				0	

Remarks, if any?

II.3 PROFESSION ROLES — 0

(i) Department Coordinators

	Are you?	Department	Admn/Acad?	Since when?	Self rating out of 10	Score awarded	Score
1	No	Drop↓	Drop↓		0	0	0

Remarks, if any?

(ii) PG Coordinators

	Are you?	Which PG?	Since when?	Self rating out of 10	Score awarded	Score
1	No	Drop↓		0	0	0

Remarks, if any?

(iii) Other Coordinators & In-Charges

	Are you?	Which Coordinator?	Since when?	Self rating out of 10	Score awarded	Score
1	No	Drop↓		0	0	0
2	No	Drop↓		0	0	0

Remarks, if any?

(iv) Committee Memberships & Convenerships you are CURRENTLY engaged with:

	Are you?	Committee Name	Member/Convener?	Level	Since when?	Self rating out of 10	Score awarded	Score
1	No	Drop↓	Drop↓	Drop↓		0	0	0

2	No	Drop↓	Drop↓	Drop↓		0	0	0
3	No	Drop↓	Drop↓	Drop↓		0	0	0

Briefly state your roles, responsibilities, involvement and contributions, one after another, in the committee(s) you are CURRENTLY a member. While briefing, please be specific to the point. Provide the answer point by point in bulleted format.	
1	
2	
3	

II.4 STUDENT COUNSELLING / MENTORING 0

Please fill the following table with the details of students, CURRENTLY under your counselling:

Have you been assigned with any students for counseling? No 0

	Roll Number	# backlogs year and semester wise								Total # backlogs	% of attendance	Specific remarks	Score per student
		1st Yr		2nd Yr		3rd Yr		4th Yr					
		I	II	I	II	I	II	I	II				
1										0			0
2										0			0
3										0			0
4										0			0
5										0			0
6										0			0
7										0			0
8										0			0
9										0			0
10										0			0
11										0			0
12										0			0
13										0			0
14										0			0
15										0			0
16										0			0
17										0			0
18										0			0
19										0			0
20										0			0
21										0			0
22										0			0
23										0			0
24										0			0
25										0			0
26										0			0
27										0			0
28										0			0
29										0			0
30										0			0
31										0			0
32										0			0
33										0			0
34										0			0
35										0			0
Assessment													0
Proper records maintained for counseling?		No		Self rating on the scale of 10:		0		Score after self rating					0

Briefly describe the BEST Practices you are following in student counseling. And also state the typical cases, if any, you have experienced in the period under references	
1	
2	
3	
4	
5	

II.5 MEMBERSHIPS WITH PROFESSIONAL BODIES 0

Are you a member any professional body as of now? No 0

	Professional Body	Type of Members	Since when?	Describe your involvement as member	Self rating on involvement	Score
1		Drop↓			Drop↓	0
2		Drop↓			Drop↓	0
3		Drop↓			Drop↓	0

	0		

II.6 INDUSTRIAL VISITS 0

Have you visited any industries during the period ? No 0

	Name of the industry visited	Students benefited out of the visit			Relevancy to the area of specialisation	Period		# days	Score
		Yr & Prgm	Dept & Sec	# students		From	To		
1		Drop↓	Drop↓		Drop↓				0
2		Drop↓	Drop↓		Drop↓				0
3		Drop↓	Drop↓		Drop↓				0

Remarks, if any?

II.7 CHAIRING SESSIONS AND DELIVERING TALKS & LECTURES 0

(i) Have you chaired/Co-chaired any sessions or delivered TALKS during the period ? No 0

	Geographical Level of platform of delivery	In side or out campus	Name of the platform	Type of delivery	During the period		# such deliveries	Score
					From	To		
1	Drop↓	Drop↓	Drop↓	Drop↓				0
2	Drop↓	Drop↓	Drop↓	Drop↓				0
3	Drop↓	Drop↓	Drop↓	Drop↓				0

Remarks, if any?

(ii) Have you delivered any guest or expert LECTURES during the period under reference? No 0

	In side or out campus	Host institution	Who are the audience?	Type of delivery	During the period		Total # hours	Score
					From	To		
1	Drop↓			Drop↓				0
2	Drop↓			Drop↓				0
3	Drop↓			Drop↓				0

NOTE: In-Campus activities of lecturing / training covered in ITEM NO: I.6 shall not come under this ITEM.

Remarks, if any?

II.8 ANY OTHER OUT SIDE INTERACTION 0

Do you have interaction with any outside agency during the period ? No 0

	Interaction with	Brief description on type, level, outcome and benefits of interaction	# hours	Score
1				0
2				0

II.9 INDUSTRY INTERNSHIPS UNDERWENT 0

Have you undergone any industry internships in the period under reference ? No 0

	Industry	Description about internship	During the period		# Days	Score
			From	To		
1						0
2						0

Remarks, if any?

CATEGORY III R&D, CONSULTANCY AND OTHER ACADEMIC ACTIVITIES

III.1 JOURNAL PUBLICATIONS 0

Please mension number of Journal Publications over the last EIGHT calender years:

Calender Year:	2010	2011	2012	2013	2014	2015	2016	2017	Total
# Publications:									0

Have you got any articles published in journals during the period ? No 0

	# authors	Position of authorship	IF	National/International?	Journal type	Year	Score
1		Drop↓		Drop↓	Drop↓		0
2		Drop↓		Drop↓	Drop↓		0
3		Drop↓		Drop↓	Drop↓		0
4		Drop↓		Drop↓	Drop↓		0
5		Drop↓		Drop↓	Drop↓		0
6		Drop↓		Drop↓	Drop↓		0
7		Drop↓		Drop↓	Drop↓		0
8		Drop↓		Drop↓	Drop↓		0

Remarks, if any?	

III.2 CONFERENCE PUBLICATIONS 0

	Have you got any articles published in conferences during the period ?			No		0
	# authors	Position of authorship	Venue of Conference	National/International?	Proceedings type	Year	Score
1		Drop↓		Drop↓	Drop↓		0
2		Drop↓		Drop↓	Drop↓		0
3		Drop↓		Drop↓	Drop↓		0
4		Drop↓		Drop↓	Drop↓		0
5		Drop↓		Drop↓	Drop↓		0
6		Drop↓		Drop↓	Drop↓		0

Remarks, if any?	

III.3 RESEARCH GUIDANCE 0

	Are you currently guiding any research students (Ph.D. or M.Phil.)?			No		0
	Degree	University	Guide or Co-Guide?	DoR (mm/dd/yyyy)	Time lapsed	Student particulars	Score
1	Drop↓		Drop↓		117Y-7M-18D		0
2	Drop↓		Drop↓		117Y-7M-18D		0
3	Drop↓		Drop↓		117Y-7M-18D		0

III.4 BOOK PUBLICATIONS 0

	Have you authored any books in the period under reference?			No		0
	# authors	Position of authorship	ISSN/ISBN is there?	Level of Publishing House	Title and other particulars of the book	score
1		Drop↓	Drop↓	Drop↓		0
2		Drop↓	Drop↓	Drop↓		0

Remarks, if any?	

III.5 PATENTS 0

	Have you obtained / filed any patents in the period under reference?			No		0
	Status patent	Level of patent	Date of filing	Description of patent		Score
1	Drop↓	Drop↓				0
2	Drop↓	Drop↓				0

III.6 PRODUCT DESIGN / SOFTWARE DEVELOPMENT 0

	Have you designed / developed any product or software during the period?			No		0
	Name of Product / SW	# faculty in the team work	Position in the team	Description of the product /SW	# hrs. devoted	Score
1						0

III.7 CONSULTANCY 0

	Are you currently involved in any consultancy work with outside agency?			No				0
	Title of Consultancy work	Name of Granting Agency	# Coordinators involved	Position in order of coordinatorship	Since when?	Grant/Amount mobilised	# hrs. devoted	Score
1								0
2								0

Remarks, if any?	

III.8 FUNDED PROJECTS 0

	Are you currently handling any externally funded project?			No		0
	Title of project	Funded by	Period		Grant/Amount mobilised	Are you PI?	Score
			From	To			
1		Select↓				Select↓	0
2		Select↓				Select↓	0

Remarks, if any?	

CATEGORY IV OTHER RELAVENT INFORMATION (NOT TO BE ASSESSED)

IV. 1 QUESTIONARE

(a) Are you a Ph.D. holder?	:	

(b) If 'Pursuing Ph.D.' mention 'year of registration':	:	
Self Rate on Learning Related Facilities		
(c) Usage of Central Library	:	
(d) Referring Professional Magazines and /or Journals	:	
(e) MOOCs and / or NPTEL and other such self learning platforms	:	
Self rate on Reading, Writing and Spoken Language Skills		
(f) General Reading	:	
(g) Writing Skills	:	
(h) Spoken Language Skills	:	

Please self rate on 10 point scale

IV. 2 WHAT COULD YOU AND / OR THE DEPARTMENT DO DIFFERENTLY TO HELP YOU BETTER PERFORM YOUR JOB

NOTE:

Please do not give generic statements while answering. Be specific to the point. Provide the answer point by point in bulleted format.

i	
ii	
iii	

IV. 3 MAJOR ACCOMPLISHMENTS

Describe your major accomplishments (At lease THREE in each case) during the period of assessment on the following areas:

ACADEMICS

i	
ii	
iii	

ADMINISTRATION

i	
ii	
iii	

ANY OTHER

i	
ii	
iii	

IV. 4 FUTURE PLANS

Describe your future plans in respect of the following aspects (At lease THREE in each case):

TEACHING

i	
ii	
iii	

RESEARCH

i	
ii	
iii	

EXTENSION ACTIVITIES

i	
ii	
iii	

SELF DEVELOPMENT

i	
ii	
iii	

ANY OTHER

i	
ii	
iii	

IV. 5 SWOT/SWOC

Analyse SWOT/C and provide here under your strengths, weaknesses oppurtunities and threats/challenges THREE each.

	STRENGTHS		**WEAKNESSES**
i		i	
ii		ii	

iii		iii	

	OPPURTUNITIES		THREATS / CHALLENGES	
i		i		
ii		ii		
iii		iii		

IV. 6 WORK OUT PUT PLANNER FOR THE NEXT PERIOD OF ASSESSMENT

Please plan work out put for next academic year as per the following table. While planning, please note the fact that every faculty irrespective of his cadre is expected to produce A MINIMUM OF 15 UNITS of work output per year subject to fulfillment of category wise minimums as is guided by the following table:

Next Period of Assessment:		0	

S.No.	By way of		Work output (in Units)	Threshold
I.1	Handling Theory Courses			No limit
I.2	Conducting Lab Courses			No limit
I.3	Undertaking Student Projects			No limit
I.4	Student Seminars and club Activities			1.00 Unit
I.5	Developing Learning materials			0.75 Units
I.6	Conducting Training modules			1.20 Units
I.7	Doing Online Certificate courses (Like MOOCs, NPTEL etc…)			1.00 Unit
Expected score under criteria I:		**0**	0	
II.1	Attending FDPs such as WS /Conferences /seminars etc…			1.00 Unit
II.2	Organizing FDPs such as WS / Conferences /seminars etc…			1.20 Units
II.3	Professional Related Roles			3.00 Units
II.4	Students Counseling / mentorship			0.5 Units
II.5	Memberships of professional bodies			0.50 Units
II.6	Industrial visits			1.00 Unit
II.7	Chairing Sessions and Delivering Talks & Lectures (In or outside			1.00 Unit
II.8	Any Other Outside Interaction			0.50 Units
II.9	Industry Internships			2.00 Units
Expected score under criteria II:		**0**	0	
III.1	Journal Publications			No limit
III.2	Conference Publications			1.00 Unit
III.3	Research guidance			No limit
III.4	Book publications			No limit
III.5	Patents			No limit
III.6	Product Design / Software Development			No limit
III.7	Consultancy			No limit
III.8	Funded Projects			No limit
Expected score under criteria III:		**0**	0	
TOTAL		**0.00**	**0**	

MANSAS EDUCATIONAL INSTITUTIONS

REVIEW BOARD REMARKS

on the yearly performance shown by the following faculty during the period mensioned below

Drop↓	0	Drop↓	Drop↓

Version:02	Period of Assessment:	0	Revised on 06.09.2016

Performance Indicator(PI) wise Attainment Levels

PI		R	A	After MAX	Remarks
I.1	Theory Courses handled	0	0	0.00	Satisfactory
I.2	Lab Course conducted	0	0	0.00	
I.3	Student Projects	0	0	0.00	-
I.4	Student Seminars and club	0	0	0.00	No activities under the PI 'I.4'
I.5	Learning materials	0	0	0.00	No Learning Materials Developed
I.6	Training modules	0	0	0.00	No Trainings Modules Conducted
I.7	Online Certificate courses	0	0	0.00	No Online Courses done
II.1	Attending FDPs	0	0	0.00	No FDPs attended
II.2	Organizing FDPs	0	0	0.00	You are advised to prepare an action plan to organise one FDP next time
II.3	Professional Related Roles	0	0	0.00	-
II.4	Students Counseling	0	0	0.00	-
II.5	Professional Bodies	0	0	0.00	No Memberships with Professional Bodies
II.6	Industrial visits	0	0	0.00	No Industrial Visits
II.7	Chairing Sessions	0	0	0.00	No activities such as Populat Lecturers, Talks etc...
II.8	Outside Interaction	0	0	0.00	-
II.9	Industry Internships	0	0	0.00	-
III.1	Journal Publications	0	0	0.00	No Publications
III.2	Conference Publications	0	0	0.00	
III.3	Research guidance	0	0	0.00	-
III.4	Book publications	0	0	0.00	Explore possibilities of Book Publications
III.5	Patents	0	0	0.00	-
III.6	Product Design / Software	0	0	0.00	-
III.7	Consultancy	0	0	0.00	Any Plan of Action?
III.8	Funded Projects	0	0	0.00	Make Funded Projects Proposals
		0.00			

Criteria wise Attainment Levels

Criteria	E	E(S)	Rendered	Difference	Remarks
T-L-E Related	0	0	0.00	0.00	Satisfactory
Co, Extra &	0	0	0.00	0.00	Satisfactory
R&D, Consultancy	0	0	0.00	0.00	Satisfactory
	0.00	0	0.00		

Overall Performance

Attainment of work output in the period under reference, is observed to be fallen short of expectations. You are directed to note that, a minimum of 11.25 units of work output is expected to be rendered (to get at least Satisfactory level) in an year.

NOT SATISFACTORY

Performance in Theory Courses:

Subject	Yr & Prgm	Dept & Sec	cl avg %
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-

Performance in LABs:

Subject	Yr & Prgm	Dept & Sec	cl avg %
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-
-	Drop↓	Drop↓	-

//Other Specific Remarks//

1
2
3
4

//Members of Review Board Present//

HoD - Concerned	Asst. Principal (Acad)	DEAN (R&D)
DEAN(FD)	**Vice-Principal(Acad)**	**PRINCIPAL**

Copy to : ☐ Faculty ☐ HoD ☐ Personal File ☐ Faculty Reviews File

ASSESSMENT MANUALS
along with a sample calculations of COs, POs & PSOs

MAHARAJ VIJAYARAM GAPATHI RAJ COLLEGE OF ENGINEERING(AUTONOMOUS)
Vijayaram Nagar Campus, Chintalavalasa, Vizianagaram-535005, Andhra Pradesh
Accredited by NAAC with 'A' Grade & Listed u/s 2(f) & 12(B) of UGC
(Approved by AICTE, New Delhi and Permanently Affiliated by JNTUK-Kakinada)
NBA Accredited UG Courses: B.Tech(MEC), B.Tech(CIV), B.Tech(EEE), B.Tech(ECE), B.Tech(CSE), B.Tech(IT), B.Tech(MEC) & B.Tech(CHE) and PG Course: MBA

ASSESSMENT MANUAL
Version 2.0

DEPARTMENT OF INFORMATION TECHNOLOGY

ASSESSMENT MANUAL – PROCESS HANDBOOK

--We achieve our goal

Author: Dr. Nagesh Vadaparthi

MVGR COLLEGE OF ENGINEERING

Need for Assessment

There is a growing demand in higher education for systematic and thoughtful assessment of student learning and overall institutional effectiveness. Increasingly, institutions of higher education are being called upon to demonstrate that fiscal and human resources are being invested in ways that result in quality outcomes and that these outcomes are enabling the institution to achieve its mission.

The recent transition from faculty centric learning to student centric learning has paved a path for the institutions to self-assess and derive their own assessment methodologies for improving the quality of education which in-turn shall produce quality students for the betterment of the society. The universities and the engineering institutions have to follow certain guidelines specified by AICTE as well as discipline-specific accrediting bodies like ACM, IEEE, CSAB, and others, to design curriculum. In addition, department recognizes the need for accountability to all of its stakeholders: students, faculty, staff, administration, parents, alumni, employers. Assessment data provides evidence to all of these groups that department is scrupulously monitoring its progress towards its goals.

What exactly is assessment? Assessment is a process of defining a program or unit's mission, developing desired outcomes, continuously monitoring progress towards those outcomes, communicating results, and using those results to make improvements. Assessment is an outstanding tool for faculty and administrators: at its best, it communicates expectations, provides feedback, engages students and staff in achieving desired results, and provides useful information to help improve learning and guide decision making and resource allocation.

The institution is strengthening its efforts to institutionalize an assessment environment that encourages open reflection, supports innovation and experimentation in assessment methods, and promotes a culture of evidence in decision-making. All departments across the campus are expected to develop and implement effective assessment plans and to report assessment results on an annual basis. The Department Internal Quality Assessment & Assurance committee (DIQAAC) will coordinate assessment activities. The DIQAAC shall identify the key areas and provide inputs regarding training, and workshops; disseminate assessment information and best practices; and offer timely feedback on unit plans and reports.

Our hope is that this guide will serve as a useful tool to develop assessment plans that will be simple, workable, and provide meaningful information to guide the decision-making and improve student learning.

What is Assessment?

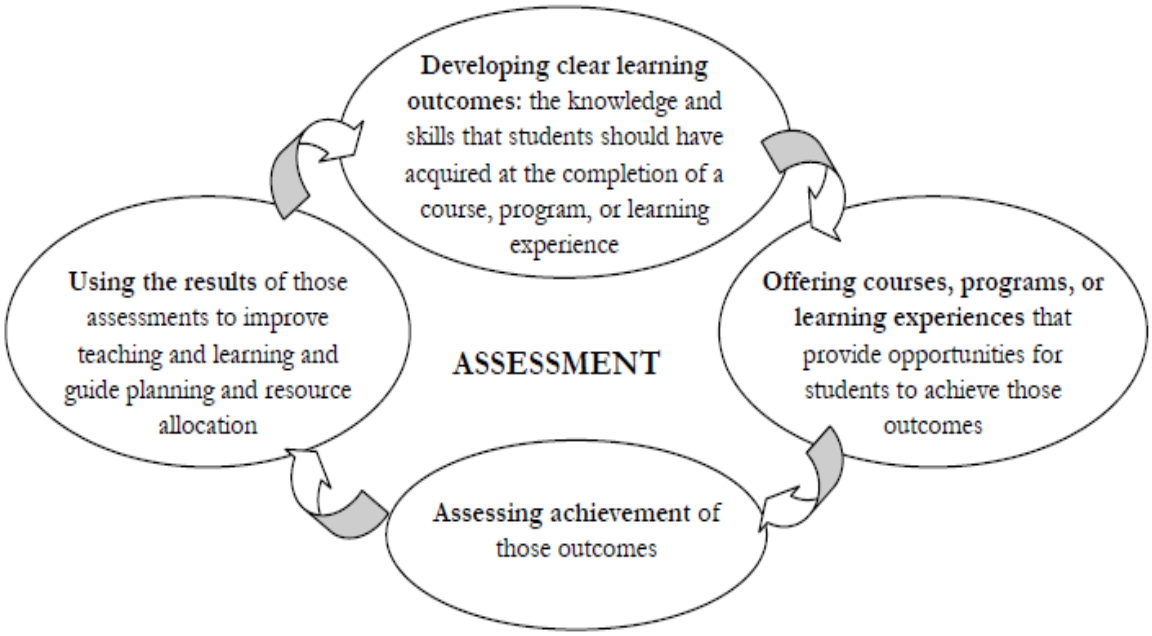

Fig.:1 Assessment Cycle

Assessment is a teaching and management tool, designed to provide departments and units with quality information on which to improve learning and base organizational decisions. It is a process of defining a program or unit's mission, developing desired outcomes, continuously monitoring progress towards those outcomes, communicating results, and using those results to make improvements.

Assessment is a not a self-study, with a start date and end date; instead, it is a continuous process of gathering, evaluating, and communicating information and using it to improve learning and institutional effectiveness. Fig. 1 explains the assessment process in more detail and also illustrates its cyclical nature, with the information provided by one assessment cycle used to refine outcomes, assessment tools, learning experiences, and more in the next cycle.

Why Conduct Assessment?

The purpose of assessment is to engage the campus community in developing a systematic, ongoing, and transparent process to define goals and measure our progress towards those goals, improving student learning and the overall effectiveness of the university. Outcomes assessment can benefit faculty and students by:

- Helping clarify the mission of a program and identify the knowledge, skills, values, and perspectives that are critical for students to be taught
- Providing coherence and direction to the program's curriculum
- Ensuring that graduates of the program have acquired all of the essential skills and values and have achieved all key outcomes.
- Improving communication, coordination, and cooperation among faculty members in a program or department and across the university
- Providing students with clear expectations that help them understand how faculty will evaluate their work.
- Providing students with feedback that helps them understand their strengths and weaknesses and where they need to focus more attention (Suskie 2004)
- Providing faculty with better information about what students understand and how they learn so that faculty can adjust their teaching methods, improve their skills as instructors, and build a knowledge base of scholarly research on learning within the discipline.

