

**COs-POs/PSOs Assessment  
and  
Attainment Process Manual**



**MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES,  
FARIDABAD**

**PROCESS MANUAL: ASSESSMENT AND ATTAINMENT OF LEARNING OUTCOMES  
(ASSESSMENT PROCESS, INITIATIVES AND OUTCOME)**

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The university will maintain a rigorous regime of teaching-learning processes with most creditable evaluation systems. The purpose of assessment of teaching, learning and evaluation process will be able to demonstrate to all of its stakeholders, especially students, employers, community organizations and regulatory bodies, that the program outcomes of its academic programs are sound and that its teaching activities are designed to provide equivalence in learning experience and outcomes. In line with the Institution's Vision and Mission, Academic programmes in the University shall be outcome based. The curricula based on outcome-based education will be aligned towards the attainment of Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs). Outcome based education is objective and outcome driven, its every stated objective and outcome can be assessed and evaluated. It is centred around the needs of the students and stakeholders. The student centric teaching-learning methodologies shall be integrated to complement traditional methods.

The university departments shall focus on student learning by:

- Using Learning Outcome Statements to make explicit what student is expected to be able to know, understand and do
- Providing learning activities which will help the student to reach these outcomes
- Assessing the extent to which the student meets these outcomes through the use of explicit assessment criteria

The implementation of outcome-based education involves:

1. Establishment of Mission statements, Program Educational Objectives
2. Mapping of Mission Statements with Program Educational Objectives (PEOs)
3. Defining POs with Bloom's Taxonomy
4. Mapping Program Educational Objectives with POs
5. Defining CO (Course Outcomes) with Bloom's Taxonomy for each Course
6. Mapping COs with POs to create articulation table
7. Mapping contents and Assessment Pattern with COs of each course
8. Defining pedagogical tools for course outcomes delivery
9. Preparing session-wise Course Lesson Planner
10. Mapping Questions with CO's at Bloom's Taxonomy levels & Assessments
11. Defining rubrics with Bloom's Taxonomy and COs

12. Tracking students' performance by proposing proper remedial measures
13. Measuring students' performance against COs threshold, course-wise
14. Measuring the attainment of each CO through Direct/Indirect assessments
15. Measuring students' performance against POs threshold, semester-wise
16. Measuring the attainment of each PO through Direct/Indirect assessments
17. Analyzing PO attainment and propose remedial actions
18. Planning continuous quality improvement action
19. Assessing the attainment of Program Educational Objectives

Each University department will:

- a. Ensure that the quality of the education it provides is of the highest standard and commensurate with the expected standards.
- b. Continuously improve the quality of the education it offers to students and
- c. Implement IQAC approved policies and procedures to enable it to fulfill regulatory bodies requirements in relation to educational quality and academic standards.
- d. Maintain Course Outcomes (COs)-Program Outcomes (POs)/Program Specific Outcomes (PSOs)-Program Educational Objectives (PEOs) assessment and Attainment manual.



**MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES**  
(Deemed to be University under section 3 of the UGC Act 1956)

**FACULTY OF .....**

**DEPARTMENT OF .....**

**COs-POs/PSOs-PEOs Assessment and Attainment Process Manual (AY.....)**

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## **1. INSTITUTE VISION AND MISSION**

### **Vision of the Institution:**

Manav Rachna International Institute of Research and Studies (Erstwhile Manav Rachna International University) is dedicated and committed to train and equip its students with the latest knowledge and skills in the chosen fields in the backdrop of Indian ethos and values to enable them to face any global challenge with a view to transforming them into insightful, honorable and responsible citizens of this great country and imbibe a work culture of theoretical and applied research leading to creation and dissemination of knowledge.

### **Mission of the Institution:**

To provide an environment in which teachers love to facilitate and students love to learn, consisting of infrastructure facilities at par with the best institutions in India and abroad. The aim is:

(i) To inculcate skills and impart knowledge to the ignited minds in the fields of science and technology and soft skills including leadership, team building and communication.

(ii) To create human beings with golden heart who work and dedicate themselves for the advancement of humanity.

(iii) To undertake research and development activities in collaboration with the world of work leading to creation of new knowledge in the fields of science, commerce, engineering and technology, management, health sciences and therapies, sports, multi-media, applied and performing arts.

The mission is fully reflective of the distinguishing characteristics of the university in terms of societal needs, the target student population groups and the values and vision of the institution. The university is active in meeting its institutional responsibilities and has a wide range of technical, professional and general courses which address the different needs of the society. The university places high importance on moral and ethical values. Institutes tradition and value orientation is also imparted through its course on Holistic Wellness and Life Skills which is taught in all departments of the university.

## **2. DEPARTMENT VISION AND MISSION**

### **Vision of the Department:**

### **Mission of the Department:**

### **3. PROGRAM EDUCATIONAL OBJECTIVES**

The Department of ..... keeping in view interests of all their stakeholders have formulated the Program Educational Objectives (PEO's) that are comprehensive statements describing the career and professional accomplishments that the program is preparing the learner for.

Department's Program Educational Objectives (PEOs) are derived from the Department's Vision and Mission.

**PEO's of ..... Program in ..... are:**

**PEO 1:**

**PEO 2:**

**PEO 3:**

**PEO 4:**

**PEO 5:**

The Program Educational Objectives of .....Program are consistent with the Mission of the ..... department of Manav Rachna International Institute of Research & Studies (MRIIRS), and the PEOs flow naturally from the Missions of MRIIRS.