For administrators, assessment results can be used:

- As evidence of quality of teaching for tenure, promotion and salary decisions, grants and other funding, as well as for accreditation from professional associations (Suskie 2004)
- To ensure that general education outcomes are being met and that the institute's core values are being integrated into student learning experiences ("Student Learning Assessment" 2003).
- To document the success of a program, department, for employers and accrediting organizations.
- To help make informed decisions about budgeting, new programs, personnel decisions, faculty or staff hires, the need to improve or expand services, and more.
- To ensure that resources are being allocated in the most effective way possible – where they'll have the greatest impact on helping the institute achieve its mission. (Suskie 2004).

The Assessment Pyramid

Assessment is founded on a set of overall institutional outcomes, drawn from the institution's mission. Program level learning outcomes are developed from these outcomes; course level learning outcomes are developed from program outcomes; and lesson level outcomes arise from the outcomes of the course. All are designed to achieve the institute's set outcomes.

Students learn specific skills and knowledge in each lesson of a course. These courses provide students with the opportunity to achieve program outcomes, which, when combined with the core curriculum and co-

curricular and extra-curricular activities, help achieve the institution's goals. Fig. 2 illustrates the interconnected nature of outcomes development and achievement.

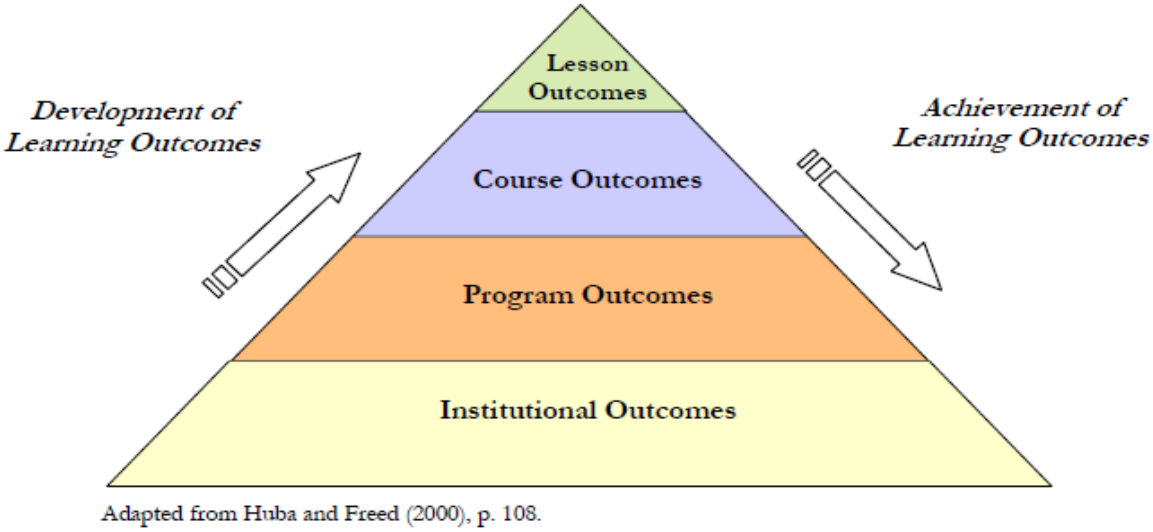

Fig:2 Assessment Pyramid*

How Does Assessment Fit Into the Planning Process?

The results of outcomes assessment from courses and programs provide empirical data for departments to develop their own annual and long-range plans. At the institutional level, this information, as well as information from assessment of institutional outcomes, is analyzed and coordinated within the scope of the institution's mission and its projected resources and priorities to develop its recommendations for resource allocation and long-range planning.

Assessment results provide empirical support for decisions regarding allocation of resources and annual & long range planning at all levels of the institution: program and the department. Fig. 3 illustrates how assessment informs planning, resource allocation, and implementation of plans.

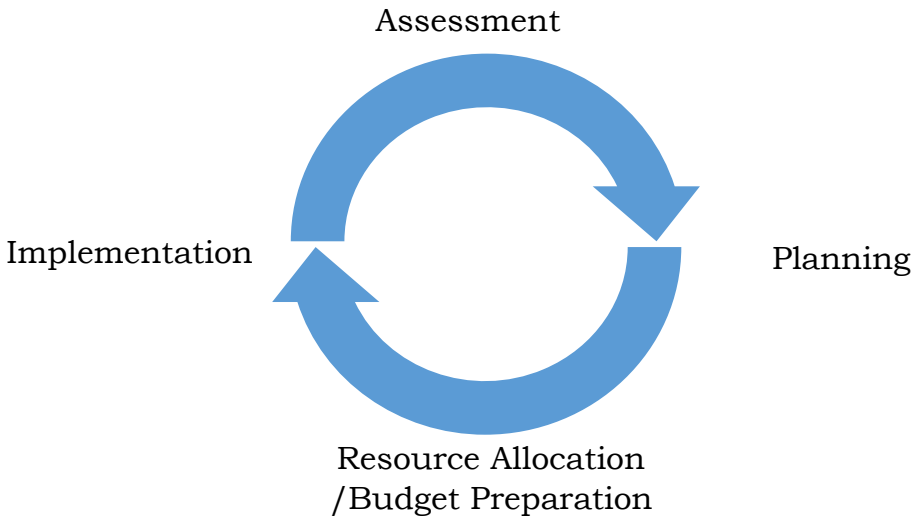

Fig.3 Link between Assessment, Planning & Resource Allocation

Eight Steps for Effective Outcomes assessment

Step 1: Defining the Vision & mission and identify the Educational objectives of the program

Step 2: Identifying the most important learning outcomes of the program

Step 3: Ensure that students have adequate opportunities to achieve the set outcomes

Step 4: Defining the process to assess progress towards the set outcomes

Step 5: Develop the assessment plan

Step 6: Carry out the assessment

Step 7: Collect, analyze, communicate, and report on the findings

Step 8: Take action based on those findings

Step 1: Defining the Vision & mission and identify the Educational objectives of the program.

The department's mission should be in line with the mission of the college. The mission should focus on educational values, areas of knowledge in the curriculum, and careers or future studies for which graduates are prepared.

College Vision & Mission

Vision

Maharaj Vijayaram Gajapathi Raj College of Engineering strives to become a center par excellence for technical education where aspiring students can be transformed into skilled and well-rounded professionals with strong understanding of fundamentals, a flair for responsible innovation in engineering practical solutions applying the fundamentals, and confidence and poise to meet the challenges in their chosen professional spheres.

Mission

- The management believes imparting quality education in an atmosphere that motivates learning as a social obligation which we owe to the students, their parents/guardians and society at large and hence the effort is to leave no stone unturned in providing the same with all sincerity. Towards that end, the management believes special focus has to be on the following areas:
- Have on-board staff with high quality experience and continuously updating themselves with latest research developments and sharing that knowledge with students.
- Having a well stream-lined teaching learning process that is continuously assessed for effectiveness and fine-tuned for improvement.
- Having state-of-the-art lab and general infrastructure that gives students the necessary tools and means to enhance their knowledge and understanding.
- Having a centralized department focused on improving placement opportunities for our students directly on campus and coordinating the training programs for students to complement the curriculum and enhance their career opportunities.
- Having advanced research facilities and more importantly atmosphere to encourage students to pursue self-learning on advanced topics and conduct research.

Procedure for formulation of Department Vision & Mission:

- A draft of the key desirable characteristics of the department vision & mission were created by the Department Academic Council consisting of the Head of Department and senior staff members. [07/2012]
- This was put as an agenda item for discussion in the Department Advisory committee meeting conducted in 08/2012 comprising of external members (2 Academic experts, 2 industry experts and 1 Alumnus) and Department Academic Council members.
- The Department Advisory committee discussed the formulation of the Vision & Mission in 08/2012 meeting and came up with a pre-approval draft vision and mission statements. The department advisory committee considered as inputs for the same the institution

vision & mission and ACM/IEEE/CASB guidelines for Computers and similarly named under graduate programs in 2004.

- The draft vision and mission statements were ratified by the College Academic Council in the month of August 2012.

Vision of the Department

The Department of Information Technology would continually work as an effective bridge between the aspirations of prospective students for a fruitful professional career and information technology industry's need for well-rounded information technology engineers with strong fundamentals and sound problem solving temperament.

Mission of the Department

Aspire to reach higher quality benchmarks in training students on all skills expected of a computer professional through:

1. A meticulously planned yet flexible learning process administered:
    - By accomplished teachers who are encouraged to keep in touch with latest developments in their respective areas of interest.
    - With state-of-the-art infrastructure providing a stimulating learning environment.
    - Thorough and compassionate student-centric delivery.
2. Continuous assessment of the effectiveness of learning processes through stake holders' feedback.
3. Continuous fine-tuning aimed at improvement

However, it equally essential to identify the Program educational objectives. The following are the educational objectives of the department.

Stakeholders of the program

The Stake Holders in the program are essentially those who might or ought to have a say in the way the program objectives are set, the program is designed to meet the objectives and administered. The primary stake holders of the program include:

- Students
- Parents
- Faculty
- Alumni
- Institution Administration

- Affiliating University
- Information Technology Industry

Stake-Holder inputs & Process for establishing the PEOs

- Survey is done of PEO's of well recognized international programs at graduate level.
- Take into account Parent's input as defined in **Appendix-A**. Parent's inputs on what their expectations are from the under-graduate program of B. Tech (IT) were taken as below:
  - A meeting with select parents (8 parents) with the department academic council was conducted in 07/2012.
  - The draft version of vision & mission characteristics of the department was shared with the parents & asked them to enlist what their expectations were of the B. Tech Program.
  - The meeting came with a set of 6 expectations that all attendees of the meeting agreed. The meeting suggested we send the list to some more parents to find out whether they agreed and if they have any more expectations not covered in the list.
  - As per the recommendations from the meeting, the list of expectations were sent to about 20 more parents covering all classes seeking inputs on the 6 points arrived at and asking for any more expectations.
  - It turned out all parents were satisfied with the 6 expectations that had been arrived at in the meeting.
  - The 6 points were therefore finalized as parent's input for consideration in formation of Program Educational Objectives.
- Academic experts, Industry experts & Alumnus were represented in the Department Advisory Committee.
- Student suggestions were taken through the class-in-charges.
- With information gathered from various stakeholders viz., survey & parent's feedback, a meeting was conducted among all Professors and Associate Professors in the department, to come with a draft version of PEO's.
- It was also decided to adapt the Program Outcomes as recommended by NBA after reviewing the Graduate Attributes recommended by the Washington accord and being satisfied with the tight correlation of a-k recommended outcomes with graduate attributes. It was decided though to add one more program outcome to complement the existing set.
- The draft version was circulated to all staff of the Information Technology department and a meeting was conducted to take inputs. The class in-charges were also asked to share the draft with students and bring any inputs. Based on inputs, wording of the PEO's was revised.

- The version coming out above was put up for discussion in Department Advisory committee meeting where participants include Industry experts, Academicians from State Universities and Alumnus. The PEO's were ratified after making minor changes in this committee.
- The version from above was then put up for ratification by college Principal and Vice-Principals.

Graduate Attributes (Recommended in Washington Accord for under-graduate engineering program accreditation):

These following are the Graduate Attributes that formed the basis for the Program Outcomes designed for B. Tech (IT)

- Engineering Knowledge
- Problem Analysis
- Design/Development
- Investigation
- Modern Tool Usage
- Engineer & Society
- Environment & Sustainability
- Ethics
- Individual and Team work
- Communication
- Project Management & Finance
- Life-long learning

PEO1: Our graduates will apply their knowledge and skills to succeed in a computer science career and/or obtain an advanced degree.

PEO2: Our graduates will function ethically and responsibly, and will remain informed and involved as full participants in our profession and our society.

PEO3: Our graduates will apply basic principles and practices of computing grounded in mathematics and science to successfully complete software related projects as a part of multi-disciplinary teams to meet customer business objectives and/or productively engage in research.

PEO4: Our graduates will apply basic computing & information technology principles and the knowledge of major areas of application of those fundamentals to the benefit of society.

Step 2: Identifying the most important learning outcomes of the program in correlation to the Graduate Attributes.

The learning outcomes of the program should be in line with the Graduate Attributes as per the NBA. Learning outcomes are the knowledge, skills,

values, and attitudes that students gain from a learning experience. However, they are derived from the GAs where the mapping can be either One – to – One, One – to – Many, Many – to – Many. The Program (Graduate) Outcomes of B.Tech (IT) are:

PO1: Engineering knowledge:
Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: 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.

PO3: Design/development:
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.

PO4: 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.

PO5: 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.

PO6: 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.

PO7: 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.

PO8: Ethics:
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work:
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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.

PO12: 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.

Program Specific Outcomes:

The general understanding is the Program Outcomes cover pretty much the universe of outcome expectations of graduates at a generic level. Having said that, we are talking about the specific under graduate program and there is a case to be made for more program specific outcomes. These program specific outcomes would necessarily be more specialized versions of a given program outcome or in some cases a more specific amalgamation of 2 or more generic program outcomes above.

For the under-graduate program of B. Tech (IT), we define the following 3 Program Specific Outcomes also clearly mentioning the parent program outcomes (1 or more).

PSO1 (PO1, PO2, PO3, and PO5): Pattern based approach:
Apply through knowledge of Programming paradigms, constructs, architectural patterns and algorithmic patterns while coming up with solutions to complex problems that can be deployed in complex usability scenarios.

PSO2 (PO3, and PO5): Reusability and Adaptability:

Assimilate, fully appreciate, utilize and evangelize component based architecture that would promote reusability, adaptability and extensibility at all levels of solution design for complex problems.

PSO3 (PO2, PO3, and PO4): Analysis and Synthesis:
Demonstrate ability to both analyze existing systems with a view to understand the solution comprehensively, change/optimize the solution and to synthesize systems based on a new requirements utilizing existing infrastructure including system components that can be reused.

Step 3: Ensure that students have adequate opportunities to achieve the set outcomes

A program's curriculum needs to ensure that all students in the program have the opportunity to achieve these goals before they graduate. Program planners need to ask, "In what courses or experiences do students learn these skills or acquire this knowledge?"

However, the curriculum design is done in line with the literature on the program specific criteria of ACM/IEEE/CASB as well as Washington Accord for information technology & computers related under-graduate programs.

Washington Accord defines the following Knowledge Profiles that basically are mapped to Graduate attributes. [WK refers to Washington Accord Knowledge Profile]

WK1: A systematic, theory based understanding of the natural sciences applicable to the discipline.

WK2: Conceptually based mathematics, numerical analysis, statistics and formal aspects of computer and information science to support analysis and modeling applicable to the discipline.

WK3: A systematic, theory based formulation of engineering fundamentals required in the engineering discipline.

WK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline's much is at the forefront of the discipline.

WK5: Knowledge that supports engineering design in a practice area

WK6: Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.

WK7: Comprehension of the role of engineer in society and identified issues in engineering practice in the discipline; ethics and the professional

responsibility of an engineer, public safety, the impacts of engineering activity; economic, social, cultural, environmental and sustainability.

WK8: Engagement with selected knowledge in the research literature of the discipline.

The subjects in the curriculum were divided in 8 groups based on WK profiles viz.,

WK1	Engg. Chem	BCM E	Engg. Chem Lab	FECD	App. Phy	App. Phy Lab		
WK2	M-I	BE Work shop	MM	ED	P&S			
WK3	CP	CP Lab	OOP	OOP Lab	MFCS	DLD	DS	
	DS Lab	CA	FLAT	CD	DCS	DBMS		
	OS Lab	DBM S Lab	DAA	DAA Lab	MPI	OS		
WK4	CN	DWD M	SE	WT	CN&CD Lab	DAA Lab	USP	USP Lab
	SE Lab	WT Lab	DUOS	OOAD & DP	OOAD & DP Lab			
	Ele-I	Ele-II	Ele-III	Ele-IV	Ele-V	Ele-VI	Ele-VII	Ele-VIII
WK5	DBMS	DBM S Lab	DWDM	WT Lab	WT	OOAD & DP	OOAD & DP Lab	Project
WK6	MEFA	SE	SE Lab					
WK7	ELP-I	ENS	ELP-II	MEFA				
WK8	Project							

Curriculum mapping to program outcomes has been done for 2 regulations R13 and A1. A matrix can be a useful tool to map outcomes with the curriculum and learning experiences to ensure that all students are presented with adequate learning opportunities. A matrix is included in **Appendix – B.**

As the groups have been done based on WK profiles, the mapping of subjects can also be done based on WK profiles and Program Outcomes & Program Specific Outcomes.

Mapping of WK's to PO's (WK ⇔ PO)

PO/WK	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8
PO (a)	X	X	X	X				
PO (b)	X	X	X	X				

PO (c)					X			
PO (e)								X
PO (k)						X		
PO (j)							X	
PO (h)							X	
PO (f)							X	
PO (d)	Generic Program Outcomes based on Best Practices pervading through all Knowledge Profiles (Details given below)							
PO (g)								
PO (l)								
PO (i)								

Note: Generic Program Outcomes namely Life-long learning, Communication, Project Management & Finance and Individual & Team work are essentially more of highly desirable traits/characteristics that are expected to be cultivated through the entire program through best practices followed in the teaching-learning process throughout the program in all the courses taken. They in a sense cannot be mapped to any one or more knowledge profiles but rather need to be seen horizontals running across the program.

The recommended best practices for each of the 4 generic POs are:

Acquisition of Program Outcomes D, G, L, and I for a graduate should be made possible by facilitating & methodically inculcating relevant best practices habits through the course of the entire graduation program.

PO	Relevant Best Practices
PO (d)	Resourcefulness, Cooperation, Respect for peer's work, Amenable to a work structure, Work to plan, Respect for professional authority
PO (g)	Language Skills, Listening, Comprehending, Writing and Speaking Skills, Cultural & Work etiquettes, Understanding of the audience & tailoring communication based on audience
PO (l)	Financial Prudence, Organizational structure awareness, balanced attitude towards work, risk awareness, quality awareness
PO (i)	Curiosity to learn new things, motivation to keep one's skills relevant to evolving technology & practices, adaptability, inquisitiveness

Curriculum mapping to PO's work as a 2-step process now, with individual course modules mapped to WKs and therefore indirectly associated with Program Outcomes.

Step 4: Defining the process to assess progress towards the set outcomes

Assessments don't have to be complicated and, when used well, can be a powerful tool for improvement, providing better information for planning,

budgeting, changes in curriculum, new programs, staffing, and student support. Student learning assessment data helps us understand what our students are learning, where they might be having difficulty, and how we can change the way we teach and how we can shape our curriculum to help them learn better. Assessment is not an evaluation of individual students, faculty or courses.

Assessment process is also important to assess whether the student has attained what is expected and the results of it shall in-turn be used for continuous quality improvement. It is essential to choose suitable assessment methods based on the expected outcomes and the delivery methods. Effective assessment plans must include a mix of direct and indirect methods of assessment.

Direct methods of evaluating student learning provide tangible evidence that a student has acquired a skill, demonstrates a quality, understands a concept, or holds a value tied to a specific outcome. They answer the question, "What did students learn as a result of this (assignment/project/exam…)?" and "How well did they learn?" Direct methods generally result in student "products" like term papers or performances. Various direct assessment methods used for assessing students are:

- Assignments
- Tutorials
- Internal Subjective marks
- Internal Quiz marks
- Final Examination marks

Indirect methods provide more intangible evidence, demonstrating characteristics associated with learning but only implying that learning has occurred. When a student answers a question correctly, there is direct evidence that he or she has learned. When a student says that he or she has an excellent understanding of the topic, there is indirect evidence. While both methods of assessing learning are valuable, indirect evidence is more meaningful when it is tied to direct evidence. Various indirect assessment methods used for assessing students are:

- Student course outcome feedback **[Appendix – C]**

Outcome Assessment:

Let us first define the terminology here so we are clear on how attainments of Educational Objective and outcomes can be perceived. The questions we try to answer through our outcome assessment methodology are:

About Program Educational Objectives:

- Objectives are statements of intent.
- Objectives would not normally have quantifiable rubrics.
- We still would like to answer questions like is the program meeting/realizing its objectives.
- Objectives realization can be gauged through
    - Graduate Survey (Student exit feedback)
    - Alumni Survey (more than 2 years out of college, have a better realization of whether objectives are met in department or not)
    - Placement & Higher Studies Return
    - Employer Feedback/Survey
    - Rolling up program outcome measurements to objectives through mapping between outcomes and objectives.

About Program Outcomes:

- Outcomes are achievements.
- Outcomes would/should have quantifiable rubrics to find out to what extent each student achieved a particular outcome.
- We would need to answer questions like "to what extent a student have achieved a particular outcome?"
- Program outcomes can be measured based on outcome assessment at course module level using the Course ⇔ PO mapping.

Course Module Assessment:

The curriculum consists of both Theory and Laboratory course modules. The assessment for both the modules should be done using different rubrics.

Theory Course Module:

Each theory course has defined Course Objectives that form the basis for curricular design. Since we are an affiliated institution and are mandated to follow the curriculum stipulated by the affiliating University, we send our recommendations for curriculum revisions for consideration by the Board of Studies constituted at the University level for the program. Outcomes are defined for each course talking about what are expected achievements of students who successfully take the course. Because syllabus revisions happen every 2-3 years, syllabus formulation is not directly in our domain, we do see gaps in the curriculum that would reduce the chances of students realizing the expected outcomes. To cover those gaps, we do gap analysis both at the course module level and at the program level and bridge those gaps with topics beyond syllabus at course level and add-ons at program level.

Lab Course Assessment:

Lab course coordinators are responsible for preparing the lab manual with a team of other faculty members and coming up with assessment methodology. Lab courses have a different way of defining outcomes. There will be weekly outcomes that are linked to 1 or more experiments conducted in a week and all outcomes are linked to objectives. The lab assessment process (Continuous Assessment) covers three aspects viz., Observation, Experiment execution and Record submission.

As the department is currently offering courses of TWO different regulations namely R10 & R13 and the time since the outcome based education has been adopted by NBA and parallel by our institution, we have updated our assessment methodologies and currently we have arrived at a version 2.0. The different versions of assessment methodologies we adopted are as follows:

- Version 1.0 (2009, 2010 – R10 admitted batches)
- Version 1.1 (2011, 2012 –R10 admitted batches)
- Version 2.0 (2013 – R13 admitted batches)
- Version 3.0 (2015 – A1 Admitted Batches)

The detailed procedure adopted in each version is elaborated below:

Version 1.0

This methodology has been formulated and approved by DAC in 09/2012

Course outcomes definition:

Course coordinators for each course module were advised to come up with exhaustive list of measurable outcomes for their course & consequent gaps in course curriculum in meeting those outcomes & how they will be addressed.

Assessment Tools:

- Direct methods:
  - Internal Examination marks
    - Subjective marks
    - Quiz marks
  - Final University Examination marks

- Indirect methods:
  - Not considered for this version as most of the students are not available.

As the outcomes for the subjects have been derived as per the DAC recommendations in 08/2012, the course outcome feedback cannot be extracted for the reason being the formulation and approval of course outcomes and approval has been done later to 08/2012. *Hence, the weightage for student feedback has not been considered in this version (2009-13, 2010-14).* Hence, 100% weightage has been given for the direct methods with equal share.

Version 1.1:

After observing the deficiencies in the assessment methodology and the results we arrived at, the department faculty has arrived at the decision that the assessment methodology needs some more parameters to be included and hence revised in 09/2013 specifically for R10 regulation 2011-15 admitted batch.

Course outcomes definition:

Given the directions from DAC in 09/2013 to standardize outcome assessment procedure, course coordinators were asked to revise the course outcomes following a standard pattern. Guidelines for the same were issued.

- *Guidelines for Course Objectives & Course Outcomes:*
  - *Guidelines on Course Objectives:*
    - ✓ They should be less generic than goals and more generic than outcomes.
    - ✓ Course Objectives are essentially intentions of the teacher administering/delivering a course. They reflect what the teacher intends to do.
    - ✓ Course Objectives set the framework for the course curriculum.
    - ✓ Course Objectives should start with any of the following phrases:
      - Students will get exposure to
      - Students will gain an understanding of
      - Students will read and analyze
      - Students will study
    - ✓ Course objectives generally refer to Student in plural (Students).
    - ✓ Keep the course objectives count to anywhere between 4 and 6.

  - *Guidelines on Course Outcomes:*
    - ✓ Outcomes are more specific than Objectives.

- ✓ Outcomes are essentially "achievements" of a student or what a student can achieve as a result of taking the said course.
- ✓ Course Outcomes set the framework for assessing the effectiveness of course planning/delivery in terms of meeting the objectives from student perspective.
- ✓ Course Outcomes are generally like a check list that a student can use at the end to figure out if he/she got the intended learning benefits of the course at the end of the course.
- ✓ Course Outcomes should start with any of the following phrases:
  - Have the ability to explain/demonstrate
  - Fully appreciate the
  - Grasp the significance of
- ✓ If you append "Do you" to any of the outcome it should effectively become a question that would be able to answer following terms.
  - Absolutely (5)
  - Substantially (4)
  - Just About (3)
  - Not confident (2)
  - Categorical No (1)
- ✓ Course outcomes are generally individual assessment based.
- ✓ Course outcomes needs to assessed from individual to individual using some methodology which we lead to saying "x" students attained an outcome to "y%" level.
- ✓ Class outcome benchmarks can be defined that talk about how many students attained a certain % benchmark for the outcome. A good benchmark would be:
  - 30% of the students must have attained 80% attainment level for one outcome
  - 40% of the students must have attained 60% attainment level for one outcome
  - 20% of the students must have attained 40% attainment level of one outcome.
  - 10% of the students must have attained 20% attainment level of one outcome.
- ✓ It would probably be better to have 3 types of outcomes for each course (Bloom's Taxonomy based).
  - Knowledge Outcomes (KO) [Start with "have the ability to explain/demonstrate"]: have one KO for every 2 units of the syllabus

- Understanding Outcomes (UO) [Start with "grasp the significance"]: have one UO for every ½ of the syllabus, one for first half and one for second half
- Application Outcomes (AO) [Start with "fully appreciate the"]: have one AO for the entire syllabus.

✓ The above would make about 6-7 outcomes per course [depending on whether the syllabus has 6 units or 8 units]

Assessment Tools:

- Direct methods: [80%]
  - Internal Examination marks [30%]
    - Subjective marks
    - Internal Quiz marks
  - Final Examination marks [50%]

- Indirect methods: [20%]
  - Teacher rating (based on a teacher decided assortment of tools like assignments, tutorials, class-room interaction etc.) **[Only for 2011-15 admitted Batch]**
  - Student course outcome feedback. [Sample Questionnaire: Appendix A] **[Only for 2012-16 admitted Batch]**

Though the indirect method consists of both teacher rating and student course outcome feedback as approved by DAC on 09/2013, it is resolved to consider only teacher assessment (TA) for two time per semester and an average of two assessments is calculated as Teacher Rating (TR) for the reason being that 2011-15 batch has already completed 2 years of course work and may deviate the essence of outcome based feedback. However, for 2012-16 admitted batch it is resolved to consider the student course outcome feedback.

Version 2.0:

As the R13 regulation includes various aspects in-terms of student assessment and the external exam pattern and the question paper pattern, the DAC has resolved to adopt new assessment procedure in 09/2013.

Course outcomes definition:

This revision was a major revision addressing both the change in Syllabus structure at course level reducing the number of units thereby necessitating

a change/recalibration of outcomes and also to introduce more direct methods of assessment.

- *Assessment Tools:*
  - ✓ Direct methods: [80% weight]
    - Assignments [5% weight for Knowledge Outcomes]
    - Internal Examination [25% weightage]
      - Subjective marks
      - Quiz marks
    - Final Examination marks [50%]
- Indirect methods: [20% weight]
  - ✓ Student course outcome feedback. **[Sample Questionnaire in Appendix A]**

Version 3.0:

After contemplating the results of the previous assessment methodologies (Versions 1.0, 1.1 and 2.0) the department has arrived at the decision that the assessment methodology needs some minor changes to be included and hence revised in 2015 specifically for A1 regulation i.e, admitted after 2015-16 academic year.

Course outcomes definition:

Given the directions from BoS in 2016 to standardize outcome assessment procedure, course coordinators were asked to revise the course outcomes following a standard pattern. Guidelines for the same were issued.

- *Guidelines for Course Objectives & Course Outcomes:*
  - *Guidelines on Course Objectives:*
    - ✓ They should be less generic than goals and more generic than outcomes.
    - ✓ Course Objectives are essentially intentions of the teacher administering/delivering a course. They reflect what the teacher intends to do.
    - ✓ Course Objectives set the framework for the course curriculum.
    - ✓ Course Objectives should start with any of the following phrases:
      - Students will get exposure to
      - Students will gain an understanding of
      - Students will read and analyze
      - Students will study
    - ✓ Course objectives generally refer to Student in plural (Students).
    - ✓ Keep the course objectives count to anywhere between 4 and 6.

- *Guidelines on Course Outcomes:*
  - ✓ Outcomes are more specific than Objectives.
  - ✓ Outcomes are essentially "achievements" of a student or what a student can achieve as a result of taking the said course.
  - ✓ Course Outcomes set the framework for assessing the effectiveness of course planning/delivery in terms of meeting the objectives from student perspective.
  - ✓ Course Outcomes are generally like a check list that a student can use at the end to figure out if he/she got the intended learning benefits of the course at the end of the course.
  - ✓ Course Outcomes should start with any of the following phrases:
    - Have the ability to explain/demonstrate
    - Fully appreciate the
    - Grasp the significance of
  - ✓ If you append "Do you" to any of the outcome it should effectively become a question that would be able to answer following terms.
    - Absolutely (5)
    - Substantially (4)
    - Just About (3)
    - Not confident (2)
    - Categorical No (1)
  - ✓ Course outcomes are generally individual assessment based.
  - ✓ Course outcomes needs to be assessed from individual to individual using some methodology which we lead to saying "x" students attained an outcome to "y%" level.
  - ✓ Class outcome benchmarks can be defined that talk about how many students attained a certain % benchmark for the outcome. A good benchmark would be:
    - 30% of the students must have attained 80% attainment level for one outcome
    - 40% of the students must have attained 60% attainment level for one outcome
    - 20% of the students must have attained 40% attainment level of one outcome.
    - 10% of the students must have attained 20% attainment level of one outcome.
  - ✓ It would probably be better to have 3 types of outcomes for each course (Bloom's Taxonomy based).

- Knowledge Outcomes (KO) [Start with "have the ability to explain/demonstrate"]: have one KO for every 2 units of the syllabus
- Understanding Outcomes (UO) [Start with "grasp the significance"]: have one UO for every ½ of the syllabus, one for first half and one for second half
- Application Outcomes (AO) [Start with "fully appreciate the"]: have one AO for the entire syllabus.

✓ The above would make about 6 outcomes per course.

Assessment Tools:

- Direct methods: [90%]
  - Internal Examination marks [30%]
    - The college conducts 2 Internal Assessment (Subjective) Tests and the average of both the mid examinations is considered as final internal marks for assessment.
  - Final Examination marks [60%]

- Indirect methods: [10%]
  - Teacher rating (based on a teacher decided assortment of tools like assignments, tutorials, class-room interaction etc.)

It is resolved to consider Teacher Assessment (TA) for two times per semester and an average of two assessments is calculated as Teacher Rating (TR).

Lab Course Assessment:

Lab course coordinators are responsible for preparing the lab manual with a team of other faculty members and coming up with assessment methodology. Lab courses have a different way of defining outcomes. The Lab assessment also consists of both Internal and External components which includes direct and indirect assessments.

Assessment Tools:

- Direct methods: [100%]
  - Internal Examination marks [20%]
    - The Lab course coordinator conducts 2 Internal Assessment (Practical) Tests and the best of both the practical (Hands-on) examinations is considered as final internal marks for assessment.

  - Continuous Assessment [20%]

- There will be weekly outcomes that are linked to 1 or more experiments conducted in a week and all outcomes are linked to objectives. The lab assessment process (Continuous Assessment) covers four aspects viz.,
  - Observation [5%].
  - Experiment Execution [5%].
  - Record Submission [5%].
  - Viva[5%]

  The continuous assessment process is done on weekly basis by evaluating the student on the above four aspects and allocate marks based on the student's performance on all the four aspects. The overall marks for continuous assessment are 20/week which shall finally be the average of all the weeks' performance.

- Final Examination marks [60%]

The total marks (internal assessment) for laboratory are 40 out of which 20 for continuous assessment done on weekly basis and 20 marks for performance in internal examination. The procedure has been adopted from past 3 years and has been ratified by BoS meeting conducted in 2015.

Version 1.0/1.1/2.0/3.0:

PO Assessment (through CO ⇔ PO):

- All course modules mapped to program outcome are given the same weightage.

Version 1.1: [09/2013]

All generic program outcomes are mapped to all the knowledge profiles.

Version 2.0: [09/2013]

Generic program outcomes will be evaluated based on a separate set of rubrics including Statement of Purpose assessment (individual SWOT, short & medium term plan), counselor rating and psychometric tests.

Generic program outcome assessment:

*** Look at Appendix-H for Assessment_2.0\Generic Program Outcome Assessment Template.*

Overall PO assessment:

*** Look at Appendix-G for Assessment_2.0\Program Outcome Assessment Template.*

Benchmarks for program outcome attainment:

- Each student would get a rating on the scale of 1-5 for each Program Outcome.
- We would then categorize students into 5 classes on outcome attainment for each PO as below.
  - Rating (5) ------ > 80% Level
  - Rating (4) ----- > 70% Level
  - Rating (3) ----- > 60% Level
  - Rating (2) ------ > 40% Level
  - Rating (1) ------ < 40% Level
- Essentially, if we have "n" outgoing students, "n1" get classified as rating 5, "n2" as rating 4, "n3" as rating 3, "n4" as rating 2 and "n5" as rating 1. Now that, N = n1 + n2 + n3 + n4 + n5
- Our bench-mark is to have more than 40% of students at more than 70% level meaning n1 + n2 should be greater than 0.4n and 80% of students should be at 60% level meaning n1+n2+n3 should be greater than 0.8n.

This will have to be correlated to placement, where we say all above 60% level should get placements. We see where we are.

Gauging program Educational Objectives attainment:

Version 2.0/3.0 [to be used with 1.1as well]:

Indirectly through PO assessment: [30% weight]

- Take the overall level of attainment of each PO for the batch by taking an average across all students.
- Take the mapping of PO's to PEO's and computing overall PEO attainment through PO's for each PEO by taking an average of attainment of all PO's relevant to that PEO.

Graduate Survey/Exit Feedback: [10% weight]

- The exit feedback is based on pointed questions, one per each PEO. Take the average of all students' rating for each PEO question.

*** Look at **Appendix-I** for exit feedback questionnaire*

Alumni Feedback: [20% weight]

- The alumni feedback is based on pointed questions, one per each PEO. Take the average of all students' rating for each PEO question. More weight for alumni feedback because they would have experienced the benefits or lack thereof of the course objectives in their post-graduation career. **[Appendix-I]**

Employer Survey/Feedback: [10% weight]

- Ideally we would have liked to give more weight to this but given the very non-quantifiable nature of feedback and scope for subjective interpretation from our side, we give less weight. We expect employers to rate on specific attributes that are linked with specific PEO's and use the rating on the scale of 1-5.

Placement & Higher Studies return: [30%]

- All students who are placed on campus or go for higher studies are given a rating of 5.
- All students who are placed off campus within first 6 months of completion of course are given rating of 4.
- All students who skip placement for various reasons are given a rating of 3.
- All students who are placed off campus within 6-12 months of completion of course are given a rating of 2.
- All students who are not placed even after 12 months of finishing the course are given a rating of 1.

An average of all these rating is taken to get a rating for placement and higher studies. This basically is used as the rating for each PO.

Overall Objectives attainment: A weighted average of all the above rating is taken as per the weights attached and we come up with a level of attainment for each PO.

*** Look at **Appendix-M** for PEO attainment*

Step 5: Develop the assessment plan

Once the mission, learning outcomes and assessment methodologies have been developed, the assessment plan must be completed. See **Appendix C to Appendix-H** for a template for an assessment plan at the program level. Program assessment coordinators should use this template to develop their plans and reports or create a text document that provides the same information in a similar format, e.g. assessment measures and benchmarks should be listed for each outcome, along with results and action plans for each outcome. This template can also be helpful for faculty planning assessment at the course level.

Step 6: Carry out the assessment

Once the plan is developed and submitted, the assessment process needs to be implemented. Remember, for program assessment, the goal is to assess program-level outcomes. It is also essential to evaluate individual students for the sake of counselling. The counselling of students shall be done based on the attainment levels of the student in various courses from time-to-time. The assessment team DIQAAC will manage the program's assessment process and will create a detailed timeline for the assessment cycle. The timeline might include dates for when work will be collected, when results will be tabulated and analyzed across the program, and when faculty will meet to discuss the results of the process and recommend changes. Items to consider include which courses and learning experiences are better suited for assessment, timelines and schedules. The report submitted by the committee shall be used for two purposes as:

- The course level attainment shall help the faculty in setting the benchmarks for next year and help in betterment of teaching-learning process.
- It is used as a tool by counselor to counsel individual student and help for better performance of the student

Step 7: Collect, analyze, communicate, and report on the findings

Program Outcome Assessment Analysis:

A student is expected to gradually improve his overall program outcome attainment over the duration of the entire program. The main contributing factors for a successful attainment of the program outcomes for a student are:

- Attainment of Course Outcomes at the Course Module Level.
- Demonstrated improvement in Generic GA/PO (Individual & Team work, Communication, Project Management & Finance, Life-long learning), best practices for which should permeate through the

teaching-learning process via modes of teaching that promote these best practices.

Analysis of Course outcome attainment:

We would need an overall bench mark for a certain class in terms of what our target attainment level for the class is. Ideally that is 3.5. We also basically have a 3.5 bench mark for each individual course outcome at a class level. If we hit this benchmark, we could say the course return was satisfactory. If we keep hitting this bench mark consistently, it is time to raise the benchmark to 4.0. Before comparing to bench-marks, we should ideally normalize the outcome by multiplying with complexity weight of the course based on the complexity of the course. That will give us a fair basis of comparison across courses.

Step 8: Take action based on those findings

Follow-up if not meeting the bench-mark:

- If the problem is at a small proportion of individual outcome level, we will need to address what can be done with that part of the course curriculum that contributes to that outcome.
- If the problem is at the overall outcome level caused by a homogeneous distribution across all specific outcomes, we need to look at the following.
    - Analyze individual students who are way below outcome benchmark and identify the cause. This should be done by the counselors who get the information from the course teacher. Counselor should focus on:
        - **Cause:** Irregularity, Correction: see if he can be motivated with help of parents to be regular
        - **Cause:** Lack of interest, Correction: see if interest can be created on the subject/course.
        - **Cause:** IQ Level, Correction: see if we can make him at-least learn fundamentals to start with.
    - Teacher should review the delivery process and analyze how outcomes can be better achieved. Possible learning could be:
        - Early bridging of gap in pre-requisites
        - More remedial work

Analysis of Generic Program Outcome Attainment:

Attainment is measured using following tools.

- Statement of Purpose: Content should include
    - Individual SWOC Analysis

- Semester-wise plan for 2 semesters in the coming year, to spell out how he/she intends to improve on weak areas and address threats, with resource identification in terms of whose help he intends to take for implementation of parts of the plan.

SWOT would be analyzed by the counselor in conjunction with previous years plan to see if there has been improvement on aspects of Communication, Project Management (Building his/her skill set is the project), life-long learning & resourcefulness linked to team & individual work.

- Counselor Rating:
  - Should cover whether the student is systematic and planned in his approach.
  - Should cover whether student is amenable to guidance/advice.
  - Should cover whether student is showing inclination to improve and/or signs of improvement.
- Psychometric tests:
  - Should have questions that test team, communication & adaptability based behavior patterns.

Improvement: Counselor should correlate this weakness to their performance in Course level outcomes and demonstrate how they are getting affected as a result of lacuna in these attributes.

Finally for all students who are not meeting their outcomes at the course level and on Generic program outcome metrics, the counselor should do the following:

- Map students percentage to last 5 year rolling average for program students and see if the standard deviation of the student score from entry point on when compared to rolling average is reducing or not. If so, that can be used to positively motivate the student by showing he is improving and he just needs to push harder. If not, it needs to be highlighted to the student and told that he is regressing since joining the college and ask him what he is planning to do about it and what counselor/department can do to reverse that trend.

Actors:

Course Teacher: actions include

- Make a list of all students whose outcome is more than one point below the overall course outcome and hand over the reports to the respective counselors.

- Analyze systematic issues like insufficient gap bridging of pre-requisite knowledge, insufficient remedial action during the course, better delivery modes to increase learning spread.

Counselors: actions include

- Tracing individual performance against rolling average and finding out whether the student is progressing or regressing and address student accordingly.
- Work on the student's action plan deviation and how that deviation can be minimized.

Department Academic Council: actions include

Deciding the normalization multiplication factor for each course based on the complexity of the course to ensure consistent interpretations of weaknesses across all courses.

Appendix – A

Parent Input for Program Educational Objectives

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Dear esteemed Parent,

We are in the process of collecting inputs from parents about what your expectations are from the B. Tech (IT) program before we sit and formulate formally the Objectives of the program so we can tailor the delivery process to suit those objectives and better meet the aspirations of our esteemed stake holders of which parents are one of the most prominent groups. We recently conducted a meeting in the department with a few parent representatives and come up with some common expectations that parents have from the B. Tech (IT) Program. We request you to spend a few minutes of your time in identifying some of the core things you expect from the program. Please put a tick mark against the item/aspect you think is among your expectations among the listing arrived at the meeting with parent's representatives.

I would like my Child/Ward to become:

1. Skilled IT professional as per the industry expectation of professional skill required at the end of B. Tech Program.
2. Readily employable as an engineer in some software firm/firm that builds/vends software.
3. A thorough-bred professional who oozes confidence, poise and communication ability necessary to sustain fruitful employability & grow in his/her career.
4. Capable enough of getting admission into higher education institutes of national and international repute to pursue higher learning.
5. A life-longer learner who is adaptable enough to develop skill and acquire knowledge on a continual basis much after formal education is over to keep pace with the changing world.
6. Equipped to manage the challenges career and life throw at them over a long period of time.

Please feel free to write any other expectations you might have from the B. Tech (IT) program.