### **4. PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES**

Department POs & PSOs are listed as below:

PO1

PO2

PO3

PO4

PO5 and so on

PSO1

PSO2

PSO3

## 5. MAPPING OF DEPARTMENT MISSION STATEMENTS AND PEOS

The matrix showing mapping of mission statements of the department with PEOs is as below:

<b>PEO Statements</b>	<b>Mission 1</b>	<b>Mission 2</b>	<b>Missio n 3</b>
<b>PEO1:</b>	<b>3</b>	<b>2</b>	<b>-</b>
<b>PEO2:</b>	<b>-</b>	<b>1</b>	<b>-</b>
<b>PEO3:</b>			
<b>PEO4:</b>			
<b>PEO5:</b>			

The PEO-Mission statements mapping is described by its 'Affinity (correlation)' level as following:

---Low (Slight): 1

---Medium (Moderate): 2

---High (Substantial): 3

**6. MAPPING OF PROGRAMME EDUCATIONAL OBJECTIVES TO PROGRAM OUTCOMES/  
PROGRAM SPECIFIC OUTCOMES**

The matrix showing mapping of POs/PSOs of the department with PEOs is as below:

POs PEOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
PEO 1	3	2	-	-	-	-	-	1	2	-	-	-	-	-	-
PEO 2															
PEO 3															
PEO 4															
PEO 5															

The PEO-POs/PSOs mapping is described by its 'Affinity' level as following:

---Low (Slight): 1

---Medium (Moderate): 2

---High (Substantial): 3



**7. DEFINING COURSE OUTCOMES AS PER BLOOM'S TAXONOMY AND MAPPING WITH POs/PSOs**

Course outcomes are the measurable statements defined (as per Bloom's Taxonomy) for each course that indicates the student's ability of learning at the successful completion of the course. This section includes course outcomes and respective course articulation matrix for each course of the programme. The course articulation matrix describes CO-PO/PSO mapping and will be done by course coordinator. Course articulation matrix is prepared for each course by mapping the correlation strength (1,2,3) to each course outcome defined for a particular course with all the program outcomes and program specific outcomes. Followed by this, a program articulation matrix shall be prepared for all courses in a program.

**Course Title:**

**Course Code:**

**Course Outcomes:** The students will be able to:

BCH-100.1 describe .....

BCH-100.2 evaluate .....

BCH-100.3 identify .....

BCH-100.4 illustrate .....

BCH-100.5 explain .....

BCH-100.6 classify.....

**Course Articulation Matrix:**

<b>CO Statement ( BCH-100)</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>	<b>PO 11</b>	<b>PO 12</b>	<b>PS O 1</b>	<b>PS O 2</b>	<b>PS O 3</b>
BCH-100.1	3	3	1	2	-	-	-	-	-	-	-	2	-	2	-
BCH-100.2	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-
BCH-100.3	-	3	-	2	-	-	-	-	-	3	-	-	-	1	-
BCH-100.4	2	-	1	-	2	-	-	-	-	-	-	2	-	1	-
BCH-100.5	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-
BCH-100.6	1	-	1	-	1	2	-	-	-	2	-	-	-	1	-

The CO-POs/PSOs mapping is described by its 'Affinity' level as following:

---Low (Slight): 1

---Medium (Moderate): 2

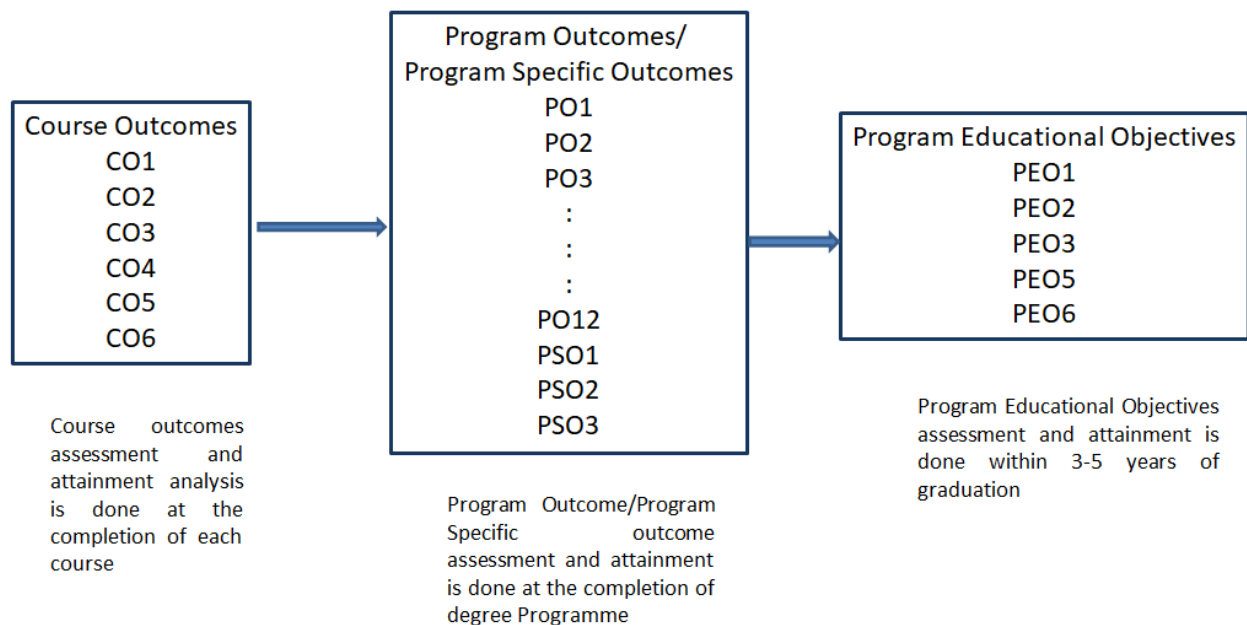
---High (Substantial): 3

**Similarly, all courses are to be added.**



## 9. RELATIONSHIP BETWEEN COs-POs/PSOs AND PEOs

The outcomes shall be computed and assessed at three different levels. First level is course level, Course outcomes assessment and attainment analysis is done at the completion of each course. Second level includes Program Outcome/Program Specific outcome assessment and attainment that is done at the completion of degree Programme. This will be followed by the assessment and attainment computation of Program Educational Objectives within 3-5 years of graduation. This indicates the ability of graduated students to utilize their acquired skillset while performing at different levels during his/her early professional career of 3 to 5 years.