Signature of Parent

Appendix – B

A1 (Curricular regulation for batches starting from academic year 2015-16):

	PO(a)	PO(b)	PO(c)	PO(e)	PO(k)	PO(j)	PO(h)	PO(f)	PO(d)	PO(g)	PO(l)
English Language Practice–I (ELP)						WK7	WK7	WK7			
Engg. Mathematics – I (MI)	WK2	WK2									
Engg. Chemistry	WK1	WK1									
Basics of Civil & Mechanical	WK1	WK1									
Computer Programming (CP)	WK3	WK3									
Environmental Studies						WK7	WK7	WK7			
Engg. Chemistry Lab	WK1	WK1									
Fundamentals of Electronic ckts and Devices	WK1	WK1									
Basic Engg Workshop	WK2	WK2									
English Language Practice – II						WK7	WK7	WK7			
C Programming Lab (CPL)	WK3	WK3									
English – II						WK7	WK7	WK7			
Mathematical Methods	WK2	WK2									
Applied Physics	WK1	WK1									
Engineering Drawing	WK2	WK2									
Physics Lab	WK1	WK1									
MEFA					WK6	WK7	WK7	WK7			
MFCS	WK3	WK3									
DLD	WK3	WK3									
DS	WK3	WK3									
USP	WK4	WK4	WK5								
USP Lab	WK4	WK4	WK5								
OOP	WK3	WK3									
OOP Lab	WK3	WK3									
DS Lab	WK3	WK3									
Probability & Statistics	WK2	WK2									
MPI	WK3	WK3									

CA	WK3	WK3									
FLAT	WK3	WK3									
CD	WK3	WK3									
DCS	WK3	WK3									
DBMS	WK3	WK3	WK5								
OS	WK3	WK3									
OS Lab	WK3	WK3									
DBMS Lab	WK3	WK3	WK5								
CN	WK4	WK4									
DW & DM	WK4	WK4	WK5								
DAA	WK3	WK3									
SE	WK4	WK4			WK6						
WT	WK4	WK4	WK5								
CN & CD Lab	WK4	WK4									
DAA Lab	WK3	WK4									
SE Lab	WK4	WK4			WK6						
WT Lab	WK4	WK4	WK5								
DUOS	WK4	WK4									
OOAD & DP	WK4	WK4	WK5								
OOAD & DP Lab	WK4	WK4	WK5								
Elective – I	WK4	WK4									
Elective – II	WK4	WK4									
Elective – III	WK4	WK4									
Elective – IV	WK4	WK4									
Elective – V	WK4	WK4									
Elective – VI	WK4	WK4									
Elective – VII	WK4	WK4									
Elective – VIII	WK4	WK4									
Project			WK5	W K8							

R13 (Curricular regulation for batches starting from academic year 2013-14):

	GA1/ PO(a)	GA2/ PO(b)	GA3 /PO (c)	GA4 /PO (e)	GA5/ PO(k)	GA6/ PO(j)	GA7/ PO(h)	GA8/ PO(f)	GA9 /PO (d)	GA1 0/P O(g)	GA11 /PO(l)	GA12 /PO(i)
English –I (EI)						WK7	WK7	WK7				
Mathematics – I (MI)	WK2	WK2										
Chemistry	WK1	WK1										
Mechanics	WK1	WK1										
Computer Programming (CP)	WK3	WK3										
Environmental Studies						WK7	WK7	WK7				
Chemistry Lab	WK1	WK1										
ECS Lab – I (ECSIL)						WK7	WK7	WK7				
C Programming Lab (CPL)	WK3	WK3										
English – II						WK7	WK7	WK7				
Mathematics – II	WK2	WK2										
Mathematics - III	WK2	WK2										
Physics	WK1	WK1										
Professional Ethics & Human Values						WK7	WK7	WK7				
Engineering Drawing	WK2	WK2										
ECS Lab – II						WK7	WK7	WK7				
Physics Lab	WK1	WK1										
Eng & IT Workshop	WK2	WK2										
MEFA					WK6	WK7	WK7	WK7				
OOPS C++	WK3	WK3										
MFCS	WK3	WK3										
DLD	WK3	WK3										
DS	WK3	WK3										
OOP Lab	WK3	WK3										
DS Lab	WK3	WK3										
DLD Lab	WK3	WK3										
Probability & Statistics	WK2	WK2										
Java Programming	WK3	WK3										
ADS	WK3	WK3										
CO	WK3	WK3										
FLAT	WK3	WK3										
ADS Lab	WK3	WK3										
JP Lab	WK3	WK3										
FOSS Lab	WK4	WK4	WK 5									
CD	WK3	WK3										
DCS	WK3	WK3										
PPL	WK3	WK3										
DBMS	WK3	WK3	WK 5									
OS	WK3	WK3										
CD Lab	WK3	WK3										
OS Lab	WK3	WK3										
DBMS Lab	WK3	WK3	WK 5									
Linux Lab	WK3	WK3										
CN	WK4	WK4										
DW & DM	WK4	WK4	WK 5									
DAA	WK3	WK3										

SE	WK4	WK4			WK6							
WT	WK4	WK4	WK 5									
CN & NP Lab	WK4	WK4										
SE Lab	WK4	WK4			WK6							
WT Lab	WK4	WK4	WK 5									
CNS	WK4	WK4										
UML & DP	WK4	WK4	WK 5									
MC	WK4	WK4										
Elective – I	WK4	WK4										
Elective – II	WK4	WK4										
UML & DP Lab	WK4	WK4	WK 5									
MAD Lab	WK4	WK4										
Software Testing Lab	WK4	WK4			WK6							
Hadoop & BigData Lab	WK4	WK4										
Elective – III	WK4	WK4										
Elective – IV	WK4	WK4										
Distributed Systems	WK4	WK4	WK 5									
Management Science					WK6							
Seminars				WK 8								
Project			WK 5	WK 8								

Appendix – C

Student Outcome feedback questionnaire

Academic Year: Class:

Registered#: Course:

Q1. Do you have the ability to write a formal algorithmic solution for the given problem & explain the features of C like types including scalar & vector types, operators, expressions, expression evaluation, operator precedence, sequential, conditional & iterative constructs? [ ]

A. Absolutely B. Substantially C. Just About

D. Not confident E. Categorical No

Q2. Do you have the ability to use modular programming constructs of C while appreciating different ways of exchanging inputs and outputs among modules and different memory allocation strategies in C? [ ]

A. Absolutely B.Substantially C.Just About
D.Not confident E. Categorical No

Q3. Do you have the ability to define & use user defined data types using C constructs and write C programs that handles files? [ ]

A. Absolutely B. Substantially C. Just About
D. Not confident E. Categorical No

Q4. Do you grasp the significance of primary constructs & methodology of procedural language C and appreciate the orthoganality of the same in writing reasonably complicated programs? [ ]

A. Absolutely B. Substantially C. Just About
D. Not confident E. Categorical No

Q5. Do you grasp the significance of type extendibility in C, need for address as a data type and library functions for dealing with files in writing more complicated programs? [ ]

A. Absolutely B. Substantially C. Just About
D. Not confident E. Categorical No

Q6. Do you fully appreciate the art of procedural programming in C and develop programs optimally using the full feature set of C language?[ ]

A. Absolutely B. Substantially C. Just About
D. Not confident E. Categorical No

Appendix – D
Lab Course Outcome Assessment

Reg. No	Week 1			Week 2			Week 3			Week4			Week 5			Week 6			Week 11			Week 12			Week 13			Week 14			Week 15			Int. Exam (10)	Ext. Exam (50)	Final Outcome (5)
	O	E	R	O	E	R	O	E	R	O	E	R	O	E	R	O	E	R	O	E	R	O	E	R	O	E	R	O	E	R	O	E	R			
10331A1201	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	7	38	2
10331A1202	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1203	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1204	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1205	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1206	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1207	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1208	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1209	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1210	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1211	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1212	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1213	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1214	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1215	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1216	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1217	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1218	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1219	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1220	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1221	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1222	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1223	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2

10331A1224	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1225	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1226	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1227	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1228	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1229	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1230	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1231	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1232	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1233	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1234	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1235	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1236	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1237	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1238	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1239	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1240	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1241	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1242	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1243	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1244	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1245	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1246	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1247	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1248	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1249	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1250	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1251	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1252	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2

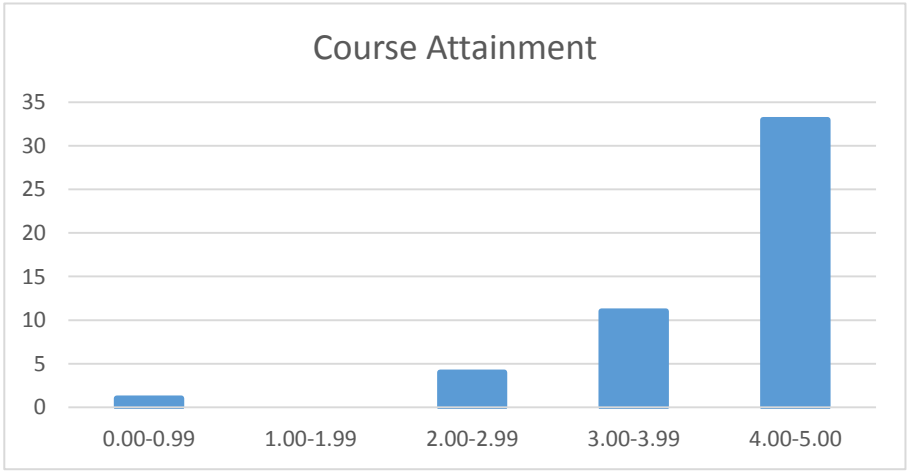
10331A1253	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1254	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1255	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1256	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1257	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1258	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1259	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2
10331A1260	5	4	3	4	5	2	2	4	5	2	3	4	1	2	5	3	4	5	1	4	3	1	3	4	4	3	2	1	4	5	2	3	4	8	38	2

Appendix – E
Course Outcome Assessment

S. No.	Regd No	OUT COME BASED FEEDBACK							CYCLE-1					CYCLE-2					IM	IM-S	FIMG	EMG	EMGW	Final Attainment
		CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	CO_A	AM1	Q 1	Q 2	Q 3	M 1	AM2	Q1	Q2	Q3	M 2						
1	15331A1201	5	5	5	5	4	5	4.83	10	9	9	10	28	10	7	8	9	24	36	9.00	A+	O	10	4.50
2	15331A1202	5	5	5	5	5	5	5.00	10	10	10	10	30	10	7	9	9	25	38	9.50	O	O	10	4.50
3	15331A1203	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	10	10	30	40	10.00	O	O	10	4.50
4	15331A1204	4	3	4	3	4	4	3.67	10	6	8	4	18	10	5	7	7	19	29	7.25	A	B+	7	3.15
5	15331A1205	4	5	5	5	4	5	4.67	10	5	10	10	25	10	7	10	7	24	35	8.75	A+	A+	9	4.05
6	15331A1206	5	3	3	5	3	4	3.83	10	10	10	6	26	10	5	2	8	15	31	7.75	A	B+	7	3.15
8	15331A1208	4	5	5	5	5	5	4.83	10	8	8	10	26	10	10	10	10	30	38	9.50	O	A+	9	4.05
9	15331A1209	4	5	5	4	5	5	4.67	10	8	8	8	24	10	9	9	9	27	36	9.00	A+	A+	9	4.05
11	15331A1211	5	5	5	5	5	5	5.00	10	10	9	10	29	10	10	10	10	30	40	10.00	O	O	10	4.50
12	15331A1212	5	5	5	5	5	5	5.00	10	8	10	10	28	10	10	10	9	29	39	9.75	O	O	10	4.50
14	15331A1214	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	10	10	30	40	10.00	O	O	10	4.50
15	15331A1215	5	5	5	5	5	5	5.00	10	8	10	10	28	10	10	10	10	30	39	9.75	O	O	10	4.50
16	15331A1216	4	4	5	4	5	5	4.50	10	6	9	7	22	10	8	10	10	28	35	8.75	A+	A+	9	4.05
17	15331A1217	5	2	2	4	2	3	3.00	6	8	9	5	22	6	0	7	0	7	21	5.25	B	B	6	2.70
18	15331A1218	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	10	10	30	40	10.00	O	O	10	4.50
19	15331A1219	4	2	1	4	2	3	2.67	10	10	6	5	21	10	3	3	1	7	24	6.00	B	B+	7	3.15
20	15331A1220	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	8	9	27	39	9.75	O	O	10	4.50
21	15331A1221	3	3	4	3	3	3	3.17	10	5	4	5	14	10	5	7	6	18	26	6.50	B+	A+	9	4.05

23	15331A1223	4	4	5	4	5	4	4.33	10	8	5	7	20	10	6	10	10	26	33	8.25	A+	A+	9	4.05
25	15331A1225	4	3	5	4	4	4	4.00	10	6	8	6	20	10	4	10	10	24	32	8.00	A	A	8	3.60
26	15331A1226	4	4	5	4	5	5	4.50	10	10	5	9	24	10	6	10	10	26	35	8.75	A+	A+	9	4.05
27	15331A1227	3	3	4	3	3	3	3.17	10	7	4	7	18	10	2	8	8	18	28	7.00	B+	A	8	3.60
28	15331A1228	3	2	4	3	3	3	3.00	10	4	7	5	16	10	2	9	7	18	27	6.75	B+	B+	7	3.15
29	15331A1229	5	4	5	5	4	5	4.67	10	7	10	9	26	10	5	10	8	23	35	8.75	A+	O	10	4.50
30	15331A1230	4	5	5	4	5	5	4.67	10	4	9	10	23	10	8	10	10	28	36	9.00	A+	A	8	3.60
31	15331A1231	4	5	5	5	5	5	4.83	10	6	10	10	26	10	10	10	10	30	38	9.50	O	O	10	4.50
33	15331A1233	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	10	10	30	40	10.00	O	O	10	4.50
34	15331A1234	5	5	5	5	5	5	5.00	10	10	10	10	30	10	8	10	10	28	39	9.75	O	O	10	4.50
35	15331A1235	4	4	4	4	4	4	4.00	10	6	9	8	23	10	6	9	5	20	32	8.00	A	A+	9	4.05
36	15331A1236	5	5	5	5	5	5	5.00	10	8	9	10	27	10	10	10	10	30	39	9.75	O	O	10	4.50
37	15331A1237	5	5	5	5	5	5	5.00	10	10	9	10	29	10	9	10	10	29	39	9.75	O	O	10	4.50
38	15331A1238	4	3	3	4	3	3	3.33	5	5	10	5	20	5	4	10	0	14	22	5.50	B	C	5	2.25
39	15331A1239	4	5	4	4	5	5	4.50	10	9	5	10	24	10	10	10	6	26	35	8.75	A+	A+	9	4.05
41	15331A1241	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	10	10	30	40	10.00	O	O	10	4.50
42	15331A1242	5	5	5	5	5	5	5.00	10	9	10	9	28	10	10	10	9	29	39	9.75	O	A+	9	4.05
43	15331A1243	4	4	2	4	3	4	3.50	6	5	10	5	20	6	10	5	3	18	25	6.25	B+	B	6	2.70
44	15331A1244	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	10	10	30	40	10.00	O	O	10	4.50
45	15331A1245	4	5	5	4	5	5	4.67	10	6	9	8	23	10	10	8	9	27	35	8.75	A+	A+	9	4.05
47	15331A1247	3	4	5	3	5	4	4.00	10	5	5	5	15	10	8	9	10	27	31	7.75	A	B+	7	3.15
48	15331A1248	4	4	5	4	5	5	4.50	10	6	10	4	20	10	10	10	9	29	35	8.75	A+	A	8	3.60
49	15331A1249	3	3	2	3	2	3	2.67	10	6	4	8	18	10	3	6	0	9	24	6.00	B	B	6	2.70
50	15331A125	5	5	5	5	5	5	5.00	6	10	7	8	25	6	9	10	8	27	32	8.00	A	A	8	3.60

	0																						
51	15331A1251	5	5	5	5	5	5	5.00	10	8	10	10	28	10	10	9	10	29	39	9.75	O	O	10	4.50
52	15331A1252	5	5	5	5	5	5	5.00	10	10	10	10	30	10	8	10	10	28	39	9.75	O	O	10	4.50
53	15331A1253	5	5	5	5	5	5	5.00	10	8	10	10	28	10	7	10	10	27	38	9.50	O	O	10	4.50
54	15331A1254	5	5	5	5	5	5	5.00	10	10	10	10	30	10	10	10	10	30	40	10.00	O	O	10	4.50
55	15331A1255	4	5	5	4	5	5	4.67	10	7	9	8	24	10	10	10	10	30	37	9.25	O	A+	9	4.05
56	15331A1256	4	5	3	4	4	4	4.00	6	6	9	9	24	6	10	10	2	22	29	7.25	A	A	8	3.60
57	14331A1213	4	3	1	4	1	3	2.67	5	6	9	7	22	5	2	4	0	6	19	4.75	C	F	0	0.00
		4.39	**4.33**	**4.41**	**4.41**	**4.35**	**4.51**	**4.4**															



Course Attainment Levels

0.00-0.99	1
1.00-1.99	0
2.00-2.99	4
3.00-3.99	11
4.00-5.00	33
	49

Appendix – F
PO Assessment Template

Reg#	DBMS	DBMS LAB	WT LAB	WT	OOAD&DP	OOAD&DP LAB	PROJECT	PO3_AVG
15331A1201	3.60	5.00	4.00	2.70	3.15	5.00	4.00	3.92
15331A1202	3.15	5.00	4.00	3.15	2.25	5.00	4.00	3.79
15331A1203	4.05	5.00	5.00	3.60	4.05	5.00	5.00	4.53
15331A1204	2.70	4.00	3.00	2.70	2.70	5.00	5.00	3.59
15331A1205	4.05	5.00	5.00	3.60	3.60	5.00	5.00	4.47
15331A1206	3.15	3.00	4.00	2.25	2.70	4.00	5.00	3.44
15331A1208	3.60	5.00	5.00	3.15	3.15	5.00	5.00	4.27
15331A1209	3.60	4.00	4.00	2.70	4.05	5.00	5.00	4.05
15331A1211	4.05	5.00	5.00	3.60	3.15	5.00	5.00	4.40
15331A1212	3.60	5.00	4.00	3.60	3.60	5.00	5.00	4.26
15331A1214	4.05	5.00	5.00	3.15	3.15	5.00	5.00	4.34
15331A1215	4.05	5.00	5.00	3.15	3.15	5.00	5.00	4.34
15331A1216	4.05	4.00	4.00	2.70	3.60	5.00	5.00	4.05
15331A1218	3.15	5.00	5.00	0.00	3.60	4.00	5.00	3.68
15331A1219	2.70	3.00	3.00	3.60	2.70	4.00	5.00	3.43
15331A1220	4.05	5.00	5.00	2.25	3.60	5.00	5.00	4.27
15331A1221	3.15	5.00	3.00	3.60	3.15	4.00	4.00	3.70
15331A1223	4.05	5.00	4.00	2.70	2.70	4.00	5.00	3.92
15331A1225	3.60	3.00	3.00	2.25	2.70	3.00	4.00	3.08
15331A1226	3.60	3.00	3.00	2.25	2.25	4.00	5.00	3.30
15331A1227	3.60	3.00	5.00	2.25	2.70	5.00	4.00	3.65
15331A1228	3.15	3.00	3.00	2.25	2.25	4.00	4.00	3.09
15331A1229	3.15	3.00	5.00	1.80	2.70	4.00	5.00	3.52
15331A1230	2.70	4.00	4.00	2.25	2.70	5.00	5.00	3.66
15331A1231	2.70	5.00	5.00	2.70	4.05	5.00	5.00	4.21
15331A1233	3.60	5.00	5.00	3.60	4.05	0.00	0.00	3.04
15331A1234	3.15	5.00	5.00	4.05	3.15	5.00	4.00	4.19
15331A1235	4.50	3.00	3.00	3.15	2.70	4.00	4.00	3.48
15331A1236	4.50	5.00	4.00	2.70	3.15	5.00	5.00	4.19
15331A1237	3.60	4.00	4.00	2.70	2.25	3.00	4.00	3.37
15331A1238	3.60	3.00	3.00	0.00	2.70	4.00	3.00	2.76
15331A1239	3.60	5.00	5.00	0.00	3.15	4.00	5.00	3.68
15331A1241	2.70	5.00	5.00	3.15	3.15	5.00	5.00	4.14
15331A1242	2.25	5.00	5.00	3.60	3.15	5.00	5.00	4.14
15331A1243	3.60	3.00	3.00	2.70	2.70	4.00	4.00	3.29
15331A1244	4.05	5.00	5.00	3.15	4.05	5.00	5.00	4.47
15331A1245	3.15	4.00	3.00	4.05	3.15	4.00	5.00	3.77
15331A1247	2.70	3.00	4.00	2.70	2.25	4.00	4.00	3.24
15331A1248	4.05	4.00	4.00	2.70	3.15	4.00	5.00	3.84
15331A1249	3.60	3.00	3.00	2.70	2.70	4.00	5.00	3.43
15331A1250	3.15	3.00	1.00	1.80	0.00	3.00	3.00	2.14
15331A1251	3.15	4.00	3.00	1.80	2.70	4.00	4.00	3.24

15331A1252	1.80	5.00	5.00	2.70	3.15	5.00	5.00	3.95
15331A1253	3.15	5.00	5.00	3.60	3.60	5.00	5.00	4.34
15331A1254	3.60	5.00	5.00	3.60	3.60	5.00	5.00	4.40
15331A1255	4.05	5.00	3.00	4.05	3.15	5.00	4.00	4.04
15331A1256	4.05	3.00	3.00	2.70	0.00	0.00	0.00	1.82

Weight	DBMS	DBMS LAB	WT LAB	WT	OOAD&DP	OOAD&DP LAB	PROJECT	PO3_AVG
5	14	33	32	3	5	42	43	19
4	25	14	14	17	22	3	2	25
3	7	0	0	21	18	0	0	2
2	1	0	1	3	0	0	0	1
1	0	0	0	3	2	0	0	0
Total	**47**	**47**	**47**	**47**	**47**	**45**	**45**	**47**

Appendix – G

GA Assessment Template

Reg#	PO9	PO10	PO11	PO12	GA_AVG
15331A1201	4.00	4.00	3.58	1.50	3.27
15331A1202	4.00	4.00	3.58	5.00	4.14
15331A1203	5.00	4.50	4.53	5.00	4.76
15331A1204	5.00	3.50	4.08	5.00	4.39
15331A1205	5.00	4.50	4.53	5.00	4.76
15331A1206	5.00	4.00	3.85	5.00	4.46
15331A1208	5.00	4.50	4.08	5.00	4.64
15331A1209	5.00	4.50	4.08	5.00	4.64
15331A1211	5.00	4.50	4.30	5.00	4.70
15331A1212	5.00	4.50	4.30	5.00	4.70
15331A1214	5.00	4.50	4.30	5.00	4.70
15331A1215	5.00	4.00	4.53	5.00	4.63
15331A1216	5.00	4.00	4.53	4.50	4.51
15331A1218	5.00	3.50	3.63	4.00	4.03
15331A1219	5.00	3.50	4.30	4.50	4.33
15331A1220	5.00	4.00	3.85	2.50	3.84
15331A1221	4.00	3.00	3.58	2.50	3.27
15331A1223	5.00	3.50	4.30	1.50	3.58
15331A1225	4.00	4.00	3.80	2.50	3.58
15331A1226	5.00	3.50	4.08	4.00	4.14
15331A1227	4.00	3.50	3.80	5.00	4.08
15331A1228	4.00	2.50	3.35	4.00	3.46
15331A1229	5.00	4.00	3.85	4.00	4.21
15331A1230	5.00	4.50	4.08	4.00	4.39
15331A1231	5.00	4.50	3.85	5.00	4.59
15331A1233	0.00	4.50	1.80	5.00	2.83
15331A1234	4.00	3.50	4.25	0.00	2.94
15331A1235	4.00	4.00	4.03	5.00	4.26
15331A1236	5.00	4.50	3.85	4.00	4.34
15331A1237	4.00	4.00	3.58	4.00	3.89
15331A1238	3.00	4.00	2.85	4.00	3.46
15331A1239	5.00	5.00	3.85	0.00	3.46
15331A1241	5.00	4.00	4.30	5.00	4.58
15331A1242	5.00	3.50	4.08	5.00	4.39
15331A1243	4.00	3.50	3.80	4.00	3.83
15331A1244	5.00	5.00	3.85	5.00	4.71
15331A1245	5.00	4.00	4.75	5.00	4.69
15331A1247	4.00	2.50	3.58	5.00	3.77
15331A1248	5.00	4.00	4.08	1.50	3.64

PO9: Individual and team work	Project
PO10: Communication	ECS-I, ECS-II
PO11: Project management and finance	Project, MEFA
PO12: Life-long learning	MOOCs, Job

15331A1249	5.00	4.00	3.85	4.00	4.21
15331A1250	3.00	3.50	2.85	1.50	2.71
15331A1251	4.00	3.50	3.35	1.50	3.09
15331A1252	5.00	4.00	4.30	4.00	4.33
15331A1253	5.00	4.00	4.08	5.00	4.52
15331A1254	5.00	4.00	4.30	5.00	4.58
15331A1255	4.00	4.00	3.80	5.00	4.20
15331A1256	0.00	3.00	1.58	5.00	2.39

Rating	PO9	PO10	PO11	PO12	GA_AVG
5	43	32	23	37	30
4	2	13	20	0	13
3	0	2	2	3	4
2	0	0	2	5	0
1	0	0	0	0	0
0	2	0	0	2	0
	47	47	47	47	47

Appendix - H

DEPARTMENT OF INFORMATION TECHNOLOGY
MVGR COLLEGE OF ENGINEERING

FINAL YEAR STUDENTS – EXIT FEEDBACK ON PO & PSO

CAY :	BATCH:	Date :
PROGRAM	B. Tech. Information Technology	
Optional	Name:	Reg No:

PROGRAM EDUCATIONAL OBJECTIVES: The department has the following stated program educational objectives:

I. Knowledge of mathematics, science, computing and engineering fundamentals shall be imparted to the students, followed by breadth and in-depth studies in Computer Science Engineering. Further students are equipped with laboratory and project based experiences in addition to proficiency in use of modern computational tools.

II. Our graduates will be employed in the computing profession, and will be engaged in learning, understanding and applying new ideas and technologies as the field evolves.

III. Necessary infrastructure and Academic support shall be provided to ensure that Graduates succeed in the pursuit of advanced degrees in engineering or other fields and have skills for, continued independent, lifelong learning to become experts in their profession and to broaden their professional knowledge.

IV. Framework to promote the ability to organize and present information, to write and speak effective English, to work effectively on team-based engineering projects and practice ethics inculcating a sense of social responsibility shall be setup

Program Outcomes: 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 behaviors that students acquire in their matriculation through the program [ABET]

PO1: Engineering knowledge:

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

PO2: 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.

PO3: Design/development:
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.

PO4: 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.

PO5: 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.

PO6: 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.

PO7: 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.

PO8: Ethics:
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work:
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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.

PO12: 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.

PO	Score
PO1	
PO2	
PO3	
PO4	
PO5	
PO6	
PO7	
PO8	
PO9	
PO10	
PO11	
PO12	

PLEASE ASSESS WHETHER THE OBJECTIVES HAVE BEEN ACHIEVED & LEVEL OF ACHIEVEMENT*:*

Excellent(E)	Good(G)	Average(A)	Poor(P)	No Comment(NC)
5	4	3	2	1

ASSESSMENT MANUAL
Version 1.0

CONTENTS

1 VISION and MISSION of the INSTITUTE

1.1 VISION

Maharaj Vijayaram Gajapathi Raj (MVGR) College of Engineering strives to become a centre par excellence for technical education where aspiring students can be transformed into skilled and well-rounded professionals with strong understanding of fundamentals, a flair for responsible innovation in engineering practical solutions applying the fundamentals, and confidence and poise to meet the challenges in their chosen professional spheres.

1.2 MISSION

The management believes imparting quality education in an atmosphere that motivates learning as a social obligation which we owe to the students, their parents/guardians and society at large and hence the effort is to leave no stone unturned in providing the same with all sincerity. Towards that end, the management believes special focus has to be on the following areas:

M1. Have on-board staff with high quality experience and continuously updating themselves with latest research developments and sharing that knowledge with students.

M2. Having a well stream-lined teaching learning process that is continuously assessed for effectiveness and fine-tuned for improvement.

M3. Having state-of-the-art lab and general infrastructure that gives students the necessary tools and means to enhance their knowledge and understanding.

M4. Having a centralized department focused on improving placement opportunities for our students directly on campus and coordinating the training programs for students to complement the curriculum and enhance their career opportunities.

M5. Having advanced research facilities and more importantly atmosphere to encourage students to pursue self-learning on advanced topics and conduct research.

MECHANICAL ENGINEERING PROGRAM

2. VISION and MISSION of the Department

2.1 VISION

To produce globally competent Mechanical Engineers with a commitment to serve the society by continually work as an effective bridge between the aspirations of prospective students for a fruitful professional career and industry's need for well-rounded Mechanical engineers with strong fundamentals and sound problem solving temperament

2.2 MISSION

The Department of Mechanical Engineering of M V G R College of Engineering in tune with its vision would offer under-graduate program in engineering to prepare students for a successful career as Professional Mechanical Engineer in a very dynamically changing industry by:

M1. Impart high quality education with emphasis on fundamental concepts and practical application built on the basis of character ethic with the goal of creating engineers bearing

a strong sense of responsibility, whetted to meet the challenges of the industry and mature enough to blossom into highly capable leaders in their chosen area of interest.

M2. Inculcating strong mathematical & computing fundamentals among students that form the baseline for modern day solutions with emphasis on design development.

M3. Inculcating among its students the need for continuous learning and the skills necessary to continue their education, develop professionally and push the boundaries of knowledge long after their graduation.

M4. Imbibing in its students a deep understanding of expected professional, ethical and societal responsibilities.

M5. Inculcating among its students rich and reasonably comprehensive skill set with practical exposure in putting the same to use for problem solving in a team setting enabling them to be valuable contributors to the Mechanical industry & society at large immediately after graduation.

M6. Providing a stimulating environment for faculty & students alike that fosters a culture of knowledge seeking and sharing & appreciation of intellect helping all involved to grow both as individuals and as Professional Mechanical Engineers.

2.3 Process for defining the Mission and Vision of the department

The vision of the department was created as a specialized edition of the overall college vision reflecting the very basis for choosing to start a Department of Mechanical Engineering in the institution. Since the vision of the department was a specialization of the institution vision, the vision by design was going to be in sync with the institution vision. The process used to finalize the vision and mission of the department was:

- The Head of the department in collaboration with two senior staff of the department created a Department of Mechanical Engineering specific specialized version of the institution's vision.
- The vision was discussed among the staff of Department of Mechanical Engineering for any suggestions/improvements and adjustments were made based on the same.
- The vision was than discussed in the department advisory committee comprising of experts from academia and industry. Suggestions were taken from them and vision was modified accordingly. In this step, we were able to make the vision more concise without in any way compromising on completeness.
- The vision thus arrived at was than submitted to the institution academic council for discussion and ratification.
- Once vision was established, pretty much the same cycle as followed for vision was followed for arriving at the mission. The starting point for mission was the vision of the department & what needed to be done to stay true to the stated vision.

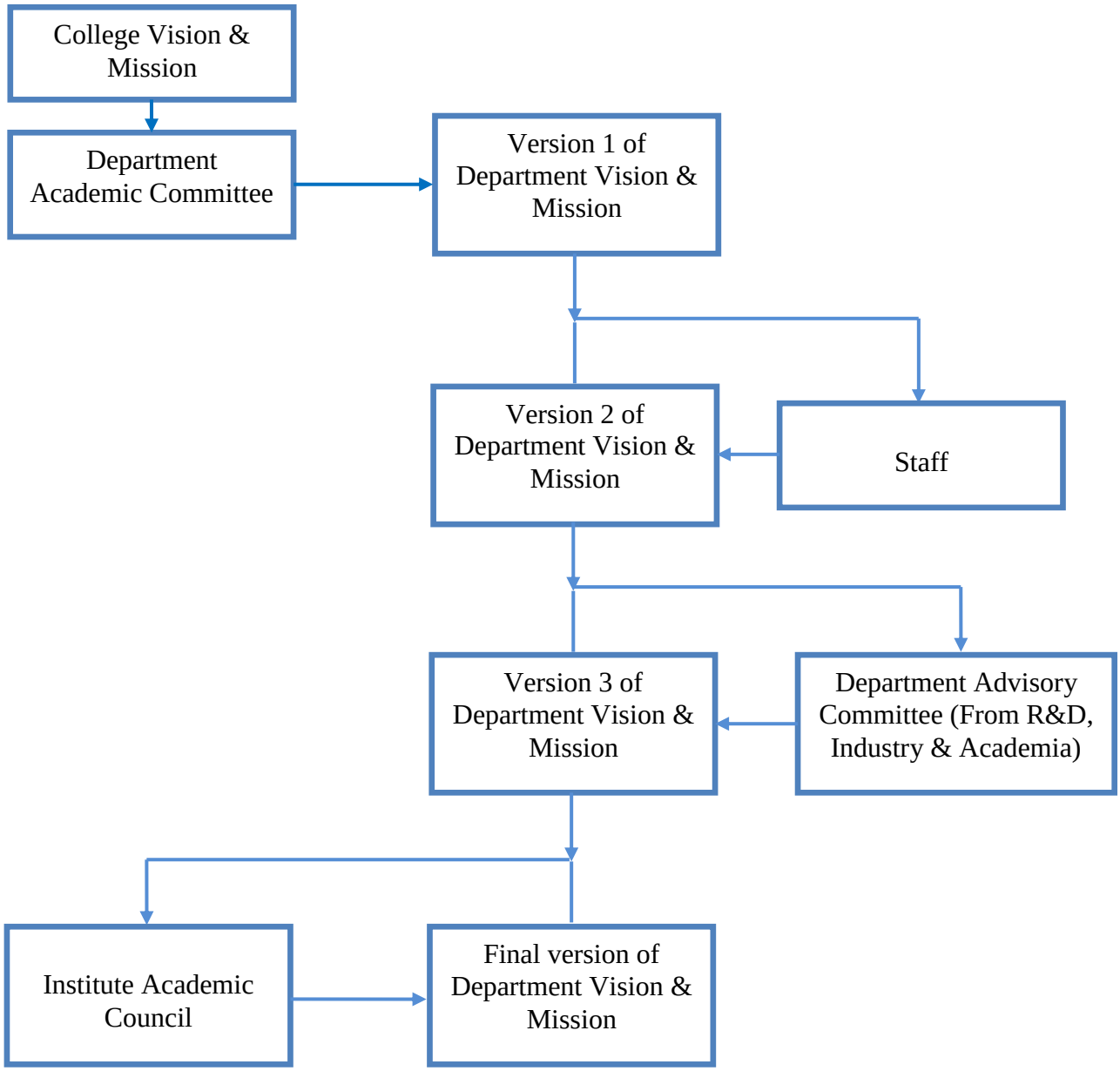


Fig.1 Flow chart showing the process for defining the Mission and Vision of the department

3 PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

Program educational objectives are broad statements that describe the career and professional accomplishments that the program is preparing, graduates to achieve.

3.1 Process for establishing the PEOs

The Program Education Objectives are evolved through a process of discussion and deliberations chiefly coordinated by the department academic committee comprising of the Head of Department and 2 senior members of the department faculty involving discussions/inputs with/from the following representation groups and in the spirit of larger objectives of under graduate programs in engineering as laid out by AICTE, State Higher Education Council (SHEC) and Affiliating University (JNTUK).

- The department academic committee has general discussions with Parent groups, Student groups enlisting what their expectations are from the program. Guided by the above inputs,

larger framework of AICTE and driven by the mission of the department, the academic committee comes up with draft Program Educational Objectives.

- The draft Program Educational Objectives are shared by the department academic committee with pre-decided list of Alumni members through phone/email and revisions to the draft are made based on the inputs and subsequent deliberations among the department academic committee.
- The latest draft is than put forth for discussion among all faculty members of the department for further refinement under the aegis of department academic committee.
- The draft PEOs are presented to the department advisory committee constituting eminent subject experts from Affiliating University, prestigious state and central universities and industry experts along with department academic committee and staff members for discussions. A final draft is prepared after necessary refinement based on discussions.
- This final draft of PEOs is essentially put forth to the college academic council for their consideration on alignment with institution mission and ratification if found adequate.
- This process is to be repeated each year with a view to revise PEOs as necessary to meet the changing needs.

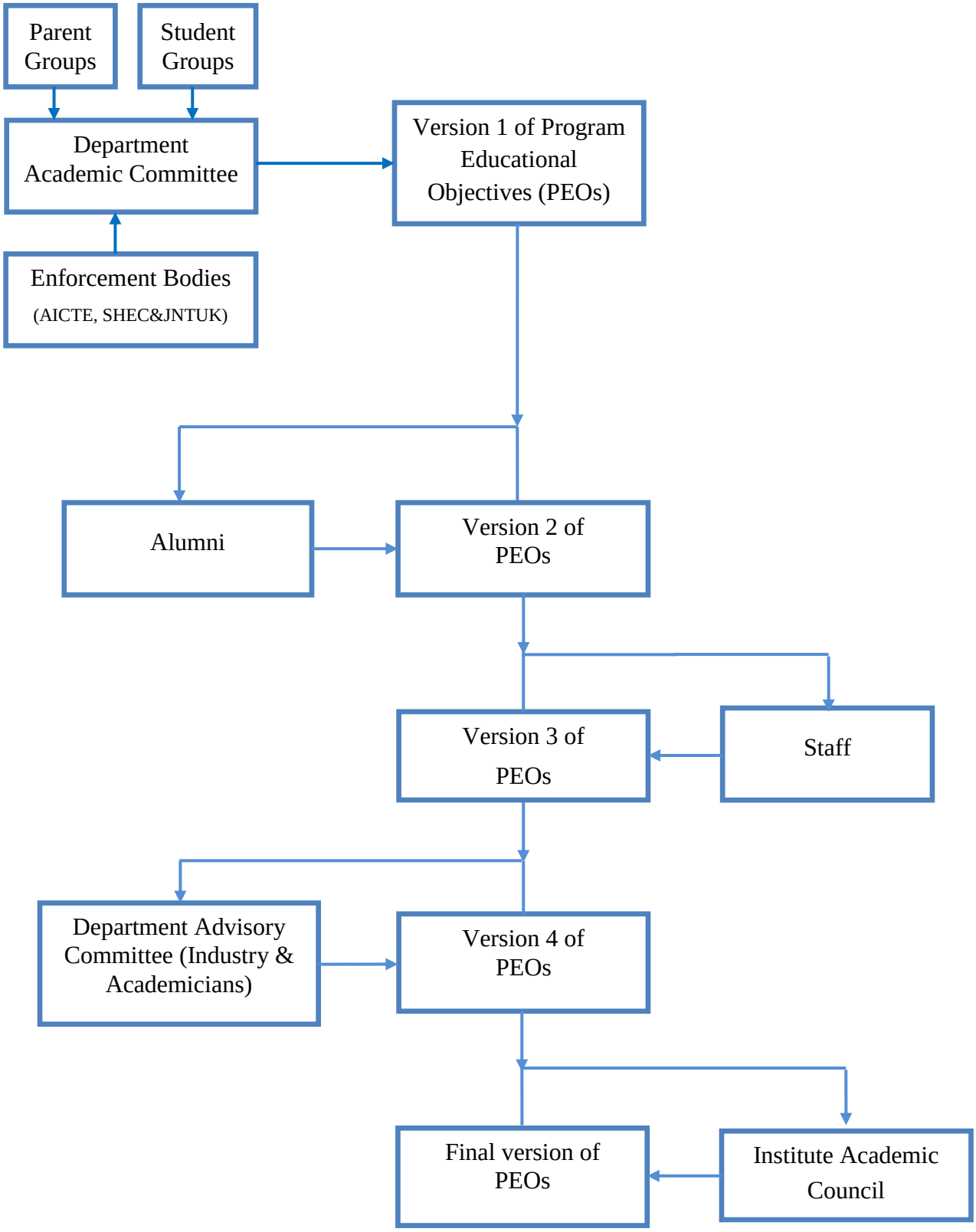


Fig.2 Flow chart showing the process for defining the Program Educational Objectives

Following are the Program Educational Objectives:

I. **DOMAIN KNOWLEDGE**: Graduates will be trained to demonstrate knowledge of mathematics, science, basic computing and engineering fundamentals, breadth and in-depth studies in mechanical engineering aimed at bringing them abreast with industrial and research domains

II. **EMPLOYMENT**: Graduates will be trained to succeed in securing engineering positions with Mechanical /Manufacturing firms as well as Software-based industries and also with government agencies

III. **HIGHER STUDIES & LIFELONG EDUCATION**: Graduates will be oriented towards success in the pursuit of advanced degrees in Mechanical engineering or other fields and will be imparted the spirit for continued, independent, life-long learning to become experts in their profession and to broaden their professional knowledge

IV. **PROFESSIONAL CITIZENSHIP**: Graduates will be trained to organize and present information, to write and speak effective English, to work effectively on team-based engineering projects, to practice ethics at work and demonstrate a sense of social responsibility

3.2 Constituency of PEOs with mission of the Department

The principles that drive both the mission of the institution and the Program educational objectives of the program at a generic level are to help build professional capabilities at a certain skill level supported by strong basic fundamentals, attitude and ability to continue learning even after graduation, a thorough understanding & appreciation of professional, ethical & societal responsibilities and ability to work in teams comprising of people with diverse skills and backgrounds.

Attribute	Mission	PEOs
Professional Skills	M1, M2, M5	PEO1, PEO2, PEO3, PEO4
Continuous Learning	M3	PEO3
Professional, Ethical &Societal Responsibility	M4	PEO4
Team Ethic	M6	PEO4

As the table above clearly indicates, both the mission of the department that is directly based on the mission of the institution and the PEOs are clearly addressing the 4 attributes/corner-stones we believe are essential for realizing our vision.

3.2.1 Factors involved in attainment of the PEOs

a) Academic factors involved in attainment of the PEOs

The Program Curriculum is composed of Theory Courses, Laboratory Courses and end semester students' Projects. The following diagram pictorially depicts the contribution of programme curriculum towards the attainment of PEOs.

The programme curriculum is further enhanced through other Activities like – Presentations, Quiz, Role play, Demonstrative experiments, Webinar, Guest lectures, Students Co & Extra

Curricular Activities, socially relevant events, programs towards professional and personal ethics, entrepreneurship etc., to achieve the PEOs.

Curriculum	Program Educational Objectives
All Courses from Semester I to VIII & Project Work	I, II, III
Professional Ethics In Engineering Technical English I&II Environmental Science and Engineering Communication Skills Laboratory Project Work	I, IV

The content delivery of theory and lab classes is well planned and implemented. The best practices in curricular aspects are as follows

- Lesson plan are distributed to the students and hosted in the website at the beginning of every semester.
- Notes on lesson, question bank and university questions and answers are also made ready and disseminated during the semester.
- The academic calendar for the year is printed with complete details of the academic activities of the year, the dates for tests, dates of dispatch of marks and attendance to the parents, important events and holidays, dates of reopening after vacation etc., so that the students can plan their academic activities and prepare for exams well in advance.
- The academic plan for the semester is framed in such a way that students can plan in plant training, mini projects and their vacation.
- The timetable is framed in such a way that it provides necessary hours for library, seminar and value addition programs in addition to the regular theory and lab hours.
- Tutorial hours and tutorial assistants are assigned for problem oriented subjects.