**Fig 1 Levels of Outcome attainment**

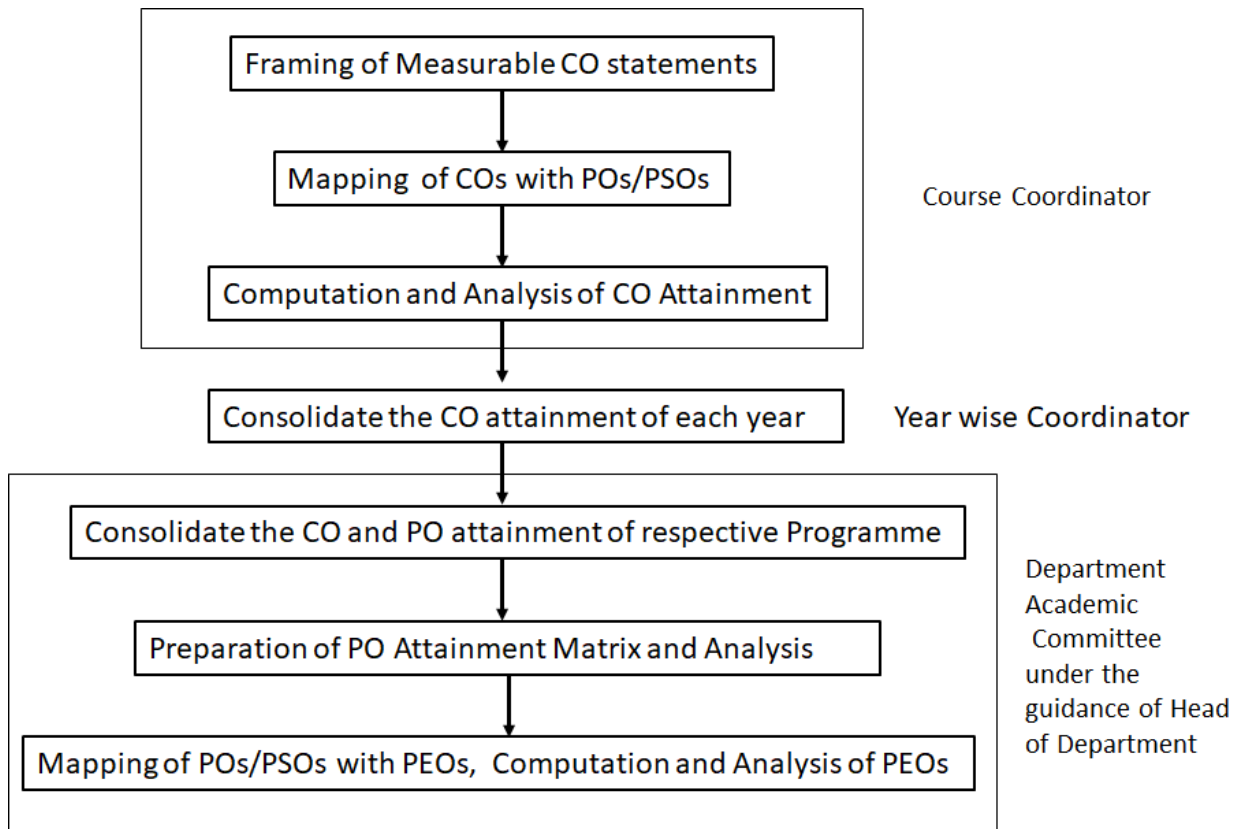
Keeping in view interests of all their stakeholders, departments have formulated the Program Educational Objectives (PEOs) that are comprehensive statements describing the intending career and professional accomplishments for the student.

- Program Outcomes and Program specific Outcomes (POs and PSOs) are then devised which describe what students are expected to know or will be able to do when they graduate from a program.

-Mapping of Program Education Objectives (PEOs) with Program Outcomes and Program specific Outcomes (POs& PSOs) is done in the curriculum structure.

## 10. FACULTY INVOLVEMENT

The course coordinators would frame measurable CO statements in consultation with involved course teachers, complete CO-PO mapping and compute CO attainments for subsequent analysis at course level. They would submit CO attainment and subsequent action recommendations to the Year wise coordinators. They will consolidate the year wise CO attainment along with recommended actions. The department academic committee under the guidance of Head of Department would consolidate CO-PO attainment and later PEO attainment, plan overall action recommendations and share with Board of studies for further action.

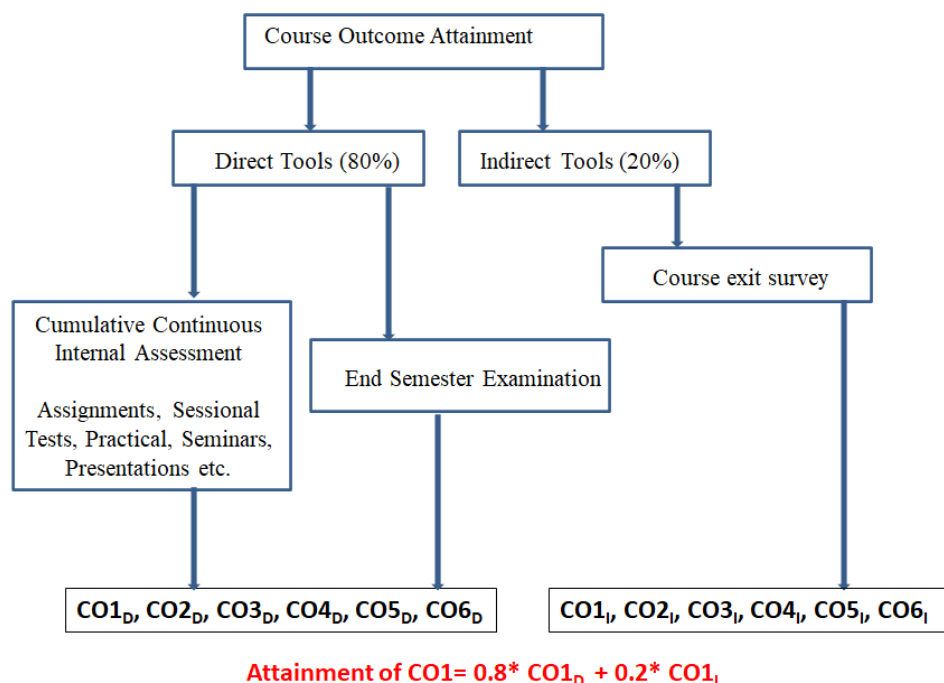


**Fig 2 Faculty involvement at different levels**

## 11. ASSESSMENT TOOLS AND PROCESS FOR COURSE OUTCOME ATTAINMENT

### 11.1 Assessment Tools for CO Attainment:

Direct and indirect both assessment tools shall be used for data collation. The weightage for direct and indirect methods fixed will 80% and 20%, respectively. Direct tools shall include cumulative continuous internal assessment methods (Assignments, Sessional tests, Seminars, Practical's, Presentations etc) and end semester examinations. Indirect tools will include course exit survey. The process to be followed for course outcome attainment is depicted in Fig 3.