The successful delivery of the content is primarily based on the expertise of the concerned subject faculty. Based on the specialization in PG and preference of teaching faculty the subjects are allotted. The timetable is prepared and given well in advance allowing time for the faculty preparation of lesson plan, notes on lesson, question bank for theory and labs. Lab manuals are hosted on the college intranet for the benefit of the students. Regular cycle tests are conducted and retests for the absentees and slow learners are conducted.

b) Administrative system helps in ensuring the attainment of the PEOs

The administrative and management system supplements the department, in attaining the PEOs. The institute is having the following functional units under its administration:

- **Centre for Technical Support** – Takes care of IT and related needs of the department webinar, module to post course material, monitor attendance, super software for student details etc.
- **Training and Placement Cell** – Takes cares of employability, value added programs, Personality development programmes, online-aptitude tests, In-plant training and summer, Winter Projects etc.
- **Knowledge Management Cell** – Takes care of knowledge and skill up-gradation of faculty members.
- **Entrepreneur Development Cell** – To guide and encourage the students to become successful entrepreneurs.
- **Innovative Project Cell** – To provide a platform to express the research and innovative ideas.
- **Vice principal (academics)** – Vice principal (academics) monitors all the academic activities such as class work, examinations etc and improves the quality of inputs given to the students based on the feedback from the students with help of Assistant principal (academics).
- **Vice principal (administration)** - Vice principal (administration) looked in to the administrative responsibilities like infrastructure development etc with help of the Assistant principal (administration).
- Further, the Management has provided Individual PC's for all faculty members, high speed Internet Access, and unlimited E-Journal access to students and faculty etc.
- Facilitate the conducting of Technical festival, ethical programmes etc.
- Provides Adequate Teaching-Learning equipment like OHP, LCD projectors and individual laptops to the department.
- Facilitate to improve the student technical skills by conducting various certified courses required for the students to become a successful professional.

Further the Department is having the following committees towards decentralized working environment:

Name of the Committee	In-charge (s)	Description
Class Review	Dr. S.Adinarayana	Conducts meeting once in a

Committee	Dr. L. V. V. Gopala Rao Sri. M. Anil Prakash Dr. S.Srinivasa Rao	month to satisfy requirement of students, redress their grievance.
Department Placement Activities	Sri. B.Sominaidu, Sri. K.Pavan Kumar, Sri. T.Meher Krishna	Coordinates with Training and Placement cell for placement and Higher studies.
Project Review (PG) Project Review (UG)	Dr. N. Ravi Kumar Dr. L. V. V. Gopala Rao Dr. S.Srinivasa Rao	Arrange for student projects in research institutions. Conducts and coordinates for the project reviews.
Central Library	Sri. I.Sudhakar Miss.S.Jyothirmai	Maintenance and issue of department library books, project reports.
Department Alumni Interaction	Sri. Ch.Varun	To maintain contact between department and its alumni to facilitate alumni events periodically.
Website Co-ordinator	Sri. Ch. Varun	Host and publish department activities in college website.
Examination Cell	Dr. S. Srinivasa Rao, Sri. M.Y.Prasadarao Sri. G.Veeraiah	Assist with college exam cell in conducting unit tests and university examination.
Department Review Meeting	Dr. S. Adinarayana Dr. L. V. V. Gopala Rao Sri MAnil Prakash	Conducts monthly review meeting with the faculty to update the latest trends in Mechanical Engineering
Industry-Institute Interaction	Dr. N. Ravi Kumar Sri. M.Ramakrishna	To promote participation of students to industry exposure and to take up joint R & D projects.
Class Advisor / Class Teacher	I-A: Sri. T.Meher Krishna I-B: Sri. B.Madhav Varma I-C: Sri.M. Ramakrishna II-A: Sri. G. Rajesh II-B: Sri. K.Pavan Kumar II-C: Sri. G.Satyanarayana III-A: Sri. Ch. Varun III-B: Sri. S. S. Naidu III-C: Sri. M.Y. Prasad IV-A: Sri .G. Veeraiah IV-B: Sri. N.Murali Krishna IV-C: Sri. B. Srinivas	To conduct class committee meeting and analysis their feedbacks to take necessary action. To conduct parent teacher's meeting.
Industrial Visits Arrangement	Sri M.Anil Prakash Sri G.Rajesh	Arrange industrial and research institute visits for students.

Department CO & Extra Activities	Sri. M. K. Naidu Sri R. S. U. M. Raju Sri. Ch. Varun Sri. G. Satyanarayana Sri B. Srinivas Sri. T. Meher Krishna	Facilitate and coordinate with college sports club for the sports activities of the students To oversee the work and overall department activities by assisting the HOD and Coordinate with the HR cell.
Department Budget Preparation	Dr.S.Srinivasa Rao Sri. S.Sanyasi Naidu	To coordinate with the HOD to prepare the budget with its recurring and non recurring items.
Time Tables	Sri. B. A. Ranganath	To prepare time table, competency matrix and work load for the faculty.
Students External Paper Presentation (including workshops / exhibitions)	Sri. M.Anil Prakash Sri. G.Rajesh	To encourage students to participate in co-curricular activities and compile the documents.
Guest Lectures	Sri. M.Anil Prakash Sri. G.Rajesh	To arrange for guest lecturers from institutes and industries for the students to know the latest trends in the field of mechanical engineering.
Department Newsletter	Sri. N.Murali Krishna	Coordinating and editing the release of half yearly news letter.
In plant Training	Sri. M.Anil Prakash Sri. G. Rajesh	To arrange for industrial training for students, collect reports and conduct reviews.
Department NAAC	Dr.S.Adinarayana Dr. N.Ravi Kumar Dr. L. V. V. Gopala Rao Sri. B.A.Ranganath Dr. S.Srinivasa Rao	To assist in preparation and compilation for NAAC.
Department NBA	Dr. S. Adinarayana Dr. N. Ravi Kumar Dr. L. V. V. Gopala Rao Sri. B. A. Ranganath Dr. S. Srinivasa Rao	To assist in preparation and compilation of documents for NBA.
Department Advisory	Dr. S.Adinarayana	It comprising of experts from the Industries and Academia

Committee		meets regularly(Once in a year). This committee gives the suggestions for the overall development of the Institution.
Department Assessment Committee	Dr. S. Adinarayana Dr. N. Ravi Kumar Dr. L. V. V. Gopala Rao Sri. B. A. Ranganath Dr. S. Srinivasa Rao	To assess and analyse the attainment of the Course Outcomes, Programme Outcomes, PEO's and redefine the PEO's and PO's if necessary.

c) Additional co-curricular activities undertaken towards the attainment of PEOs

Activity	PEO's Achieved
In – Plant Training	I, II, III
Industrial Visit	I, II, III
Guest lecture	I, II,III,IV
Paper presentation contests	I, II, III, IV

3.3 Attainment of PEOs

The Program Educational Objectives (PEOs) are more generic in nature and can only be assessed a few years (may be 4 or 5 years) after the graduation. In order to assess the attainment of PEOs there is a great deal of necessity to define the tools that may help us in the process. The following are the tools chosen for the assessing the attainment of the Program Educational Objectives of our Department

A. CO-PO-PEO Mapping
B. Placement & Higher studies Record
C. Alumni Feedback
D. Employer Feedback

The overall attainment of PEOs is measured by the weighted average of all the assessment tools of PEOs by considering the weightage in the following manner

A. CO-PO-PEO Mapping – 40 % weightage
B. Placements and Higher studies – 30 % weightage
C. Alumni feedback – 15 % weightage
D. Employer feedback – 15 % weightage

Overall attainment of PEOs (%)

$$= 0.4xA + 0.3xB + 0.15xC + 0.15xD \quad (1)$$

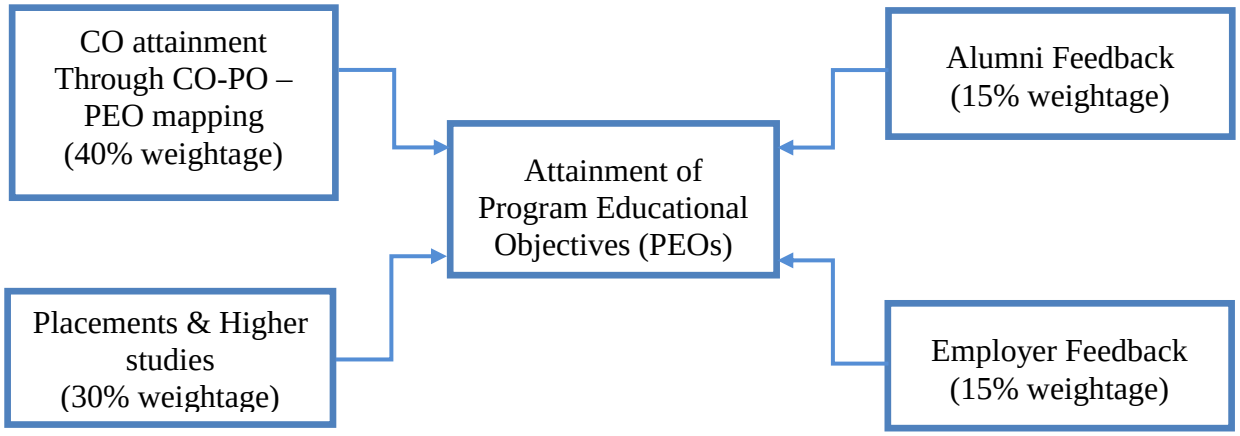


Fig.3 Flow chart showing the tools used for assessing the attainment of the Program Educational Objectives

As it is clear from the equation (1) in **section 3.4**, the overall PEOs attainment requires course outcome attainment. But, the course outcomes cannot directly be mapped on to PEOs as these are more generic in nature. It can only be done through COs mapping on to POs. So it is important to determine Programme outcomes (POs) attainment through CO attainment and then needs to be mapped on to PEOs. This calls for the definition of Programme outcomes in first place and then their attainment procedure

4 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 behaviors that students acquire in their matriculation through the program

4.1 Definition of Programme outcomes (POs)

The Program Outcomes are evolved through a process of discussion and deliberations chiefly coordinated by the department academic committee comprising of the Head of Department and 2 senior members of the department faculty involving discussions/inputs with/from the following representation groups and in the spirit of larger objectives of under graduate programs in engineering as laid out by AICTE, State Higher education council, Affiliating University (JNTUK) and also from the programme specific criteria and Graduate attributes published by international professional bodies.

- The department academic committee has general discussions with Parent groups, Student groups enlisting what their expectations are from the program. Guided by the above inputs,

larger framework of AICTE and driven by the mission of the department, the academic committee comes up with draft Program Outcomes.

- The draft Program Outcomes are shared by the department academic committee with pre-decided list of Alumni members through phone/email and revisions to the draft are made based on the inputs and subsequent deliberations among the department academic committee.
- The latest draft is than put forth for discussion among all faculty members of the department for further refinement under the aegis of department academic committee.
- The draft POs are presented to the department advisory committee constituting eminent subject experts from Affiliating University, prestigious state and central universities and industry experts along with department academic committee and staff members for discussions. A final draft is prepared after necessary refinement based on discussions.

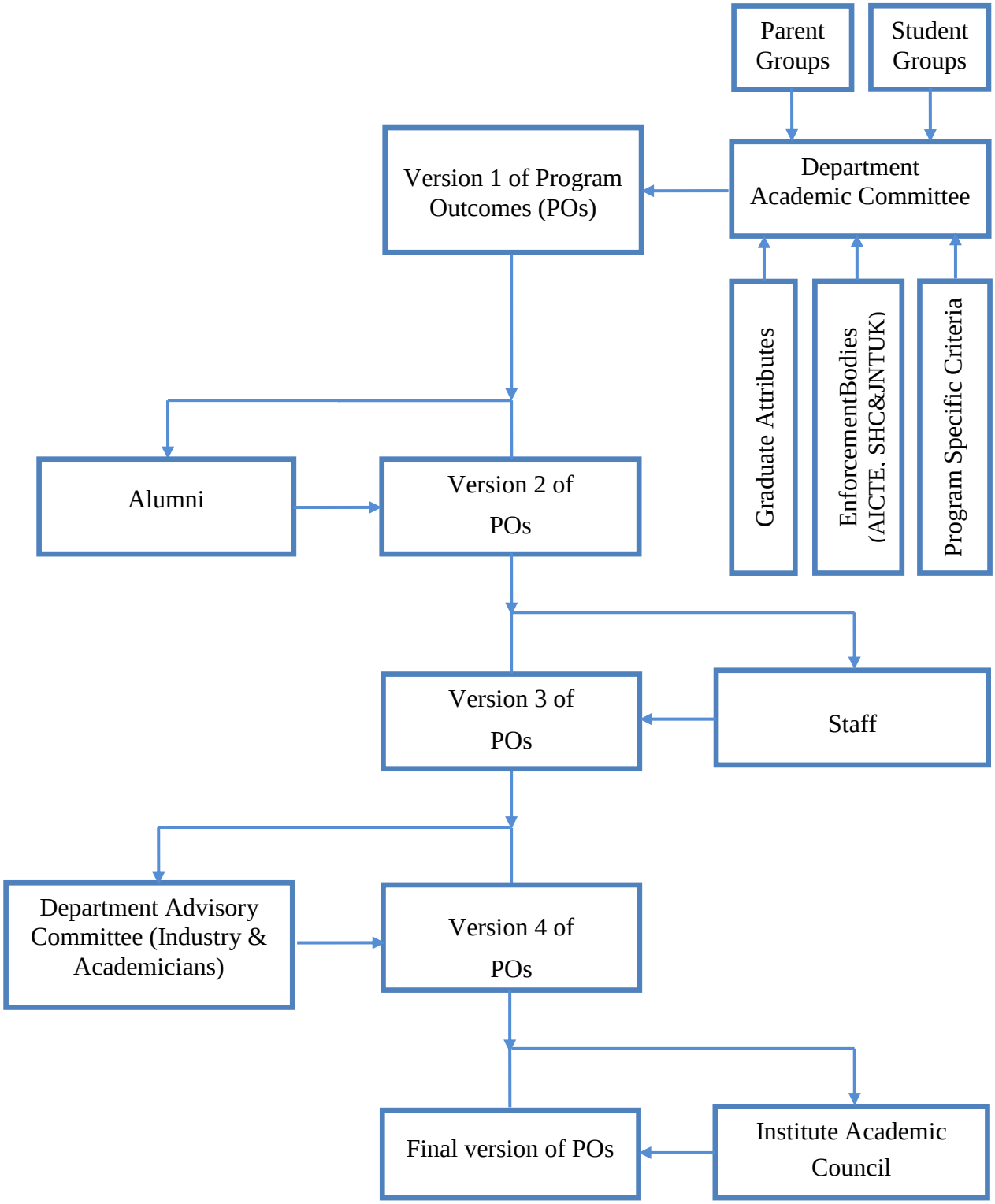


Fig.4 Flow chart showing the process for defining theProgramme outcomes (POs)

- This final draft of POs is essentially put forth to the college academic council for their consideration on alignment with institution mission and ratification if found adequate.
- This process is to be repeated each year with a view to revise POs as necessary to meet the changing needs.

As the regulations provided by the affiliating university are only a subset of the regulations provided by AICTE/SHEC which will certainly in line with the larger perspective of these bodies and hence needs no special mention here. So, the following articles concentrate only on program

specific criteria and graduate attributes spelt out by internationally renowned professional societies specific to the mechanical engineering program

4.1.1 Program Specific Criteria

Program specific criteria for Mechanical Engineering Program specified by the American Society of Mechanical Engineers (ASME) is given below

4.1.1.1 Curriculum

The curriculum must require students to apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations); to model, analyze, design, and realize physical systems, components or processes; and prepare students to work professionally in both thermal and mechanical systems areas.

4.1.1.2. Faculty

The program must demonstrate that faculty members responsible for the upper-level professional program are maintaining competency in their specialty area.

4.1.2 Graduate Attributes (GAs)

These are the required qualities expected of a graduate engineer to work and excel in a rapidly changing and highly competitive global environment. There are twelve graduate attributes of the NBA. Those graduate attributes are given as

1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization for the solution of complex engineering problems.
2. **Problem Analysis:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural science and engineering sciences.
3. **Design and development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate considerations for public health safety and 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 predictions 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 practices.

7 **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental context 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 multi-disciplinary settings.

10 **Communication:** Communicate effectively on complex engineering activities with the engineering community and with the 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.

Finally, program outcomes (POs) of Mechanical Engineering are clearly formulated, basing on program outcomes of ABET (The Accreditation Board for Engineering and Technology)inserts adding point: l

Following are the Program Outcomes:

a. An ability to apply knowledge of mathematics, science, and engineering

b. An ability to design and conduct experiments, as well as to analyze and interpret data

c. An ability to design a engineering system, component or process

d. An ability to function on multi-disciplinary teams

e. An ability to identify, formulate and solve engineering problems

f. An understanding of professional and ethical responsibility

g. An ability to communicate effectively

h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context

i. A recognition of the need for and an ability to engage in life-long learning

j. A knowledge of contemporary issues

k. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice

l. Certificate training in computer aided design tools to build industry-readiness

Correlation between GAs and POs:

Mapping		Program Outcomes (POs)											
		a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**
Graduate Attributes	**1**	√	√	√	√	√				√	√	√	
	2	√	√	√	√	√				√	√	√	
	3	√	√	√	√	√				√	√	√	
	4	√	√	√	√	√				√	√	√	
	5			√		√					√	√	√
	6			√		√					√	√	
	7			√		√					√	√	
	8						√		√				
	9		√	√	√								
	10				√			√					
	11			√					√				
	12									√		√	

4.2 Factors involved in the attainment of Programme Outcomes

The following are the factors involved in the attainment of PEOs

a) Modes of delivery of courses help in the attainment of POs

- Beyond class room teaching, Webinar classes (online/offline teaching) are conducted by the faculty for the students and the backup files are filed in college intranet for any time usage by the students.
- Course content delivery is done effectively by using modern tools like LCD projector, white board, overhead projectors and laptops in class rooms.
- Tutorial hours are included in the respective class time table. Assignments are given for each subject. Viva voce are conducted for all practical laboratory classes.
- Course files are properly maintained by the staff members and it includes notes of lesson, lesson plan, sample objective type questions and answers, question banks, university question papers. All these are uploaded in intranet and all the students can access this.
- E-books and notes are sent to the students' group mail. Quiz role play demonstrations and models, are used to deliver the contents effectively.
- Demonstrative experiments and simple projects are undertaken jointly with students to understand the concepts.

Modes of Content Delivery	POs
Lectures	a, b, e, f, h, j, k
Lab Activities	b, c, e, j, k
Group Discussion	d, g, h, i, j
Assignments, Quiz	d, g, h, i, j
Tools (Videos, PPT)	a, b, e, f, h, j, k
Tutorials	a, e, j, k
Demonstrative experiments	a, b, c, e,
Guest Lecturers	a, c, e, f, i, j, k
Industrial Internships, Projects at Industries.	a, b, c, d, e, g, h, j, k

- Further, all students participate in two surveys, every semester. Student feedback on faculty is taken twice in a semester to ascertain faculty efficacy and capacity. Corrective actions are initiated by the Head of the Department. Further, students give feedback on attainment of course outcomes at the end of the semester, which is statistically analyzed to find the attainments of course outcomes and program outcomes.

Indicate the extent to which the laboratory and project course work are contributing towards the attainment of the POs

b) Balance Between Theory & Practical

In a 42 period weekly schedule, students attend 24 periods theory/tutorial sessions, 6 periods' lab sessions, 10 periods towards student's communication, personality development, library, internet, add-on certification programs, aptitude and technical skills sessions towards placement, students' counselling/mentoring etc. In addition, laboratories are kept open for additional two hours for students' use. In addition, Pre-final and Final Year students get themselves engaged in projects to improve their practical skills.

Laboratory works:

- There are totally 16 laboratory courses in our curriculum provided by the affiliated university, which covers all the areas of humanities and professional courses.
- The following is the list of number of labs covering the area of HSS, breadth and professional core:

  HSS - 06

  Professional core - 10

- In addition to that some of the experiments are demonstrated in the professional core laboratory classes through "contents beyond syllabi" to achieve the POs and the PEOs**.**

c) Project works:

- Final year end semester students are allowed to carry out their project work for a period of 2-4 months under the supervision of the faculty of the Department.
- The candidate may, however, in certain cases, be permitted to work on projects in an Industrial/Research Organization, on the recommendations of the Head of the Department concerned. In such cases, the Project work shall be jointly supervised by a supervisor of the department and an expert, as a joint supervisor from the organization.
- Students are instructed to meet the supervisor periodically and to attend the review committee (comprising head of the department, project coordinator and supervisor) meetings for evaluating the progress. There shall be three reviews during the semester by the review committee, which are continuously assessed.
- The project work shall be evaluated for a maximum of 200 marks of which 50 marks will be through internal assessment.

4.3 Attainment of Programme Outcomes (POs)

As it is clearly mentioned in section 3.3 in order to assess the attainment of PEOs, it is necessary to assess the attainment level of Program Outcomes. The tools with corresponding weightage that are used to assess the attainment of POs are

a) Course Outcomes Attainment (COA) – 40% weightage
b) Student Exit Feedback (SEF) – 30% weightage
c) Alumni Feedback (AF) – 20% weightage
d) Employer Feedback (EF) – 10% weightage

Overall attainment of POs (%)

= 0.4x (COA) + 0.3x (SEF) + 0.2x (AF) + 0.1x (EF)(2)

The program outcome assessment plan is set to primarily confirm that the students are achieving the desired outcomes. It is also used to improve the program and the student learning, based on real evidence.

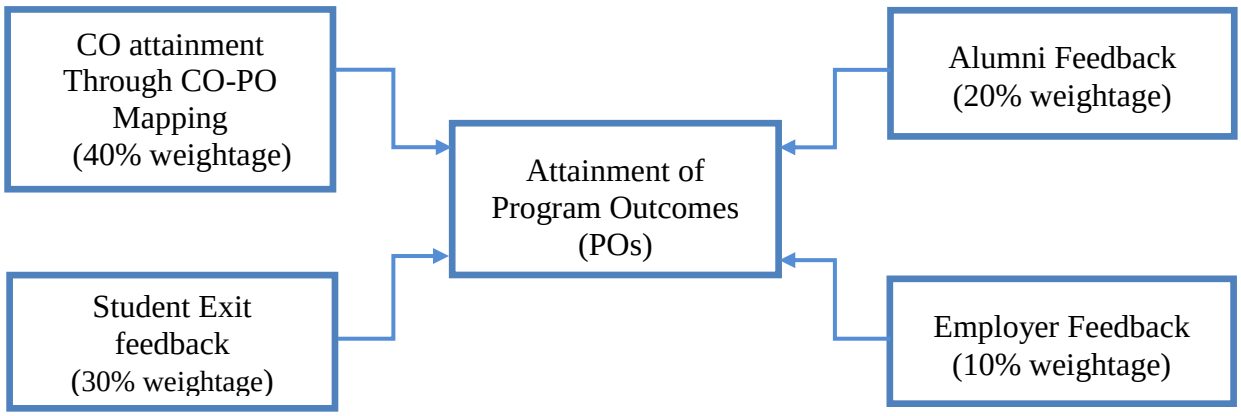


Fig.5 Flow chart showing the tools used for assessing the attainment of the Program Outcomes

It is clear from the equation 2 in section 4.3, to assess the attainment of POs through course outcomes, it is needed to define the course objectives and course outcomes.

5 COURSE OBJECTIVES & COURSE OUTCOMES (COBs & 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.

5.1 Process for defining the Course Objectives and Course Outcomes

Faculty of each course has to study the relevance of the subject with PEOs and POs. After that he has to identify the gaps in the course content and identify add-on topics that need to cover the gaps in the course content. Also, the faculty make out the prerequisites of the course and then define the course objectives and course outcomes. Given below is a process plan of how this could be achieved in stages

- Study relevance of the subject with PEO and PO
- Define gaps in subject content
- Identify add-on topics that need to be covered
- Prerequisites of the course
- Define Course Objectives and Course Outcomes

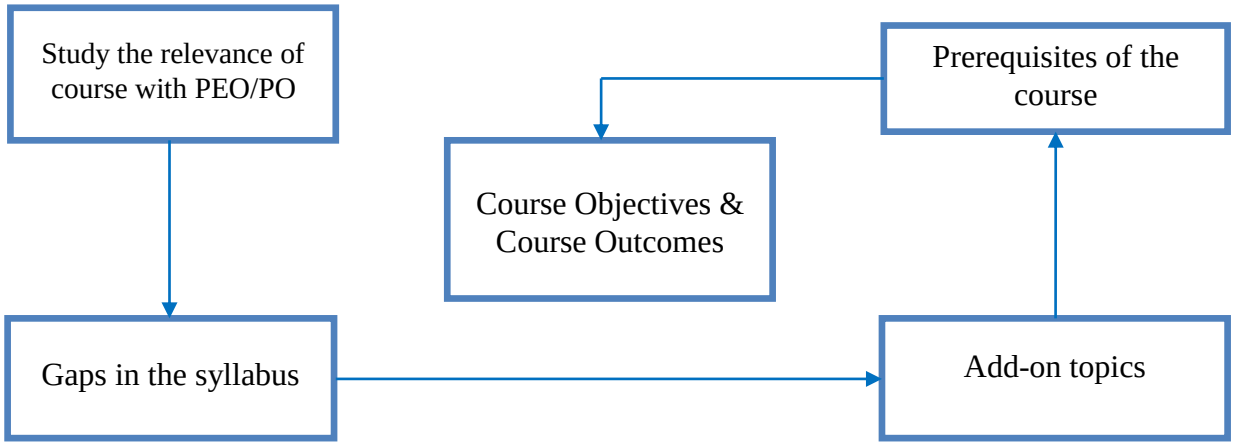


Fig. 6 Flow chart showing the process for defining the Course Objectives and Course Outcomes

5.2 Course Outcomes Attainment (COA)

From section 4.2, it is clear that the attainment of POs will be done through the course outcome attainment (COA). In order to assess the attainment of course outcomes, the following tools are used.

a) Internal Marks (IM) – 30 % weightage
b) University Marks (UM) – 50 % weightage
c) Course Exit Feedback (CEF) – 20 % weightage

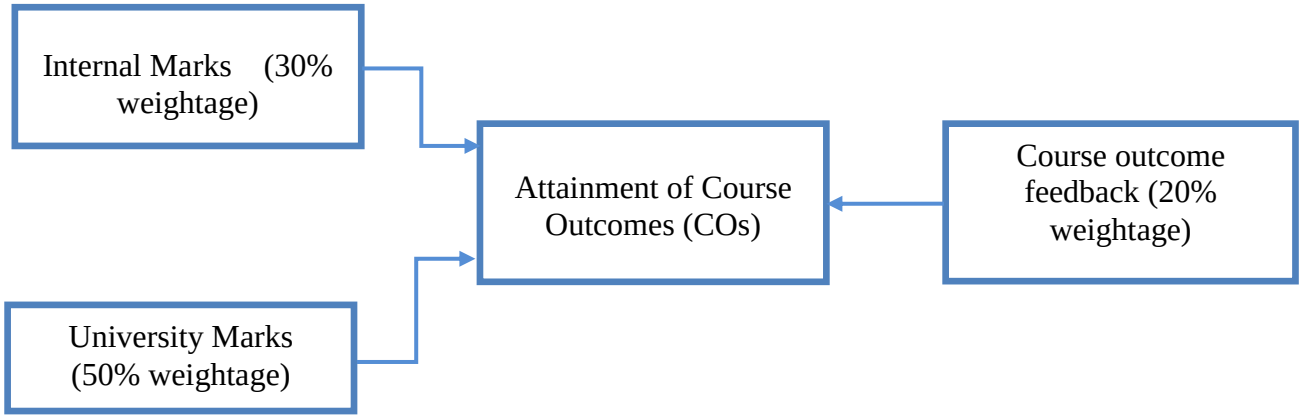


Fig.7 Flow chart showing the tools used for assessing the attainment of the Course Outcomes

Overall attainment of COs (%)

$$= 0.3x\ (IM) + 0.5x\ (UM) + 0.2x\ (CEF) \qquad (3)$$

6 Procedure for Assessment of Attainment of COs

The Procedure for overall attainment of course outcomes using the chosen tools is explained using the following articles

6.1 Internal Marks (IM) out of 25 Marks – 30 % weightage

The internal marks obtained by the students in the subject Refrigeration and air conditioning are categorized into 5 groups as given below. The table shows the number of students in each category. Performance of the students assessed through internal marks is taken as a weighted average of the 5 categories (on a scale of 5) and duly converted into percentage attainment according to the formula:

Weighted average (in %) = 20 * (5*A + 4*B + 3*C + 2*D + 0*E)/N

Where, N is the total number of students registered for the examination

Example

	% of Marks					No of Students Registered (N)
	< 40% (E)	40-60% (D)	60-70% (C)	70-80% (B)	> 80%(A)	
No of Respondents for	6	8	34	57	34	139

Attainment of Course Outcomes using Internal Marks (IM):

IM = 20x *(*5 x 34 + 4 x 57 + 3 x 34 + 2 x 8 + 0 x 6*)*/139

=74.24%

6.2 University Marks (UM) out of 75 Marks – 50 % weightage

The marks obtained by the students in the subject Refrigeration and air conditioning in the University exam (out of 75) are categorized into 5 groups as given below. The table shows the number of students in each category. Performance of the students assessed through University exam results is taken as a weighted average of the 5 categories (on a scale of 5) and duly converted into percentage attainment according to the same formula as above.

Example

	% of Marks					No of Students Registered (N)
	< 40% (E)	40-60% (D)	60-70% (C)	70-80% (B)	> 80% (A)	
No of Respondents for	15	108	14	2	0	139

Attainment of Course Outcomes using University Marks (UM):

UM = 20x *(*5 x 0 + 4 x 2 + 3 x 14 + 2 x 108 + 0 x 15*)*/139

=38.27%

6.3 Course Exit Feedback (CEF) – 20 % weightage

A feedback form is generated in the form of queries enquiring about the attainment of each of the 'n' course outcomes (say CO 1-4) in the same order as they are defined. This means the first question in the feedback form enquiries about the attainment of the first course outcome and so on and so forth. Students are required to make a self-assessment of their individual confidence levels in having attained the listed outcomes on a scale of 5 as given below. The total number of students responding for each outcome in each category is collected and tabulated as given below and a weighted average of the attainment levels for each outcome is calculated according to the same formula as above.

Sample Course Exit Feedback form

M. V. G. R. COLLEGE OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE EXIT FEEDBACK

COURSE: Refrigeration & Air Conditioning A.Y: 2013-14

Course outcomes

E: Excellent G: Good A: Average P:Poor NC: No comments

1. Do you able to identify the components of a refrigeration and air conditioning systems and make proper assumptions to perform design and analysis of heating systems of buildings and select proper equipment's to satisfy the design.

○ E ○ G ○ A ○ P ○ NC

2. Can you address the environmental, social, ethical and legal aspects in design.

○ E ○ G ○ A ○ P ○ NC

3. Broaden the education necessary to understand the impact of applying air conditioning systems in a global and societal context.

○ E ○ G ○ A ○ P ○ NC

4. Are you able to use the techniques and modern engineering tools in design of components of air conditioning systems?

○ E ○ G ○ A ○ P ○ NC

Excellent (E)	Good (G)	Average (A)	Poor (P)	No Comment(NC)
5	4	3	2	1

The information gathered by above feedback form is consolidated in the table below and average value is taken in the overall COs attainment formula in the place of CEF with 20% weightage.

Total number of students who responded: 139

Course Outcomes (CO)	No. of Respondents for					Weighted average (WA)%	Legend
	E	G	A	P	NC		
CO1	110	25	0	4	0	**94.67**	E = Excellent G = Good A = Average P = Poor N= No Comment $WA=\frac{20}{N}(5E+4G+3A+2P+0NC)$
CO2	109	20	10	0	0	**94.24**	
CO3	115	20	0	4	0	**95.39**	
CO4	89	40	0	10	0	**89.29**	
Average (CEF)						***93.5***	

Overall attainment of COs (%)

= (0.3 x IM + 0.5 x UM + 0.2 x CEF)

= (0.3 x 74.24 + 0.5 x 38.27+ 0.2 x 93.5)

= 60.1%

This percentage attainment of COs is calculated for each and every course and mapped on to the POs with the help of following table.

Contribution to PO→	PO											
	a	b	c	d	e	f	g	h	i	j	k	l
Refrigeration and Air Conditioning	60.1		60.1		60.1	60.1			60.1	60.1		

The result is a 64 (no of courses) X 12 (no of Programme Outcomes) table which is shown below. This mapping helps us in finding the contribution of each and every course towards attainment of Programme outcomes.

7. Procedure for Assessment of Attainment of Program Outcomes

7.1 CO-PO mapping – 40% weightage

Contribution to PO	POs											
	a	b	c	d	e	f	g	h	i	j	k	l
English I	√	√		√		√	√	√	√	√		
Mathematics I	√				√						√	
Engg. Physics I	√								√	√		
Engg. Chemistry I	√				√			√			√	
C Programming		√	√		√					√	√	
Environmental Studies	√			√		√		√				
EP/EC Lab I	√	√			√			√	√		√	
Workshop	√	√	√	√	√	√					√	
C Programming Lab		√	√		√		√			√	√	
EC Skills Lab I				√		√	√		√			
English II	√			√	√		√	√	√	√		
Mathematics II	√				√						√	
Engg. Physics II	√								√	√		
Engg. Chemistry II	√		√		√			√			√	
Engineering Drawing	√	√	√		√		√				√	
Mathematical Methods	√	√			√						√	
EP/EC Lab II	√	√			√				√		√	
EC Skills Lab II		√		√		√	√		√			
IT Workshop		√		√		√	√		√			
Engineering Mechanics	√	√			√							
FM & HMS	√	√	√	√	√			√			√	√
Thermodynamics	√	√	√	√	√			√	√	√		
MEFA	√	√	√	√	√		√	√	√	√	√	
Elec. &Electr Engg.	√	√	√	√	√					√	√	
CAED	√		√		√		√				√	√
EE Lab	√	√	√	√	√							
FM & HMS Lab	√	√	√	√	√	√	√	√			√	√
EC Practice I						√	√		√	√		
PEM I			√	√		√			√			
KOM	√	√	√		√							
TE I	√	√	√		√			√	√	√	√	
PT	√		√						√	√	√	
MOS	√	√	√		√			√	√	√	√	
MMS	√	√	√	√	√	√	√	√	√	√	√	√
Machine Drawing		√	√		√		√				√	√
MOS/Metll Lab	√	√	√		√			√	√	√	√	
PT Lab	√	√	√	√	√	√		√	√	√	√	
EC Practice II						√	√		√	√		
PEM II			√	√		√						
DOM	√		√		√			√				√
Metal Cutting and MT	√	√	√	√	√	√	√	√		√	√	√
DMM I	√		√		√	√		√	√	√	√	√
FEM	√		√		√							
TE II	√	√	√		√				√		√	
OR	√	√	√	√	√	√		√			√	

TE Lab	√	√	√	√	√			√	√	√	√	
MT Lab		√	√	√	√		√	√	√		√	√
Metrology	√	√	√		√		√		√	√	√	
INCS	√	√	√	√						√		
DMM II	√	√	√		√			√		√		
Robotics	√	√	√	√	√	√	√	√	√	√	√	
HT	√	√	√		√	√		√	√	√	√	
IEM	√			√	√		√				√	
Metr& INCS Lab	√	√	√	√	√	√		√	√	√		
HT Lab	√	√	√	√	√	√		√	√	√		
R&AC	√		√		√	√			√	√		
CAD/CAM	√	√	√	√	√			√	√	√	√	√
ASE	√	√	√	√	√	√			√	√	√	√
UMP	√	√	√	√	√				√	√	√	
Open Elective (AP)	√				√	√		√	√			
Elective I (AE)	√	√	√		√			√		√		
Simulation Lab	√	√	√	√	√			√	√	√	√	√
ACS Lab							√		√			√
ICG	√	√	√	√	√				√		√	√
Elective II (AIM)	√	√	√	√	√		√	√	√	√	√	√
Elective III (PPE)	√				√			√		√		
Elective IV (PPC)	√	√		√	√	√	√		√		√	
Project Work	√	√	√	√	√	√	√	√	√	√	√	√
A	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**	**A11**	**A12**

The attainment of each programme outcome is determined by taking the average of the contribution of each and every course towards achieving a particular outcome which is given by the table above.A1 in the above table shows the attainment of the first programme outcome, A2 the second and so on and so forth. The average attainment of programme outcomes(POA) is then determined by taking the average (A) of above averages.

CO-PO Mapping Table

Code	Subject Name	Programme Outcomes											
		a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**
R10101	English – I	76.8	76.8		76.8		76.8	76.8	76.8	76.8	76.8		
R10102	Mathematics - I	69.3				69.3					69.3		
R10103	Engineering Physics – I	71.7								71.7	71.7		
R10104	Engineering Chemistry I	70.1				70.1			70.1			70.1	
R10105	C Programming		63.3	63.3		63.3					63.3	63.3	
R10106	Environmental Studies	63.2			63.2		63.2		63.2				

R10108	Engineering Physics & Engineering Chemistry Laboratory –I	93.6	93.6			93.6			93.6	93.6		93.6	
R10109	Engineering Workshop	94.9	94.9	94.9	94.9	94.9	94.9					94.9	
R10110	C Programming Lab		90.4	90.4		90.4		90.4			90.4	90.4	
R10111	English Proficiency Lab				84.6		84.6	84.6		84.6			
R10201	English – II	82.1	82.1		82.1		82.1	82.1	82.1	82.1	82.1		
R10202	Mathematics – II	69.9				69.9						69.9	
R10203	Engineering Physics – II	63.1								63.1	63.1		
R10204	Engineering Chemistry-- II	64.0		64.0		64.0			64.0			64.0	
R10205	Engineering Drawing	75.0	75.0	75.0		75.0		75.0				75.0	
R10206	Mathematical Methods	76.2	76.2			76.2						76.2	
R10208	Engineering Physics & Engineering Chemistry Laboratory – II	93.2	93.2			93.2				93.2		93.2	
R10209	English - Communicati on Skills Lab		90.6		90.6		90.6	90.6		90.6			
R10210	IT Workshop	94.8	94.8		94.8		94.8	94.8		94.8			
R21013	Electrical and Electronics Engineering	60.4	60.4	60.4	60.4	60.4					60.4	60.4	
R21019	Computer aided Engineering Drawing Practice	81.9		81.9		81.9		81.9				81.9	81.9
R21021	Fluid Mechanics & Hydraulic Machinery	60.1	60.1	60.1	60.1	60.1	60.1		60.1			60.1	
R21022	Managerial Economics & Financial Analysis	63.0		63.0	63.0							63.0	
R21027	Fluid Mechanics & Hydraulic Machinery Lab	88.8	88.8	88.8	88.8	88.8	88.8	88.8	88.8			88.8	
R21031	Engineering Mechanics	55.4	55.4			55.4							
R21032	Thermodyna mics	51.6	51.6	51.6	51.6	51.6			51.6	51.6	51.6		

R21033	Electrical and Electronics Engineering lab	83.0	83.0	83.0	83.0	83.0							
R22031	Mechanics of Solids	69.2	69.2	69.2		69.2			69.2	69.2		69.2	
R22032	Kinematics of Machinery	61.7	61.7	61.7		61.7							
R22033	Thermal Engineering – I	53.9	53.9	53.9		53.9			53.9	53.9	53.9	53.9	
R22034	Production Technology			64.2						64.2	64.2	64.2	
R22035	Metallurgy & Materials Science	74.8		74.8	74.8	74.8	74.8	74.8	74.8	74.8	74.8	74.8	
R22036	Machine Drawing		79.3	79.3		79.3		79.3				79.3	79.3
R22037	Mechanics of Solids & Metallurgy lab	84.1	84.1	84.1		84.1			84.1	84.1		84.1	
R22038	Production Technology Lab	94.7	94.7	94.7	94.7	94.7	94.7		94.7	94.7	94.7	94.7	
R31031	Finite Element Methods	67.7		67.7		67.7							
R31032	Operations Research	61.6	61.6	61.6	61.6	61.6	61.6		61.6			61.6	
R31033	Dynamics of Machinery	64.5		64.5		64.5			64.5				64.5
R31034	Thermal Engineering – II	60.8	60.8	60.8		60.8				60.8		60.8	
R31035	Design of Machine Members–I	63.4		63.4		63.4	63.4		63.4	63.4	63.4	63.4	63.4
R31036	Metal Cutting & Machine Tools	66.8		66.8	66.8	66.8	66.8	66.8	66.8	66.8	66.8	66.8	
R31037	Thermal Engineering Lab	86.7	86.7	86.7	86.7	86.7			86.7	86.7	86.7	86.7	
R31038	Machine Tools Lab		95.3	95.3	95.3	95.3		95.3	95.3	95.3	95.3	95.3	
R32031	Metrology	69.5	69.5	69.5		69.5		69.5		69.5	69.5	69.5	
R32032	Robotics	68.7			68.7	68.7	68.7	68.7	68.7	68.7	68.7	68.7	
R32033	Heat Transfer	60.8	60.8	60.8		60.8	60.8		60.8	60.8	60.8	60.8	
R32034	Instrumentation & Control Systems	69.4	69.4	69.4	69.4						69.4		
R32035	Design of Machine Members– II	64.3	64.3	64.3		64.3			64.3		64.3		
R32036	Industrial Engg. & Management	61.5			61.5	61.5		61.5				61.5	

R32037	Metrology & Instrumentation Lab	94.4	94.4	94.4	94.4	94.4	94.4		94.4	94.4	94.4		
R32038	Heat Transfer Lab	93.8	93.8	93.8	93.8	93.8	93.8		93.8	93.8	93.8		
R41018	Air Pollution	63.4				63.4	63.4		63.4	63.4			
R41031	Refrigeration & Air Conditioning	57.9		57.9		57.9	57.9			57.9	57.9		
R41032	CAD/CAM				63.5	63.5			63.5	63.5	63.5	63.5	63.5
R41033	Alternative Sources of Energy	71.3		71.3		71.3			71.3				
R41034	Unconventional Machining Processes	69.1	69.1	69.1	69.1	69.1				69.1	69.1	69.1	
R41037	Automobile Engineering	57.4	57.4	57.4					57.4		57.4		
R4103B	Simulation Lab	90.3	90.3	90.3	90.3	90.3			90.3	90.3	90.3	90.3	90.3
R4103C	Advanced Communication skills Lab	95.5						95.5		95.5			95.5
R42031	Interactive Computer Graphics	61.7	61.7	61.7	61.7	61.7				61.7		61.7	61.7
R42034	Automation in Manufacturing	70.8	70.8	70.8	70.8	70.8		70.8	70.8	70.8	70.8	70.8	70.8
R42039	Power Plant Engineering	70.0				70.0			70.0		70.0		
R4203A	Production Planning and Control	64.7			64.7	64.7		64.7				64.7	
R4203E	Project	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6
	Average	72.6	76.3	72.7	76.8	72.9	77.8	80.5	73.7	76.4	72.7	73.8	76.8
A		**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**	**A11**	**A12**
A=Average Attainment of POs based on Course Outcomes (CO-PO mapping)													**75.2**

A in the above table is used in the overall PO attainment formula in the place of CO-PO mapping whose weightage is 40%. Similarly A1, A2 & so on up to A12 are used in the PO-PEO mapping table.

7.2 Student Exit Feedback (SEF) – 30% weightage

A feedback form is generated listing all program outcomes (say POs a – l). Students are required to make a self-assessment of their individual confidence levels in having attained the listed program outcomes on a scale of 5 as given below. The total number of students responding for each outcome in each category is collected and tabulated as given below and a weighted average of the attainment levels for each outcome is calculated according to the formula given below.