**Fig 3** Assessment tools for Attainment of Course Outcomes

Different assessment tools help in evaluating student learning and attainment of course outcomes. Credit based continuous evaluation system shall be followed at the university. Evaluation of each course would be done by the respective course teacher throughout the semester. Each theory and practical course have internal as well as external assessment covering following parameters:

- Teacher's assessment: This includes assignments, tutorials, quiz, viva voce and lab report for practical courses etc.
- Sessional tests.
- End semester examination
- Technical Seminars, Colloquium and Projects
- Industrial Training: Assessment of training primarily includes feedback from the industry mentor and in-house faculty mentor. Presentations shall also be organized to assess the performance.

- Course Rubrics: These course specific evaluation charts shall be prepared by course coordinators to assess student's performance consistently for CO and subsequent PO attainment analysis for lab courses, projects, colloquium, industrial training etc. The scores (1, 2, 3, 4) would be awarded on the basis of their 'unsatisfactory', 'developing', 'satisfactory', and 'exemplary' performance in respective attributes. For students having scores less than or equal to 2, a subsequent action shall be initiated by the respective course instructor.

### **11.2 Process to measure CO attainment:**

- Question papers of theory exams shall be mapped with each course outcome for internal sessional test and end semester examination.
- Assignment/tutorial questions shall be mapped to respective course outcomes.
- Question wise marks shall be recorded for internal sessional tests, assignment/tutorials and end semester examinations from evaluated answer sheets.
- A course wise database shall be prepared to map marks obtained in each question attempted corresponding to a particular CO.
- For Lab courses/projects/colloquium/industrial internship, experiments and respective modules shall be mapped to designed course outcomes. Rubrics shall also be used for these courses.
- For direct attainment, All the questions will be clubbed CO wise, threshold (say of 60%) can be set initially for each question and the number of students scoring more than threshold in respective questions shall be counted and divided by total number of students to compute the direct CO attainment in particular question. This will be followed by the computation of Average CO.
- This will provide the direct attainment of Course outcomes.
- For computation of indirect CO attainment, students shall fill the course exit survey at the end of each course. The weighted average shall be computed to get the indirect CO attainment.
- The weighted sum of direct and indirect attainment ( $0.8 \times \text{Direct CO attainment} + 0.2 \times \text{Indirect CO attainment}$ ) will provide the overall CO attainment.
- Course outcome attainment target will be set on the basis of average performance levels in that course during previous three years. a) Compute the average marks scored in each course during the last three years. b) Compute the percentage of students scoring above the calculated average marks. c) Department may add 5% to set the improved target.

<b>Target setting parameters</b>	<b>Target %age from previous 3 years results</b>	<b>0.8*Direct + 0.2*Indirect</b>
<b>Set Target (Direct)</b>		
<b>Set Target (InDirect)</b>		
<b>Weighted</b>		
<b>Overall Set Target</b>		

**Add 5% to consider continuous improvement**

- Overall CO attainment shall be analyzed (attainment is achieved/not achieved) by comparing attained CO with the target set for each course.

<b>Course outcome</b>	<b>Direct Attainment %age</b>	<b>0.8*Direct attainment %age</b>	<b>Indirect Attainment %age</b>	<b>0.2*Indirect attainment %age</b>	<b>Overall CO attainment</b>
<b>C01</b>					
<b>C02</b>					
<b>C03</b>					
<b>C04</b>					
<b>C05</b>					
<b>C06</b>					

≥ Set target:  
Attainment is achieved

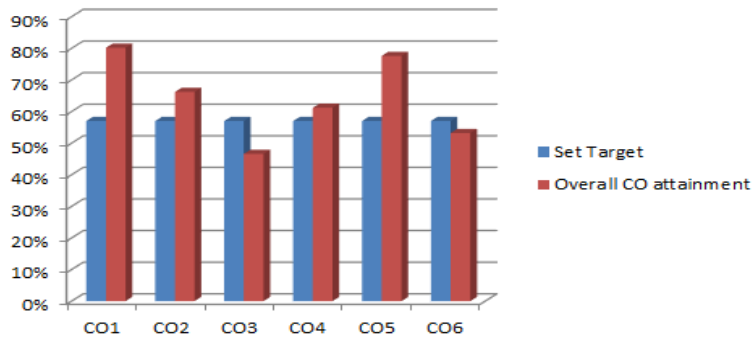
< Set target :  
Attainment is not achieved

< Set target :  
Attainment is not achieved

- The overall CO attainment shall be mapped to levels (1, 2, 3) of attainment. A middle level (level '2') can be assigned to a range of set target + 5% of CO attainment. Considering the trends of overall results/Course outcome, The lower level (level '1') can be set for %age of CO attainment which is less than set target %age. The higher level (level '3') can be set for %age of CO attainment which is greater than set target %age+5%.

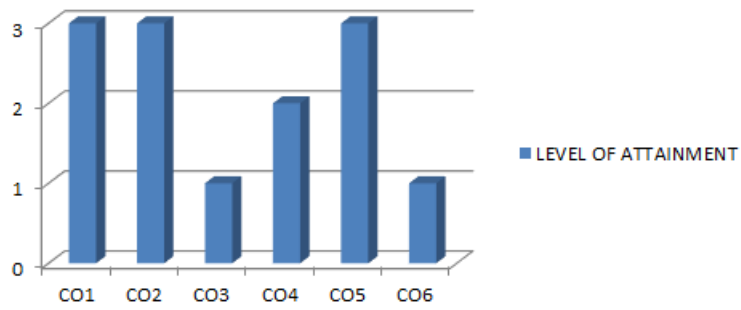
<b>Course outcome</b>	<b>Direct Attainment %age</b>	<b>0.8*Direct attainment %age</b>	<b>Indirect Attainment %age</b>	<b>0.2*Indirect attainment %age</b>	<b>Overall CO attainment</b>	<b>Level of Attainment (Example)</b>
<b>C01</b>						3
<b>C02</b>						3
<b>C03</b>						1
<b>C04</b>						2
<b>C05</b>						3
<b>C06</b>						1
<b>Average CO attainment of Course</b>						<b>2.16</b>

- The bar graphs shall be plotted to analyze the CO attainment and planning of subsequent actions.



**Percentage CO attainment**

**LEVEL OF ATTAINMENT**



**Level of CO attainment**



**Manav Rachna International Institute of Research and Studies**

(Deemed to be University under Section 3 of the UGC Act, 1956)

(NAAC Accredited 'A' Grade)

Sector-43, Delhi-Surajkund Road, Faridabad.

**Course Exit Survey**

**1. Name:** \_\_\_\_\_ **2. Roll No.:** \_\_\_\_\_

**3. Program:** \_\_\_\_\_ **4. Batch:** \_\_\_\_\_

**5. Semester:** \_\_\_\_\_ **6. CGPA till present semester:** \_\_\_\_\_

**7. Course Title:** \_\_\_\_\_ **8. Course Code:** \_\_\_\_\_

**9. Name of Course Teacher:** \_\_\_\_\_

Rate your understanding of each course outcome on the scale of 5 to 1  
5- completely satisfied, 4 – very satisfied, 3- moderately satisfied, 2- slightly satisfied and 1 – not at all satisfied

Course Outcome	Please Grade the attainment of following course outcomes	Rating				
		5	4	3	2	1
CO1	Rate your understanding to .....CO1 statement					
CO2	Rate your understanding to .....CO2 statement					
CO3	Rate your understanding to .....CO3 statement					
CO4	Rate your understanding to .....CO4 statement					
CO5	Rate your understanding to .....CO5 statement					
CO6	Rate your understanding to .....CO6 statement					

Suggestions for improvement:

Signatures: \_\_\_\_\_ Date: \_\_\_\_\_

## Consolidated Course exit Survey and Analysis

**Total no. of students, N:**

**Course Title and Course Code:**

**Semester: Even/Odd**

**Academic Year:**

Course Outcome	No. of students rated '5'	%age of students	No. of students rated '4'	%age of students	No. of students rated '3'	%age of students	No. of students rated '2'	%age of students	No. of students rated '1'	%age of students	Avg %age
CO1	A5	A5/N	A4	A4/N	A3	A3/N	A2	A2/N	A1	A1/N	
CO2											
CO3											
CO4											
CO5											
CO6											

Weighted average,  $WA = (5 \cdot A5 + 4 \cdot A4 + 3 \cdot A3 + 2 \cdot A2 + 1 \cdot A) / 5$

Avg %age =  $(WA/N) \cdot 100$

The weighted sum of direct and indirect attainment ( $0.8 \cdot \text{Direct CO attainment} + 0.2 \cdot \text{Indirect CO attainment}$ ) will provide the overall CO attainment.

For Lab courses/projects/colloquium/industrial internship, experiments and respective modules shall be mapped to designed course outcomes and Rubrics shall also be used for analysis.

### Sample Course Rubrics

**Name of the student:**

**Course:**

**Semester:**

**Score = 1 or 2:** Action initiated by instructor  
action initiated by instructor

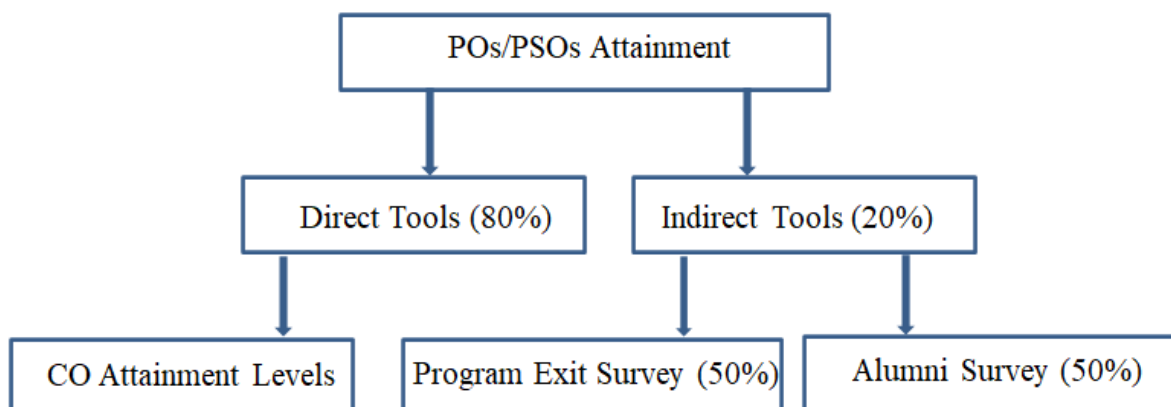
**Score = 3 or 4:** No

<b>Performance Indicator (PI)</b>	<b>Course Outcomes</b>	<b>Unsatisfactory 1</b>	<b>Developing 2</b>	<b>Satisfactory 3</b>	<b>Exemplary 4</b>	<b>Score</b>	<b>Action initiated</b>
Able to demonstrate....							
Able to relate .....							
Able to develop .....							
Able to illustrate.....							
Able to analyze.....							
Able to implement .....							
<b>Average Score</b>						<b>2.7</b>	
<b>Number of students registered in course- ( Course Code: )</b>			<b>Percentage of students with score <math>\geq 2</math> in course .....(Course Code)</b>				

## 12. TOOLS AND PROCESS FOR POs/PSOs ATTAINMENT AND ANALYSIS

### 12.1 Tools for PO/PSO Attainment:

Direct and indirect both assessment tools shall be used for data collation. The weightage for direct and indirect methods fixed will 80% and 20%, respectively. Direct tools shall include course outcome attainment levels. Indirect tools will include 50% weightage for program exit survey and 50% weightage for alumni. The process to be followed for course outcome attainment is depicted in Fig 4.



**Fig 4** Assessment tools for Attainment of POs/PSOs

Program exit survey shall be conducted after the completion of respective programme, which helps in providing the valuable inputs to assess what should be improved, modified or remain intact. The University has Manav Rachna Alumni Association, most of the alumnus are entrepreneur or working at very high positions in the industry. The university has also launched an app "Manav Rachna Alumni Connect" to interconnect the alumni. The alumni help the students in training and placement; have also been called for the Expert lecture to deliver the new technologies. Their feedback is also considered for imparting the advice related to the establishment of new labs, workshops and the new subjects to be included in the curriculum.

### 12.2 Process of PO/PSO Attainment:

- The average attainment of POs (PO1, PO2, ..., PO..) and respective PSOs (PSO1, PSO2, PSO3....) through direct assessment tools shall be calculated using the following steps:
  - Course Correlation/Affinity factor in Program articulation matrix will be converted into respective levels as follows:
    - Correlation/Affinity factor '3' shall be mapped to level '1'
    - Correlation/Affinity factor '2' shall be mapped to level '0.66'
    - Correlation/Affinity factor '1' shall be mapped to level '0.33'
  - Average Course attainment level of each course shall be recorded
  - The course wise attainment of POs (PO1, PO2, ...,) and respective PSOs (PSO1, PSO2, PSO3....) through direct assessment tools shall be calculated using the following formula:

**PO<sub>j</sub> or PSO<sub>k</sub> attainment of course C<sub>i</sub>**

**= Course Attainment level of CO<sub>l</sub> for C<sub>i</sub>**

**\* Correlation level of CO<sub>l</sub> for C<sub>i</sub>**

Where PO<sub>j</sub> : represents POs with j=1 to total number of POs.

PSO<sub>k</sub>: represents PSOs with k=1 to 3 or 4 as per number of PSOs designed for Programme.

C<sub>i</sub> : represents course 1, 2,3,....,n

CO<sub>l</sub>: represents course outcome 1,2,....6

- The overall attainment level of twelve POs (PO1, PO2, ....) and respective PSOs (PSO1, PSO2, PSO3.....) through direct assessment tools has been calculated using the following formula:

$$\text{PO}_j \text{ or PSO}_k \text{ attainment} = \frac{\sum_{i=1}^n \text{PO}_j \text{ or PSO}_k \text{ attainment of course } C_i}{\text{Number of Mapped Courses with respective PO}_j \text{ or PSO}_k}$$

- The average attainment of POs (PO1, PO2, ....) and respective PSOs (PSO1, PSO2, PSO3.....) through indirect assessment tools is calculated using the following steps:
  - The parameters of Program exit survey and Alumni survey shall be mapped to respective POs/PSOs.
  - For the computation of indirect PO/PSO attainment, students shall be asked to fill the Program exit survey (Table 2) after the programme and alumni survey (Table 3) by alumni members. The weighted average shall be computed for all the parameters.
  - The weighted average of direct (80%) and indirect (20%) PO/PSO attainment shall be computed to know about overall PO/PSO attainment.









- The overall attainment level of twelve POs (PO1, PO2, ..., PO12) and respective PSOs (PSO1, PSO2, PSO3.....) through direct assessment tools shall be calculated using the following formula:

$$\text{PO}_j \text{ or PSO}_k \text{ attainment} = \frac{\sum_{i=1}^n \text{PO}_j \text{ or PSO}_k \text{ attainment of course } C_i}{\text{Number of Mapped Courses with respective PO}_j \text{ or PSO}_k}$$

Course Code	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
BCH-100	.66 *2.16	1* 2.16	.33* 2.16	.66 *2.16	.66 *2.16	.66 *2.16	-	-	-	0.33 *2.16	-	.66 *2.16	-	.33* 2.16	-
Average Direct PO/PSO Attainment (A)	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D-PSO 1	D-PSO 2	D-PSO 3

5. For Indirect PO/PSO Attainment, the parameters of Program exit survey and alumni survey shall be mapped to respective POs/PSOs.

**Manav Rachna International Institute of Research & Studies**

(Deemed to be University under Section 3 of the UGC Act, 1956)

(NAAC Accredited 'A' Grade)



Sector-43, Delhi-Surajkund Road, Faridabad.

**Program Exit Survey-Engg and FCA**

**A. General Information:**

- 1. Name:
- 2. Roll No:
- 3. Department and Faculty:
- 4. Year of Passing:
- 5. Email Id:
- 6. Phone No.:
- 7. Programme:

Please mention your current status:

- a. Campus Placed:.....
- b. Going for Higher Studies:.....
- c. Others(Specify):.....

**B. Evaluation of Programme Effectiveness:**

Please identify the degree to which you believe your undergraduate education helped you to develop the skills and abilities in the following areas to be successful in your professional life. Rate your understanding of each parameter on the scale of 5 to 1:

5- completely satisfied, 4 – very satisfied, 3- moderately satisfied, 2- slightly satisfied and 1 – not at all satisfied

S.No.	Please rate the following	Rating				
		5	4	3	2	1
1	Comprehend the basic knowledge to identify & analyse the real-world problems, interpret data and design the possible solutions/processes					
2	Able to apply research-based approach and techniques in various fields to provide valid conclusions					
3	Skills gained to apply innovative tools for prediction and modelling of complex problems in various fields					
4	Responsibility level acquired to develop solutions for sustainable developments (in <i>societal</i> , environmental, cultural and economic contexts).					
5	Leadership qualities and team-spirit inculcated through various student development programmes.					
6	Able to communicate effectively in both verbal and written form and develop intrapersonal & interpersonal skills					
7	Able to acquire and apply new knowledge as needed, using appropriate learning strategies.					
8	Able to secure employment or be an entrepreneur with ability to apply professional knowledge in multidisciplinary environment with ethical responsibility.					

**C. Additional Information:**

**Rating Scale: (Outstanding-5, Very good-4, Good-3, Average-2, Below Average-1)**

S.No.	Please rate the following	Rating				
		Outstandi ng	Very Good	Good	Avera ge	Below Avera ge
1.	Head of the Department					
2.	Teaching Faculty/Staff					
3.	Infrastructure					
4.	Library					
5.	Laboratories					
6.	Exam Cell					
7.	Administration					
8.	Career Development Centre (CDC)					
9.	Corporate Resource Centre (CRC)					
10.	Discipline					
11.	Canteen					
12.	Sports Facilities					

**D. Highlight your achievements**

**1.Placement/Higher Studies:**

**2. Academics:**

**1. Extra-Curricular:**

**Suggestion for improvement:** \_\_\_\_\_

**Signature**

**Date:**

**Manav Rachna International Institute of Research & Studies**

(Deemed to be University under Section 3 of the UGC Act, 1956)

(NAAC Accredited 'A' Grade)



Sector-43, Delhi-Surajkund Road, Faridabad.

**Program Exit Survey-Other than FET &FCA**

**A. General Information:**

1. Name:

2. Roll No:

3. Department and Faculty:

4. Year of Passing:

5. Email Id:

6. Phone No.:

7. Programme:

Please mention your current status:

a. Campus Placed:.....

b. Going for Higher Studies:.....

c. Others(Specify):.....

**B. Evaluation of Programme Effectiveness:**

Please identify the degree to which you believe your undergraduate education helped you to develop the skills and abilities in the following areas to be successful in your professional life. Rate your understanding of each parameter on the scale of 5 to 1:

5- completely satisfied, 4 – very satisfied, 3- moderately satisfied, 2- slightly satisfied and 1 – not at all satisfied

S.No.	Please rate the following	Rating				
		5	4	3	2	1
1	Comprehend the basic knowledge of analysis and decisions					
2	Able to apply research-based approach using innovative tools and techniques in various fields					
3	Able to communicate effectively in both verbal and written form and develop intrapersonal & interpersonal skills					
4	Able to develop competencies through self-education for lifelong learning					
5	Able to secure employment or be an entrepreneur with ability to apply professional knowledge with ethical responsibility.					
6	Responsibility level acquired to develop sustainable solutions ethically in <i>societal</i> , environmental, cultural and economic contexts					

**C. Additional Information:**

Rating Scale: (Outstanding-5, Very good-4, Good-3, Average-2, Below Average-1)

S.No.	Please rate the following	Rating				
		Outstandi ng	Very Good	Good	Avera ge	Below Avera ge
1.	Head of the Department					

2.	Teaching Faculty/Staff					
3.	Infrastructure					
4.	Library					
5.	Laboratories					
6.	Exam Cell					
7.	Administration					
8.	Career Development Centre (CDC)					
9.	Corporate Resource Centre (CRC)					
10.	Discipline					
11.	Canteen					
12.	Sports Facilities					

**D. Highlight your achievements**

**1.Placement/Higher Studies:**

**2. Academics:**

**3. Extra-Curricular:**

**Suggestion for improvement:** \_\_\_\_\_

\_\_\_\_\_

**Signature**  
**Date:**

### Consolidated Program exit Survey

**Total no. of respondents, N:**

**Programme:**

**Academic Year:**

Parameter	No. of students rated '5'	%age of students	No. of students rated '4'	%age of students	No. of students rated '3'	%age of students	No. of students rated '2'	%age of students	No. of students rated '1'	%age of students	Weighted Avg %age
Comprehend the basic knowledge to identify & analyse the real-world problems, interpret data and design the possible solutions/processes	A5	A5/N	A4	A4/N	A3	A3/N	A2	A2/N	A1	A1/N	
Able to apply research-based approach and techniques in various fields to provide valid conclusions											
Skills gained to apply innovative tools for prediction and modelling of complex problems in various fields											

Responsibility level acquired to develop solutions for sustainable developments (in <i>societal</i> , environmental, cultural and economic contexts).											
Leadership qualities and team-spirit inculcated through various student development programmes.											
Able to communicate effectively in both verbal and written form and develop intrapersonal & interpersonal skills											
Able to acquire and apply new knowledge as needed, using appropriate learning strategies.											
Able to secure employment or be											

an entrepreneur with ability to apply professional knowledge in multidisciplinary environment with ethical responsibility.												
--	--	--	--	--	--	--	--	--	--	--	--	--

Weighted average,  $WA(\text{Prog exit}) = (5 \cdot A_5 + 4 \cdot A_4 + 3 \cdot A_3 + 2 \cdot A_2 + 1 \cdot A_1) / 5$

Avg %age =  $[WA(\text{Prog exit}) / N] \cdot 100$



## Manav Rachna International Institute of Research & Studies

(Deemed to be University under Section 3 of the UGC Act, 1956)

(NAAC Accredited 'A' Grade)



Sector-43, Delhi-Surajkund Road, Faridabad.

### Alumni Survey

#### **A. General Information:**

1. Name and Address:
2. Programme:
3. Year of Passing:
4. Current Organization / Occupation:
5. Designation:
6. Email Id:
7. Phone No.:
8. Additional degree undergoing/obtained:

#### **B. Evaluation of Programme Effectiveness:**

For each parameter mentioned below, rate your satisfaction with the academic preparation you received in that area as student. Rate your understanding of each parameter on the scale of 5 to 1:

5- completely satisfied, 4 – very satisfied, 3- moderately satisfied, 2- slightly satisfied and 1 – not at all satisfied

S.No.	Please rate the following	Rating				
		5	4	3	2	1
1	Ability to exhibit, communicate knowledge and design processes/take decisions to meet desired specifications and needs.					
2	Excel in analytical and problem-solving skills in multidisciplinary environment.					
3	Benefit from elective courses, Project/research work, value added certifications, workshops and training programmes conducted during your course.					
4	Ability to learn new technology, innovative tools to resolve contemporary issues.					
5	Willingness in life-long learning for professional development.					
6	Extent of ethical, social and environmental values inculcated, helping you to relate knowledge and skills gained with societal needs					
7	Professional competency developed to work as per the requirements of any organization including interpersonal and intrapersonal communication skills.					
8	Exhibit good leadership skills to be an entrepreneur with ability to apply professional knowledge and ethical responsibility.					

**C. Additional Information:**

How well is the institute keeping in touch with you since graduation? Please select the appropriate box.

- a. Extremely well
- b. Very well
- c. Somewhat well
- d. Not at all well

**D. Highlight your achievements**

**1.Placement/Higher Studies:**

**2. Academics:**

**3.Extra-Curricular:**

**Suggestion for improvement:**

**Signature**  
**Date:**

## Consolidated Alumni Survey

**Total no. of respondents, N:**

**Programme:**

**Academic Year:**

Parameter	No. of students rated '5'	%age of students	No. of students rated '4'	%age of students	No. of students rated '3'	%age of students	No. of students rated '2'	%age of students	No. of students rated '1'	%age of students	Avg %age
Ability to exhibit, communicate knowledge and design processes/take decisions to meet desired specifications and needs.	A5	A5/N	A4	A4/N	A3	A3/N	A2	A2/N	A1	A1/N	
Excel in analytical and problem-solving skills in multidisciplinary environment.											
Benefit from elective courses, Project/research work, value added certifications, workshops and training programmes conducted during your course.											
Ability to learn new technology, innovative tools to resolve contemporary issues.											
Willingness in life-long learning for professional development.											

Extent of ethical, social and environmental values inculcated, helping you to relate knowledge and skills gained with societal needs											
Professional competency developed to work as per the requirements of any organization including interpersonal and intrapersonal communication skills.											
Exhibit good leadership skills to be an entrepreneur with ability to apply professional knowledge and ethical responsibility.											

Weighted average,  $WA(\text{Alumni}) = (5 \cdot A_5 + 4 \cdot A_4 + 3 \cdot A_3 + 2 \cdot A_2 + 1 \cdot A_1) / 5$

Avg %age =  $[WA(\text{Alumni}) / N] \cdot 100$

Indirect tools	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
----------------	------	------	------	------	------	------	------	------	------	-------	-------	-------	-------	-------	-------

Parameters	PO1	PO2	PO3	PO4	PO5	PO6	.....	PO12	PSO 1	PSO 2	PSO 3
Comprehend the basic knowledge to identify & analyse the real-world problems, interpret data and design the possible solutions/processes											
Able to apply research-based approach and techniques in various fields to provide valid conclusions											
Skills gained to apply innovative tools for prediction and modelling of complex problems in various fields											
Responsibility level acquired to develop solutions for sustainable developments (in <i>societal</i> , environmental, cultural and economic contexts).											
Leadership qualities and team-spirit inculcated through various student development programmes.											
Able to communicate effectively in both verbal and written form and develop intrapersonal & interpersonal skills											
Able to acquire and apply new knowledge as needed, using appropriate learning strategies.											
Able to secure employment or be an entrepreneur with ability to apply professional knowledge in multidisciplinary environment with ethical responsibility.											
<b>Average PO/PSO attainment using Program exit survey</b>											

6. The weighted average percentage will provide the indirect PO attainment.

In this way the Average indirect PO/PSO attainment using both Program exit (PI- P: Program exit, I-Indirect) and Alumni survey (AI- A:Alumni survey, I-Indirect) will be computed. The overall weighted PO/PSO attainment using Program exit and Alumni survey would be computed as: Overall weighted PO/PSO attainment using indirect tools =  $0.5*PI + 0.5*AI$

Average PO/PSO Attainment using Program Exit Survey (PI)																
Average PO/PSO Attainment using Alumni Survey (AI)																
Overall indirect PO/PSO Attainment, $B = 0.5*PI + 0.5*AI$	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	IPS O-1	IPS O-2	IPS O-3	

7. The weighted average of direct (80%) and indirect (20%) PO/PSO attainment shall be computed to know about overall PO/PSO attainment.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O 1	PSO 2	PSO 3
Average Direct PO/PSO Attainment (A)	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D-PS O1	D-PSO 2	D-PSO 3
Average indirect PO/PSO Attainment (B)	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	IPS O-1	IPS O-2	IPS O-3
Overall PO/PSO Attainment = $A*0.8 + B*0.2$	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O-PS O1	O-PSO 2	O-PSO 3

The bar graphs shall be plotted to show PO/PSO attainment and subsequent analysis. The POs/PSOs attainment levels shall be analyzed to plan the subsequent actions.

## 12. TOOLS AND PROCESS FOR PEOs ATTAINMENT AND ANALYSIS

The assessment and attainment of PEOs shall include both direct and indirect tools as follows:

1. Direct Tools (Weightage: 60%):
    - a. Program Outcome/Program Specific Outcome attainment level as calculated in the previous section for the mapped PEOs. Weightage: 80%
  2. Indirect Tools (Weightage: 40%):
    - a. Program exit survey. Weightage: 10%
    - b. Alumni survey. Weightage: 10%
    - c. Employer feedback. Weightage: 20%
- For direct attainment, the Program Outcome/Program Specific Outcome attainment level as calculated in the previous section shall be used directly for the mapped PEOs.
  - For indirect attainment, the weighted average will collectively provide the indirect PEO attainment.
  - The weighted average of direct (60%) and indirect (40%) attainment shall be computed to know about overall PEO attainment.

**The PEO attainment matrix shall be formulated and respective PEO attainment shall be analyzed for subsequent actions.**

### Levels of attainment for PEOs

PEO Attainment	Level of Attainment
Greater than equal to 70%	Excellent
Greater than equal to 60% and less than 70%	Very Good
Greater than equal to 50% and less than 60%	Good
Greater than equal to 40% and less than 50%	Satisfactory
Less than 40%	Not Satisfactory

**PEO Attainment Matrix:**

<b>PO/PSOs</b>	<b>PEOs</b>	<b>PEO1</b>	<b>PEO2</b>	<b>PEO3</b>	<b>PEO4</b>	<b>PEO5</b>
<b>PO 1</b>						
<b>PO 2</b>						
<b>PO 3</b>						
<b>PO 4</b>						
<b>PO 5</b>						
<b>PO 6</b>						
<b>PO 7</b>						
<b>PO 8</b>						
<b>PO 9</b>						
<b>PO 10</b>						
<b>PO 11</b>						
<b>PO 12</b>						
<b>PSO 1</b>						
<b>PSO 2</b>						
<b>PSO 3</b>						
<b>Average PEO attainment</b>						
<b>Level of PEO Attainment</b>						
<b>Whether the expected level of PEO is attained or not? (Yes/No)</b>						

**The PEO attainment levels shall be analyzed to plan the subsequent actions.**



## Course Outcome Attainment Report (Session-....)

**Date:**

To

The Member Secretary,  
Department Academic Committee (DAC)  
Department of .....

**Subject:** Submission of Course Outcome Attainment Report of the course.....

The course outcome attainment report for the course '.....' is being submitted for the perusal and review of Department Academic Committee members.

Course Title with code	CO	CO Statement	Attainment Percentage			Target Achieved/Not Achieved	Action Planned to Improve the CO Attainment
			Direct Attainment	Indirect Attainment	Overall Attainment		
	CO1						
	CO2						
	CO3						
	CO4						
	CO5						
	CO6						

Graphical Analysis as downloaded from EMS

**Course Coordinator**

Academic Year: .....(odd/even semester)

Institute/Branch: MRIIRS-Faculty of .....

Program:

S. No.	Class/Semester	Consolidated CO-Direct Indirect Attainment Report (As downloaded from EMS)									
		Course Title	Course Code	Lecture type	Course Teacher	CO	Direct Attainment	Indirect Attainment	Overall Attainment		
1	B.Tech. CSE Sem 1					CO1					
						CO2					


EMS Coordinator  
 Department of.....

**Academic Year:** .....(odd/even semester)

**Institute/Branch:** MRIIRS-Faculty of .....

**Program:**

S. No.	Class/ Sem	CO PO Direct Indirect Attainment								Target Achieved / Not Achieved	Action Planned	Recommendations of DAC		
		Course Title	Course Code	Lecture type	Course Teacher	CO	Direct Attainment	Indirect Attainment	Overall Attainment					
1						CO1								
						CO2								