Sample Student Exit Feedback Form

M V G R COLLEGE OF ENGINEERING, VIZIANAGARAM

DEPARTMENT OF MECHANICAL ENGINEERING

Student Exit Feedback on Program Outcomes (PO's)

Program Outcomes	E	G	A	P	NC	Comments
a. An ability to apply knowledge of mathematics, science, and engineering						
b. An ability to design and conduct experiments, as well as to analyze and interpret data						
c. An ability to design a engineering system, component or process						
d. An ability to function on multi-disciplinary teams						
e. An ability to identify, formulate and solve engineering problems						
f. An understanding of professional and ethical responsibility						
g. An ability to communicate effectively						
h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context						
i. A recognition of the need for and an ability to engage in life-long learning						
j. A knowledge of contemporary issues						
k. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice						
l. Certificate training in computer aided design tools to build industry-readiness						

Excellent(E)	Good(G)	Average(A)	Poor(P)	No Comment(N)
5	4	3	2	1

T

The information gathered by above feedback form is consolidated in the table below and average value is taken in the overall POs attainment formula in the place of SEF with 30% weightage.

Total number of students who responded: 36

POs	No. of respondents					Weighted Average % (WA)	Legend
	E	G	A	P	NC		
a	9	23	3	1	0	82.2	E = Excellent G = Good A = Average P = Poor N= No Comment WA = Weighted Average % = $\frac{20}{N}(5E+4G+3A+2P+0NC)$
b	6	20	9	1	0	77.2	
c	6	20	10	0	0	77.8	
d	6	21	8	1	0	77.8	
e	5	21	8	2	0	76.1	
f	7	18	9	1	1	76.1	
g	7	18	11	0	0	77.8	
h	4	16	15	1	0	72.8	
i	7	22	6	1	0	79.4	
j	6	17	10	3	0	74.4	
k	7	23	5	1	0	80.0	
l	11	17	8	0	0	81.7	
Attainment of POs based on Student Exit Feedback (SEF)						**77.8**	

7.3 Alumni Feedback (AF) – 20% weightage

An Alumni Feedback form is generated with the help of program outcomes using Google forms and this form is sent to the Alumni of the program through mail. Alumni of the program are required to make a self-assessment of their individual confidence levels in having attained the listed questioner on a scale of 5. The total number of students responding for each question in each category is collected and tabulated as given below and a weighted average of the attainment levels for each question is calculated according to the formula given below. Weighted average of each question is mapped with the Program Outcomes.

Sample Alumni Feedback form

MVGR ALUMNI FEEDBACK
DEPARTMENT OF MECHANICAL ENGINEERING

To what extent did MVGR help you....

Strongly Disagree - E, Moderately Disagree - D, Agree - C, Moderately Agree - B, Strongly Agree-A.

1) Develop the professional, social and ethical behavior? *

E D C B A

2) Develop employability skills like Domain Knowledge, Problem Analysis, and Communication & Creative Thinking? *

E D C B A

3) In understanding Global, Financial & Modern Technological issues?*

E D C B A

4) In Continues Learning *

E D C B A

WA = Weighted Average % = $\frac{20}{N}(5A+4B+3C+2D+1E)$

No of students participated: 76

Alumni Feedback Question No	No. of Respondents for					Weighted Average % (WA)	Legend
	A	B	C	D	E		
1	36	29	9	1	1	85.8	Strongly Disagree - E Moderately Disagree - D Agree- C Moderately Agree - B Strongly Agree-A WA= $\frac{20}{N}(5A+4B+3C+2D+1E)$
2	25	37	12	2	0	82.4	
3	14	31	23	7	1	73.2	
4	30	33	12	1	0	84.2	

As the questions given in the Alumni feedback form are not directly on the POs they need to be mapped on to the POs. The following table will help in mapping Alumni questions on to POs

Correlation between POs and Alumni feedback questions

POs	Alumni FeedbackQuestion No				Average
	1	2	3	4	
a		82.4			82.4
b		82.4			82.4
c		82.4			82.4
d		82.4			82.4
e		82.4			82.4
f	85.8				85.8
g		82.4			82.4
h	85.8		73.2		79.5
i				84.0	84.0
j	85.8				85.8
k		82.4	73.2		77.8
l			73.2		73.2
Attainment of POs based on Alumni Feedback (AF)					**82.5**

The average value taken from the above table (AF) is substituted in the overall POs attainment formula in the place of AF with 20% weightage.

7.4 Employers Feedback (EF) – 10% weightage

An Employer Feedback form is generated with the help of Program Outcomes using Google form and this form is sent to the Employer through mail. Employers are requested to give

their feedback on our students working for them on a scale of 5. The total number of Employers responding for each question in each category is collected and tabulated as given below and a weighted average of the attainment levels for each question is calculated according to the formula given below. Weighted average of each question is mapped with the Program Outcomes.

Sample Employer Feedback form

TRAINING AND PLACEMENT CELL
MVGR COLLEGE OF ENGINEERING, Vizianagaram

EMPLOYER'S FEEDBACK

1. Do our graduates meet your expectation?

○ Above Expectation ○ Upto Expectation ○ Average Expectation ○ Below Expectation

---

2. How well do you think the program has strengthened links between the Academic and Industry?

◉ Above Expectation ○ Upto Expectation ○ Average Expectation ○ Below Expectation

---

3. To what extent you are satisfied with the progress of our Graduates in professional career?

◉ Above Expectation ○ Upto Expectation ○ Average Expectation ○ Below Expectation

---

4. Whether our graduates are able to properly address various ethical, environmental and safety codes framed by your organization or by concerned public institutions?

◉ Above Expectation ○ Upto Expectation ○ Average Expectation ○ Below Expectation

---

5. Whether our graduates are able to carry out your assigned work with adequate managerial skills as well as communication skills?

◉ Above Expectation ○ Upto Expectation ○ Average Expectation ○ Below Expectation

---

6. Whether our graduates are able to face the real life engineering problems and able to design feasible solutions?

◉ Above Expectation ○ Upto Expectation ○ Average Expectation ○ Below Expectation

---

7. To what extent you rate the ability of our Graduates to work as team member?

Above Expectation Upto Expectation Average Expectation Below Expectation

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8. To what extent our Graduates emphasize on economical suitable technologies at the work place?

Above Expectation Upto Expectation Average Expectation Below Expectation

---

9. Whether our graduates are able to solve your problems through required innovation and research?

Above Expectation Upto Expectation Average Expectation Below Expectation

---

10. What is the overall rating of our graduates?

A B C D

Any Other Suggestions:

Name:

Designation:

Company:

Above Expectation (A)	Upto Expectation (B)	Average Expectation (C)	Below Expectation (D)
5	4	3	2

Sample Assessment Form for Feedback Analysis:

No of Employers participated: 4

Employer Question No	No. of Respondents for				Weighted Average % (WA)	Legend
	A	B	C	D		
1	1	2	1		80.0	Above Expectation - A Upto Expectation - B Average Expectation- C Below Expectation- D $WA=\frac{20}{N}(5A+4B+3C+2D)$
2	2		1	1	75.0	
3	1	3			85.0	
4		3	1		75.0	
5	1	4			85.0	
6	1	2	1		80.0	
7	3	1			95.0	
8		3	1		75.0	
9	1	2	1		80.0	
10	1	3			85.0	

As the questions given in the Employer feedback form are not directly on the POs they need to be mapped on to the POs. The following table will help in mapping Employer questions on to POs.

Correlation between POs and Employer feedback questions

PO	Employer Question No										
	1	2	3	4	5	6	7	8	9	10	**Average**
a	80.0	75.0	85.0							85.0	81.3
b	80.0		85.0			80.0			80.0	85.0	82.0
c	80.0		85.0			80.0			80.0	85.0	82.0
d	80.0		85.0				95.0			85.0	86.3
e	80.0	75.0	85.0			80.0				85.0	81.0
f	80.0	75.0	85.0	75.0						85.0	80.0
g	80.0		85.0		85.0					85.0	83.8
h	80.0	75.0	85.0	75.0	85.0			75.0		85.0	80.0
i	80.0		85.0							85.0	83.3
j	80.0		85.0							85.0	83.3
k	80.0	75.0	85.0			80.0		75.0		85.0	80.0
l	80.0	75.0	85.0					75.0		85.0	80.0
Attainment of POs based on Employer Feedback (EF)											**81.9**

The average value taken from the above table (EF) is substituted in the overall POs attainment formula in the place of EF with 10% weightage.

Overall attainment of POs (%)

= 0.4x (COA) + 0.3x (SEF) + 0.2 x (AF) + 0.1 x (EF)

=0.4 x 75.2 + 0.3 x 77.8 + 0.2 x 82.5 + 0.1 x 81.9

= **78.11**

8. Procedure for Assessment of Attainment of PEOs

8.1 Through CO-PO-PEO mapping (A)– 40% weightage

Correlation between the POs and PEOs

Program Educational Objectives	Programme Outcomes												Attainment level of each PEO
	a	b	c	d	e	f	g	h	i	j	k	l	
PEO I	A1	A2	A3		A5			A8					B1
PEO II		A2	A3	A4	A5		A7				A11		B2
PEO III								A8	A9	A10	A11	A12	B3
PEO IV			A3	A4	A5	A6	A7	A8		A10	A11		B4
Attainment of PEOs through CO-PO-PEO mapping													B

The attainment of each programme educational objective is determined by taking the average of the contribution of each and every program outcome towards achieving a particular PEO which is given by the table above. A1 in the above table shows the attainment of the first programme

educational objective, A2 the second and so on and so forth. The average attainment of programme educational objective (PEO) is then determined by taking the average (A) of above averages.

From section 6.2.1

	a	b	c	d	e	f	g	h	i	j	k	l
Attainment of each PO through COs	72.6	76.3	72.7	76.8	72.9	77.8	80.5	73.7	76.4	72.7	73.8	76.8

After substituting the attainment of each PO in correlation between POs and PEOs table, it becomes

PEO ↓	**Programme Outcomes**												**Attainment level of each PEO**
	a	b	c	d	e	f	g	h	i	j	k	l	
I	72.6	76.3	72.7		72.9			73.7					73.6
II		76.3	72.7	76.8	72.9		80.5				73.8		75.5
III								73.7	76.4	72.7	73.8	76.8	74.7
IV			72.7	76.8	72.9	77.8	80.5	73.7		72.7	73.8		75.1
Attainment of PEOs through CO-PO-PEO mapping													**74.7**

Attainment of PEOs through CO-PO-PEO mapping (A)

A = 74.7 (Avg. of PEOs I-IV)

8.2 Placements & Higher studies (P&H) – 30% weightage

Item	**2009-13**
No. of Admitted students including lateral entry (N)	132
No. of students who obtained jobs as per the record of placement office (x_1)	33
No. of students who found employment otherwise at the end of the final year (x_2)	34
$x = x_1 + x_2$	73
No. of students went for higher studies with valid qualifying scores/ranks (y)	14
Placement and Higher studies (P&H)%=(x+y)100/N	**65.9**

Attainment of PEOs through P & H (B)

B = 65.9 %

8.3 Alumni Feedback(C) – 15% weightage

An Alumni Feedback form is generated with the help of Program Educational Objectives using Google form and this form is sent to the Alumni of the program through mail. Alumni of the program are required to make a self-assessment of their individual confidence levels in having attained the listed questioner on a scale of 5. The total number of students responding for each question in each category is collected and tabulated as given below and a weighted average of the attainment levels for each question is calculated according to the formula given below. Weighted average of each question is mapped with the Program Educational Objectives.

Sample Alumni Feedback form

MVGR ALUMNI FEEDBACK
DEPARTMENT OF MECHANICAL ENGINEERING

Strongly Disagree - 1, Moderately Disagree - 2, Agree - 3, Moderately Agree - 4, Strongly Agree-5.

Overall, to what extent did MVGR help you....

1) Personnel Development *

E D C B A

2) Professional Development *

E D C B A

3) Academic Development *

E D C B A

What advice would you give .....

to current/prospective students @ MVGR

to college

to MVGR Alumni Association (MAA)

WA = Weighted Average % = $\frac{20}{N}(5A+4B+3C+2D+1E)$

Sample Assessment Form for Feedback Analysis:

No of students participated: 76

Alumni Feedback Question No	No. of Respondents for					Weighted Average % (WA)	Legend
	A	B	C	D	E		
1	33	34	8	1	0	86.1	Strongly Disagree - E Moderately Disagree - D Agree-C Moderately Agree - B Strongly Agree-A
2	28	32	13	1	2	81.8	
3	29	36	10	0	1	84.2	

WA of Alumni feedback Question No '1'(%) =

$$= \frac{20}{76}(5x33 + 4x34 + 3x8 + 2x1 + 1x0)$$

= 86.1

Correlation between PEOs and Alumni feedback questions

PEOs	ALUMNI FEEDBACK			Average (%)
	1	2	3	
I		81.8	84.2	83.0
II		81.8		81.8
III		81.8	84.2	83.0
IV	86.1	81.8		84.0
Attainment of PEOs based on AF				**82.9**

Attainment of PEOs based on AF (C)

C = 82.9% (Avg. of PEOs I – IV)

8.4 Employer Feedback(D)– 15% weightage

From section 7.4

	a	b	c	d	e	f	g	h	i	j	k	l
Attainment of each PO through EF	81.3	82	82	86.3	81	80	83.8	80	83.3	83.3	80	80

Correlation between PEOs and POs

PEOs	**Programme Outcomes**												**Attainment level of each PEO**
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	
I	81.3	82.0	82.0		81.0			80.0					81.3

II		82.0	82.0	86.3	81.0		83.8				80.0		82.5
III								80.0	83.3	83.3	80.0	80.0	81.3
IV			82.0	86.3	81.0	80.0	83.8	80.0		83.3	80.0		82.1
Employer Feedback(PEOs - POs mapping)													**81.8**

Overall attainment of PEOs (%)

= 0.4 x A + 0.3 x B + 0.15 x C + 0.15 x D

=0.4 x 74.7 + 0.3 x 65.9 + 0.15 x 82.9 + 0.15 x 81.8

= **74.4**

Summary of Assessment

	Assessment Tool	**Weightage%**	**Assessment Frequency**
PEOs	CO-PO-PEO Mapping (A)	40	Yearly
	Placement & Higher Studies (B)	30	Yearly
	Alumni Feedback (C)	15	Yearly
	Employer Feedback (D)(PO-PEO Mapping	15	Yearly
POs	CO-PO Mapping (COA)	40	Yearly
	Student Exit Feedback (SEF)	30	Yearly
	Alumni Feedback (AF)	20	Yearly
	Employer Feedback (EF)	10	Yearly
COs	Internal Marks (IM)	30	Half-Yearly
	University Marks (UM)	50	Half-Yearly
	Course Exit Feedback (CEF)	20	Half-Yearly

Redefining of PEOs/POs

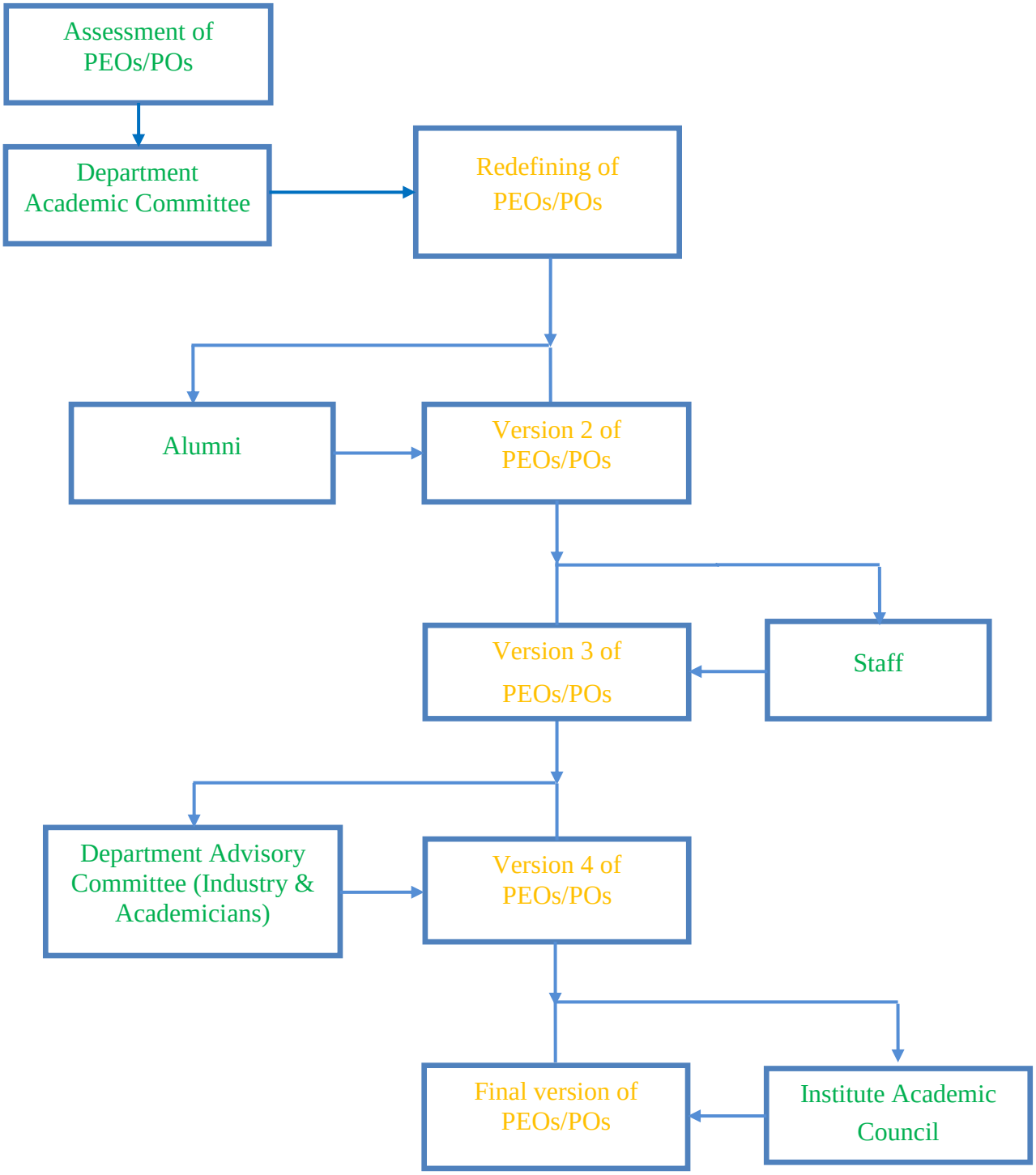

Fig.8 Flow chart showing the process of redefining of PEOs / POs

APPENDIX

DEPARTMENT OF MECHANICAL ENGINEERING

M V G R COLLEGE OF ENGINEERING, VIZIANAGARAM

Student Exit Feedback on Program Outcomes (PO's)

Program Outcomes	E	G	A	P	Comments
m. An ability to apply knowledge of mathematics, science, and engineering					
n. An ability to design and conduct experiments, as well as to analyze and interpret data					
o. An ability to design a engineering system, component or process					
p. An ability to function on multi-disciplinary teams					
q. An ability to identify, formulate and solve engineering problems					
r. An understanding of professional and ethical responsibility					
s. An ability to communicate effectively					
t. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context					
u. A recognition of the need for and an ability to engage in life-long learning					
v. A knowledge of contemporary issues					
w. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice					
x. Certificate training in computer aided design tools to build industry-readiness					

Excellent(E)	Good(G)	Average(A)	Poor(P)	No Comment(NC)
5	4	3	2	1

MVGR ALUMNI FEEDBACK
DEPARTMENT OF MECHANICAL ENGINEERING

To what extent did MVGR help you....
Strongly Disagree - 1,Moderately Disagree - 2,Agree - 3,Moderately Agree - 4, Strongly Agree-5.

1) Develop the professional, social and ethical behavior? *
○ 1 ◉ 2 ○ 3 ○ 4 ○ 5

2) Develop employability skills like Domain Knowledge, Problem Analysis, and Communication & Creative Thinking? *
○ 1 ○ 2 ○ 3 ○ 4 ○ 5

3) In understanding Global, Financial & Modern Technological issues ?*
○ 1 ○ 2 ○ 3 ○ 4 ○ 5

4) In Continues Learning *
○ 1 ○ 2 ○ 3 ○ 4 ○ 5

Overall, to what extent did MVGR help you....

1) Personnel Development *
○ 1 ○ 2 ○ 3 ○ 4 ○ 5

2) Professional Development *
○ 1 ○ 2 ○ 3 ○ 4 ○ 5

3) Academic Development *
○ 1 ○ 2 ○ 3 ○ 4 ○ 5

What advice would you give .....
to current/prospective students @ MVGR

to college

to MVGR Alumni Association (MAA)

TRAINING AND PLACEMENT CELL
MVGR COLLEGE OF ENGINEERING, Vizianagaram

EMPLOYER'S FEEDBACK

1. Do our graduates meet your expectation?

Above Expectation Upto Expectation Average Expectation Below Expectation

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2. How well do you think the program has strengthened links between the Academic and Industry?

Above Expectation Upto Expectation Average Expectation Below Expectation

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3. To what extent you are satisfied with the progress of our Graduates in professional career?

Above Expectation Upto Expectation Average Expectation Below Expectation

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4. Whether our graduates are able to properly address various ethical, environmental and safety codes framed by your organization or by concerned public institutions?

Above Expectation Upto Expectation Average Expectation Below Expectation

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5. Whether our graduates are able to carry out your assigned work with adequate managerial skills as well as communication skills?

Above Expectation Upto Expectation Average Expectation Below Expectation

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6. Whether our graduates are able to face the real life engineering problems and able to design feasible solutions?

Above Expectation Upto Expectation Average Expectation Below Expectation

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7. To what extent you rate the ability of our Graduates to work as team member?

Above Expectation Upto Expectation Average Expectation Below Expectation

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8. To what extent our Graduates emphasize on economical suitable technologies at the work place?

Above Expectation Upto Expectation Average Expectation Below Expectation

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9. Whether our graduates are able to solve your problems through required innovation and research?

Above Expectation Upto Expectation Average Expectation Below Expectation

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10. What is the overall rating of our graduates?

Above Expectation Upto Expectation Average Expectation Below

Any Other Suggestions:

Name:
Designation: