



**MAHATMA GANDHI UNIVERSITY**

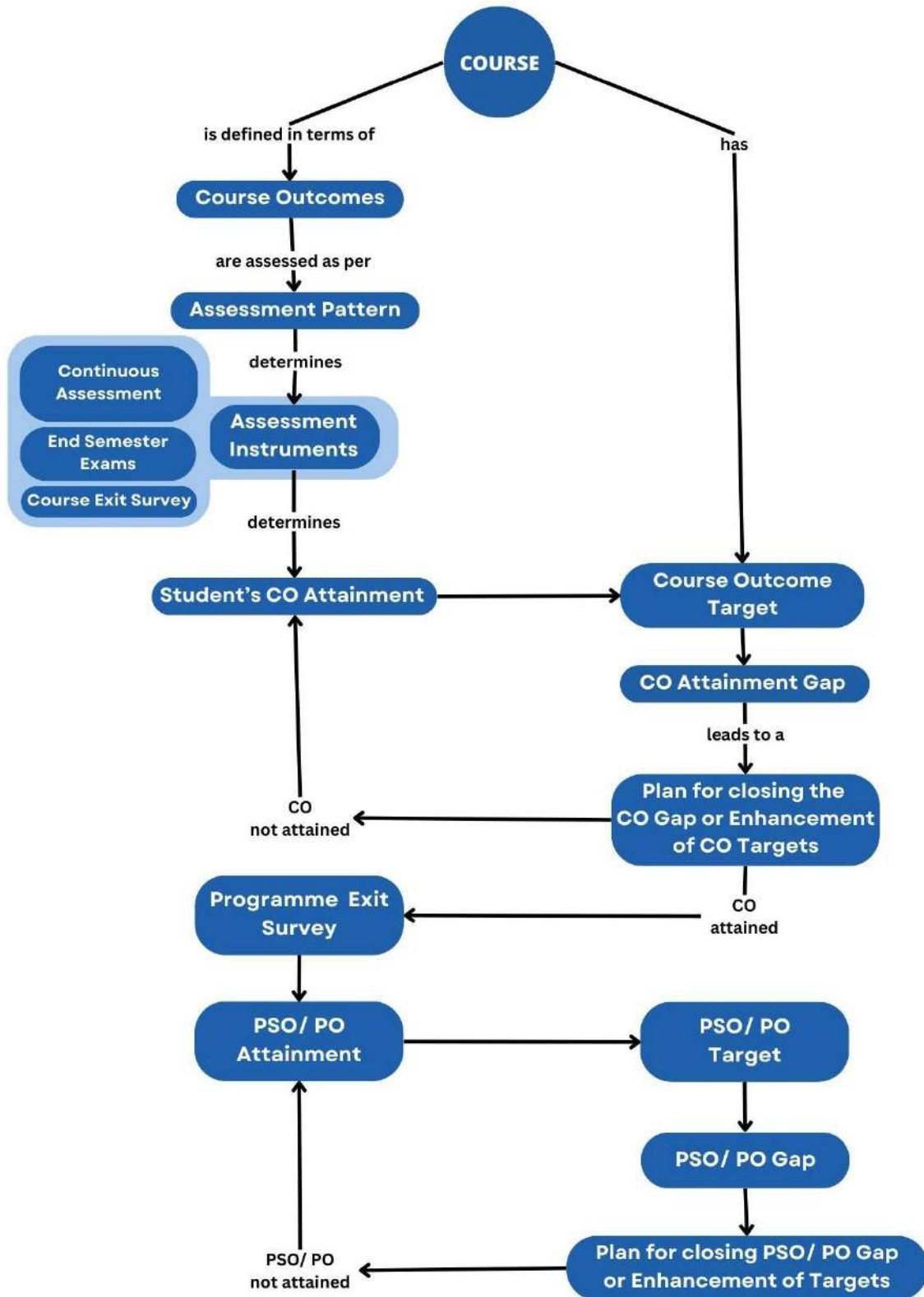


**Mahatma Gandhi University**  
**Priyadarsini Hills P. O.**  
**Kottayam, Kerala - 686560**

**(Re-accredited by NAAC with A Grade)**

**CRITERION II: TEACHING, LEARNING AND EVALUATION**  
**OUTCOME BASED EVALUATION AND OUTCOME**  
**ATTAINMENT EVALUATION MANUAL**

# MGU Outcome Attainment Framework



<b>Description</b>	<b>Page No</b>
<b>Introduction</b>	<b>3</b>
<b>Abbreviations</b>	<b>3</b>
<b>Vision, mission of Mahatma Gandhi University</b>	<b>5</b>
<b>The Steps in Outcome Based Education</b>	<b>6</b>
<b>Programme outcomes</b>	<b>6</b>
<b>PSO -CO link</b>	<b>8</b>
<b>OBE framework of Mahatma Gandhi University</b>	<b>8</b>
<b>CO Assessment Tools</b>	<b>9</b>
<b>Blooms Revised Taxonomy</b>	<b>9</b>
<b>Revised Blooms Taxonomy- Question Preparation</b>	<b>12</b>
<b>Revised Blooms Taxonomy- action verbs</b>	<b>14</b>
<b>Key words based on Blooms Taxonomy</b>	<b>16</b>
<b>Model question paper</b>	<b>17</b>
<b>Attainment of course outcome</b>	<b>22</b>
<b>Contribution to PSO for all courses in each semester</b>	<b>27</b>
<b>PSO to PO mapping strength matrix and contribution to PO for a particular programme</b>	<b>27</b>
<b>Overall attainment of PO for all Programmes for the entire institution</b>	<b>28</b>
<b>Compute PO attainment gap and action taken for the Entire university</b>	<b>29</b>
<b>References</b>	<b>30</b>

## INTRODUCTION

From 13<sup>th</sup> June 2014, India has become the permanent signatory member of the Washington Accord. Implementation of OBE in higher education also started in India. National Board of Accreditation (NBA) has started accrediting only the Programs running with OBE from 2013. Mahatma Gandhi University Follows Outcome Based Education in teaching, learning and evaluation from the academic year 2021.

Outcome-based evaluation, sometimes called outcomes measurement, is a systemic way to determine if a program has achieved its goals. Outcome Based evaluation is a type of evaluation that focuses on measuring the results or outcomes of a program. It is a systematic and objective process that involves collecting and analyzing data to determine whether the program is achieving its intended goals and objectives and whether the outcomes are meaningful and beneficial to the target population. It identifies observations that can credibly demonstrate change or desirable conditions for the participants or beneficiaries of the program. Outcome-based evaluation defines a program as a series of activities that lead towards observable, intended changes for participants.

This handbook is intended to help teachers, staff, and other stakeholders understand the tenets of Outcomes Based Evaluation, implemented at Mahatma Gandhi University from the academic year 2021.

## ABBREVIATIONS

<b>OBE</b>	Outcome Based Education	<b>BTL</b>	Bloom's Taxonomy Level
<b>LOT</b>	Lower Order of Thinking	<b>HOT</b>	Higher Order of Thinking
<b>PEO</b>	Program Educational Objectives	<b>PO</b>	Program Outcome
<b>CO</b>	Course Outcome	<b>PSO</b>	Program Specific Outcome

<b>UE</b>	University Theory Exam	<b>POE</b>	Practical Oral Exam
<b>CE</b>	Course Exit Survey	<b>HoD</b>	Head of Department
<b>PC</b>	Program Coordinator	<b>DAB</b>	Department Advisory Board
<b>PAC</b>	Program Assessment Committee	<b>AY</b>	Academic Year

OBE integrates every aspect of the educational system with learning outcomes (LOs) that every student should attain on the successful completion of the academic programme concerned. OBE curriculum demands determination of LOs before teaching, and it insists upon introducing a running thread of control across the course content, instructional strategies, learning experiences and methods of evaluation.

A great advantage of OBE is that the worthiness or desirability of the whole course can be pre-judged before its implementation by the defensibility of its objectives, viz. the outcomes, and how they can be achieved through the several steps contained in the process. Precisely drawn-specific outcomes provide clarity of purpose in teaching/learning. OBE is out-and-out learner-centric, in the sense that it helps learners conduct concurrent self-assessment for knowing their progress in attaining the postulated outcome. In case of difficulties in reaching the intended level in learning, the scheme empowers the learners to demand learning experiences appropriate for resolution. Teachers in turn ascertain the effectiveness of their teaching and make sure that they legitimately enjoy the right to administer tests for assessing the learners' capability in the attainment of the outcome.

Learning Objectives are framed so that the learners can perform as a result of education. LOs are conceived at the micro level as course outcomes (COs). COs are linked to them.

Programme-specific outcomes (PSOs) constitute the domain-specific outcomes—outcomes in programs under different schools, departments and centers. PSOs incises on the graduates constitute programme outcomes (POs) or graduate attributes (GAs). Since Mahatma Gandhi University follows OBE, declared its academic 10 POs, generally called GAs.

The POs/GAs of the different programmes offered by the Mahatma Gandhi University are framed in accordance with the University's Vision and Mission and UGC guidelines.

## **Vision**

“Mahatma Gandhi University envisions excelling in the field of higher education and catering to the scholastic and developmental needs of the individual, through continuous creation of critical knowledge base for the society’s sustained and inclusive growth.”

## **MISSION**

- To create an environment that would foster higher education in its area of jurisdiction
- To create educated individuals qualified in specialized areas of knowledge
- To plan and implement academic programmes of the highest quality that would foster the holistic development of individuals who will be empowered to act as the conscience of society
- To conduct and support undergraduate, postgraduate and research-level programmes of quality in sciences, the humanities, social sciences, and the professional disciplines
- To foster research and extension activities directed at the reorganization of existing knowledge and the creation of new knowledge for the development of society
- To help in the creation and development of manpower that would provide intellectual leadership to the community
- To provide skilled manpower to the professional, industrial and service sectors in the country so as to meet global demands
- To help promote the cultural heritage of the nation and preserve the biodiversity of the region
- To promote national development by imparting education and culture to the people of the areas coming under the jurisdiction of the University
- To develop itself into an institution with the highest standards of excellence without losing sight of the importance of social equity.

## The steps in Outcome Based Education

1. Statement of POs, PSOs and CO's.
2. Development of Outcome Based Curriculum.
3. Implementing the OBE curriculum with suitable student centric methods and strategies.
4. Continuous outcome evaluation adopting different assessment methods and tools.

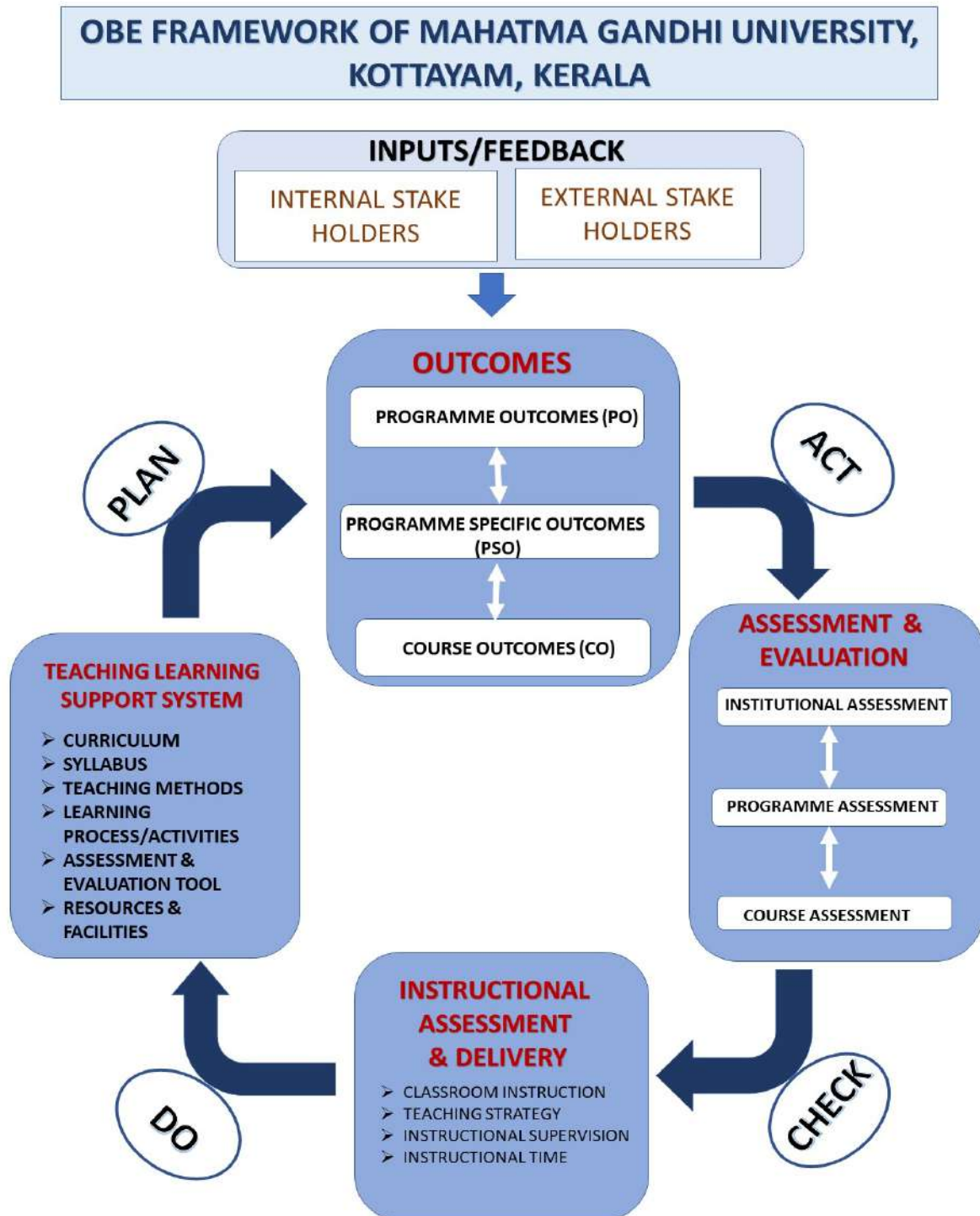
<b>PROGRAMME OUTCOMES (POs)</b>	
<b>No</b>	<b>Outcome</b>
1	PO1: Critical Thinking and Analytical Reasoning: Capability to analyze, evaluate and interpret evidence, arguments, claims, beliefs based on empirical evidence; reflect relevant implications to the reality; formulate logical arguments; critically evaluate practices, policies and theories to develop knowledge and understanding; able to envisage the reflective thought to the implication on the society.
2	PO2: Scientific Reasoning and Problem Solving: Ability to analyze, discuss, interpret and draw conclusions from quantitative/qualitative data and experimental evidence; and critically evaluate ideas, evidence and experiences from an unprejudiced and reasoned perspective; capacity to extrapolate from what one has learned and apply their competencies to solve problems and contextual is into research and apply one's learning to real-life situations
3	PO3: Multidisciplinary/ Interdisciplinary/ Tran disciplinary Approach: Acquire interdisciplinary /multidisciplinary/ trans disciplinary knowledge base as a consequence of the learning they engage with their programme of study; develop a collaborative - multidisciplinary/ interdisciplinary/ trans disciplinary-approach for formulating constructive arguments and rational analysis for achieving common goals and objectives
4	PO4: Communication Skills: Ability to reflect and express thoughts and ideas effectively in verbal and nonverbal way; Communicate with others using appropriate channel; confidently share one's views and express

	herself/himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner and articulate in a specific context of communication.
5	PO5: Leadership Skills: Ability to work effectively and lead respectfully with diverse teams; setting direction, formulating a goal, building a team who can help achieve the goal, motivating and inspiring team members to engage with that goal, and using management skills to guide people to the right destination, in a smooth and efficient way.
6	PO6: Social Consciousness and Responsibility: Ability to contemplate of the impact of research findings on conventional practices, and a clear understanding of responsibility towards societal needs and reaching the targets for attaining inclusive and sustainable development.
7	PO7: Equity, Inclusiveness and Sustainability: Appreciate equity, inclusiveness and sustainability and diversity; acquire ethical and moral reasoning and values of unity, secularism and national integration to enable to act as dignified citizens; able to understand and appreciate diversity, managing diversity and use of an inclusive approach to the extent possible.
8	PO8: Moral and Ethical Reasoning: Ability to embrace moral/ethical values in conducting one's life, formulates a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demonstrating the ability to identify ethical issues related to one's work and living as a dignified person in the society
9	PO9: Networking and Collaboration: Acquire skills to be able to collaborate and network with scholars in an educational institution, professional organizations, research organizations and individuals in India and abroad.
10	PO10: Lifelong Learning: Ability to acquire knowledge and skills, including "learning how to learn", that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/deskilling.



PSO – CO [Click Here](#)

The following figure clearly depicts the OBE framework of Mahatma Gandhi University.



## **ATTAINMENT OF OUTCOMES**

Outcome-based evaluation is a process of gathering evidence on learning based on the number of learning outcomes achieved rather than the sum of marks on different assessment tasks. The process involves defining the most important goals for students to achieve, evaluating how well students are actually achieving those goals, and using the results to improve the academic experience. Outcome-based education is an educational theory that bases each part of an educational system around goals (outcomes). OBE proposes no single teaching or evaluation style. The attainment of Course outcomes (COs) of all the courses of a programme is jointly related to the attainment of the respective Programme outcomes (POs) and Programme Specific Outcomes (PSOs).

The final attainment of POs and PSOs for a programme (UG/PG) determines the effectiveness of that programme. The COs are attained through Tutorials (offline and online), projects, laboratory works, assignments, internships, quiz, visits to important places, industrial training, etc.

## **CO ASSESSMENT TOOLS**

Two internal assessment, end Semester University test, Continuous internal assessment (Assignment/ oral test/Lab practical assessment/Quizzes), course exit survey, external feedback, Activities (Survey, workshop, seminar, case studies, mini/minor projects etc).

Every CO must be correlated with each PO and appropriate mapping may be selected.

## **BLOOMS REVISED TAXONOMY**

There are six levels of cognitive learning according to the revised version of Blooms Taxonomy. Each level is conceptually different. The six levels are remembering, understanding, applying, analyzing, evaluating and creating.

These levels can be helpful in developing learning outcomes because certain verbs are particularly appropriate at each level and not appropriate at other levels (though some verbs are useful at multiple levels). A student might list presidents or proteins or participles to demonstrate that they remember something they learned, but generating a list does not demonstrate (for example) that the student is capable of evaluating the contribution of multiple presidents to American politics or explaining protein folding or distinguishing between active and passive participles.

## **REMEMBER**

Definition: retrieve, recall, or recognize relevant knowledge from long-term memory (e.g., recall dates of important events in U.S. history, remember the components of a bacterial cell). Appropriate learning outcome verbs for this level include: cite, define, describe, identify, label, list, match, name, outline, quote, recall, report, reproduce, retrieve, show, state, tabulate, and tell.

## **UNDERSTAND**

Definition: demonstrate comprehension through one or more forms of explanation (e.g., classify a mental illness, compare ritual practices in two different religions). Appropriate learning outcome verbs for this level include: abstract, arrange, articulate, associate, categorize, clarify, classify, compare, compute, conclude, contrast, defend, diagram, differentiate, discuss, distinguish, estimate, exemplify, explain, extend, extrapolate, generalize, give examples of, illustrate, infer, interpolate, interpret, match, outline, paraphrase, predict, rearrange, reorder, rephrase, represent, restate, summarize, transform, and translate.

## **APPLY**

Definition: use information or a skill in a new situation (e.g., use Newton's second law to solve a problem for which it is appropriate; carry out a multivariate statistical analysis using a data set not previously encountered). Appropriate learning outcome verbs for this level include: apply, calculate, carry out, classify, complete, compute, demonstrate, dramatize, employ, examine, execute, experiment, generalize, illustrate, implement, infer, interpret, manipulate, modify, operate, organize, outline, predict, solve, transfer, translate, and use.

## **ANALYZE**

Definition: break material into its constituent parts and determine how the parts relate to one another and/or to an overall structure or purpose (e.g., analyze the relationship between different flora and fauna in an ecological setting; analyze the relationship between different characters in a play; analyze the relationship between different institutions in a society). Appropriate learning outcome verbs for this level include: analyze, arrange, break down, categorize, classify, compare, connect, contrast, deconstruct, detect, diagram, differentiate,

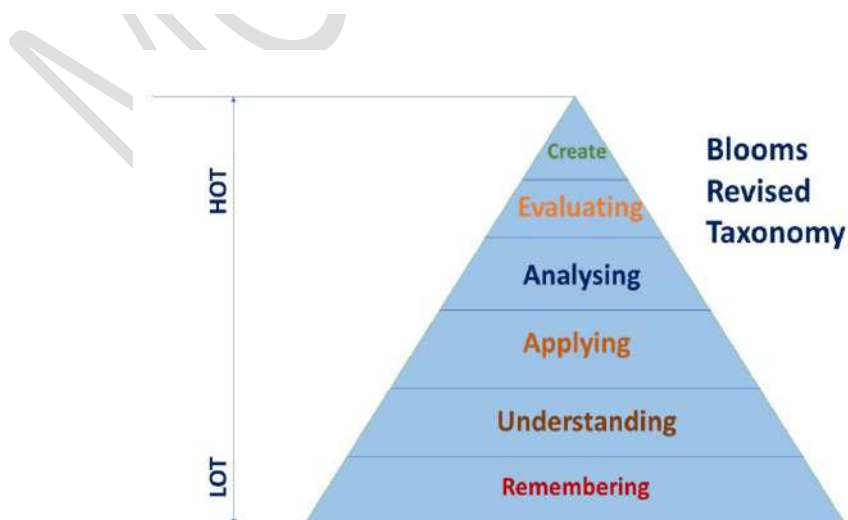
discriminate, distinguish, divide, explain, identify, integrate, inventory, order, organize, relate, separate, and structure.

## EVALUATE

Definition: make judgments based on criteria and standards (e.g., detect inconsistencies or fallacies within a process or product, determine whether a scientist's conclusions follow from observed data, judge which of two methods is the way to solve a given problem, determine the quality of a product based on disciplinary criteria). Appropriate learning outcome verbs for this level include: appraise, apprise, argue, assess, compare, conclude, consider, contrast, convince, criticize, critique, decide, determine, discriminate, evaluate, grade, judge, justify, measure, rank, rate, recommend, review, score, select, standardize, support, test, and validate.

## CREATE

Definitions: put elements together to form a new coherent or functional whole; reorganize elements into a new pattern or structure (design a new set for a theatre production, write a thesis, develop an alternative hypothesis based on criteria, invent a product, compose a piece of music, write a play). Appropriate learning outcome verbs for this level include: arrange, assemble, build, collect, combine, compile, compose, constitute, construct, create, design, develop, devise, formulate, generate, hypothesize, integrate, invent, make, manage, modify, organize, perform, plan, prepare, produce, propose, rearrange, reconstruct, reorganize, revise, rewrite, specify, synthesize, and write. Source: Anderson, Lorin W., and David R. Krathwohl, eds. 2001. *Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Addison Wesley Longman, Inc.



## REVISED BLOOM'S TAXONOMY – QUESTION PREPARATION

**Remembering-** Knowledge Recall or recognize information, and ideas.

The teacher should:

- Present information about the subject to the student
- Ask questions that require the student to recall the information presented
- Provide verbal or written texts about the subject that can be answered by recalling the information the student has learned.

### QUESTION PROMPTS

1. What do you remember about \_\_\_\_\_?
2. How would you define \_\_\_\_\_?
3. How would you identify \_\_\_\_\_?
4. How would you recognize \_\_\_\_\_?
5. What would you choose \_\_\_\_\_?
6. Describe what happens when \_\_\_\_\_?
7. How is (are) \_\_\_\_\_?
8. Where is (are) \_\_\_\_\_?
9. Which one \_\_\_\_\_?
10. Who was \_\_\_\_\_?
11. Why did \_\_\_\_\_?
12. What is (are) \_\_\_\_\_?
13. When did \_\_\_\_\_?
14. How would you outline \_\_\_\_\_?
15. List the \_\_\_\_\_ in order.

### UNDERSTANDING-COMPREHENSION

Understand the main idea of material heard, viewed, or read. Interpret or summarize the ideas in own words.

The teacher should:

- Ask questions that the student can answer in his/her own words by stating facts or by identifying the main idea.
- Give tests based on classroom instruction.

## QUESTION PROMPTS:

1. How would you compare \_\_\_\_\_?
2. Contrast \_\_\_\_\_?
3. How would you clarify the meaning \_\_\_\_\_?
4. How would you differentiate between \_\_\_\_\_?
5. How would you generalize \_\_\_\_\_?
6. How would you express \_\_\_\_\_?
7. What can you infer from \_\_\_\_\_?
8. What did you observe \_\_\_\_\_?
9. How would you identify \_\_\_\_\_?
10. How can you describe \_\_\_\_\_?
11. Will you restate \_\_\_\_\_?
12. Elaborate on \_\_\_\_\_.
13. What would happen if \_\_\_\_\_?
14. What is the main idea of \_\_\_\_\_?
15. What can you say about \_\_\_\_\_?

## Applying-Application

Apply an abstract idea in a concrete situation to solve a problem or relate it to prior experience.

The teacher should:

- Provide opportunities for the student to use ideas, theories, or problem-solving techniques and apply them to new situations.
- Review the student's work to ensure that he/she is using problem solving techniques independently.
- Provide questions that require the student to define and solve problems

### Questioning prompts:

1. What actions would you take to perform \_\_\_\_\_?
2. How would you develop \_\_\_\_\_ to present \_\_\_\_\_?
3. What other way would you choose to \_\_\_\_\_?
4. What would the result be if \_\_\_\_\_?
5. How would you demonstrate \_\_\_\_\_?
6. How would you present \_\_\_\_\_?
7. How would you change \_\_\_\_\_?
8. How would you modify \_\_\_\_\_?
9. How could you develop \_\_\_\_\_?
10. Why does \_\_\_\_\_ work?
11. How would you alter \_\_\_\_\_ to \_\_\_\_\_?
12. What examples can you find that \_\_\_\_\_?
13. How would you solve \_\_\_\_\_?

### Analyzing – Analysis

Break down a concept or idea into parts and show relationships among the parts.

The teacher should:

- Allow time for students to examine concepts and ideas and to break them down into basic parts.
- Require students to explain why they chose a certain problem-solving technique and why the solution worked.

### Questioning prompts:

1. How can you classify \_\_\_\_\_ according to \_\_\_\_\_?
2. How can you compare the different parts \_\_\_\_\_?
3. What explanation do you have for \_\_\_\_\_?
4. How is \_\_\_\_\_ connected to \_\_\_\_\_?
5. Discuss the pros and cons of \_\_\_\_\_.
6. How can you sort the parts \_\_\_\_\_?
7. What is the analysis of \_\_\_\_\_?
8. What can you infer \_\_\_\_\_?

9. What ideas validate \_\_\_\_\_?
10. How would you explain \_\_\_\_\_?
11. What can you point out about \_\_\_\_\_?
12. What is the problem with \_\_\_\_\_?
13. Why do you think \_\_\_\_\_?

## **Evaluating- Evaluation**

Make informed judgments about the value of ideas or materials. Use standards and criteria to support opinions and views.

The teacher should:

- Provide opportunities for students to make judgments based on appropriate criteria.
- Have students demonstrate that they can judge, critique, or interpret processes, materials, methods, etc. using standards and criteria.

## **Questioning prompts:**

1. What criteria would you use to assess \_\_\_\_\_?
2. What data was used to evaluate \_\_\_\_\_?
3. What choice would you have made \_\_\_\_\_?
4. How would you determine the facts \_\_\_\_\_?
5. What is the most important \_\_\_\_\_?
6. What would you suggest \_\_\_\_\_?
7. How would you grade \_\_\_\_\_?
8. What is your opinion of \_\_\_\_\_?
9. How could you verify \_\_\_\_\_?
10. What information would you use to prioritize \_\_\_\_\_?
11. Rate the \_\_\_\_\_.
12. Rank the importance of \_\_\_\_\_.
13. Determine the value of \_\_\_\_\_.



## Creating-Synthesis

Bring together parts of knowledge to form a whole and build relationships for new situations.

The teacher should:

- Provide opportunities for students to assemble parts of knowledge into a whole using creative thinking and problem solving.
- Require students to demonstrate that they can combine concepts to build new ideas for new situations.

## Questioning prompts:

1. What alternative would you suggest for \_\_\_\_\_?
2. What changes would you make to revise \_\_\_\_\_?
3. How would you explain the reason \_\_\_\_\_?
4. How would you generate a plan to \_\_\_\_\_?
5. What could you invent \_\_\_\_\_?
6. What facts can you gather \_\_\_\_\_?
7. Predict the outcome if \_\_\_\_\_.
8. What would happen if \_\_\_\_\_?
9. How would you portray \_\_\_\_\_?
10. Devise a way to \_\_\_\_\_.
11. How would you compile the facts for \_\_\_\_\_?
12. How would you elaborate on the reason \_\_\_\_\_?
13. How would you improve \_\_\_\_\_?

## Key Words based on Blooms Taxonomy

Lower Order of Thinking (LOT)			Higher Order of Thinking (HOT)		
Remember	Understand	Apply	Analyse	Evaluate	Create
Define	Explain	Solve	Analyse	Reframe	Design
Describe	Describe	Apply	Compare	Criticize	Create
List	Interpret	Illustrate	Classify	Judge	Plan

State	Summarise	Calculate	Distinguish	Recommend	Formulate
Match	Compare	Sketch	Explain	Grade	Invent
Tabulate	Discuss	Prepare	Differentiate	Measure	Develop
Record	Estimate	Chart	Appraise	Test	Organize
Label	Express	Choose	Conclude	Evaluate	Produce

## MODEL QUESTION PAPER

### SCHOOL OF MANAGEMENT AND BUSINESS STUDIES

MBA(21-23) Second Semester Examinations November 2022

#### Management Information System

Time: 3 Hrs

Max Marks: 60

#### SECTION A

(Short Answer Type –Answer all questions - 3 marks each)

1. Explain the information's required at various levels of management (CO1, U)
2. Define a system with examples (CO3, R)
3. Explain the objectives of an automated CRM. system (CO2, U)
4. Describe the Characteristics of an expert system (CO4, U)
5. Distinguish between data and time function in excel by listing all available sub functions in each category. (CO5, An)

#### Section B

(Short Essay Questions Answer any FIVE – each carries 5 marks)

6. Discuss the components of an information system. (CO1, U)
7. What is meant by System Development life cycle? Illustrate the various tools used in Cost Benefit Analysis for checking the Economic Feasibility of a system. (CO3,Ap)
8. .What is DSS? Compare the different DSS models. (CO4,An)
9. Compare the following EXCEL functions with its format and examples (a) DDB (b) NPV (c) IRR (d) Data validation features (CO5,An)
10. Discuss the features of Human Resources Information System by explaining how IT helps in automating the functionality. (CO3,U)

11. Judge how Internet becomes a strategic tool for Management decision making process. (CO4,Ev)
12. Illustrate the ethical consideration in managing Management Information System in Organization. (CO3,Ap)

### Section C

(Long Essay Questions Answer any TWO- each carries 10 marks)

13. Describe the components of a typical TPS developed for a Bank to manage the daily operations. Describe an example input form in this system to be used as part of the Data entry module and an example output form to be used in the Reporting Module. (CO5, U)
14. Illustrate the features of  
 (i) Enterprise Resource Planning System  
 (ii) Enterprise wide Information system  
 (ii) Virtual Company (CO4, Ap)
15. **Compulsory Case study based question on Managing Information System in organization.**

Design a Data Flow Diagram to represent the information flow involved in a Sales Information System

(CO2,Cr)

### Internal Assessment Strategy

Assessment Task	Assessment Weightage	Course Outcomes Assessed	Blooms Taxonomy	
			R U Ap (Marks)	An Ev Cr (Marks)
Individual Assignment (10 Marks)	10%	CO3	—	100%
Seminar/Quiz/Case Study/Field Experiment ( 10 Marks)	10%	CO4, CO5	50%	50%
Internal Test 1 (10 Marks)	10%	CO1, CO2	50%	50%
Internal Test 2 (10 Marks)	10%	CO3,CO4,CO5	50%	50%
End Semester (60 Marks)	60%	CO1,CO2,CO3,CO4,CO5	60% to 70%	30% to 40%

## Programme Specific Outcomes (PSOs) of MBA&PSO-PO mapping

<b>PSO number</b>	<b>Intended Programme Specific Outcomes(PSO)</b> <i>Upon completion of MBA programme, the graduates will be able to:</i>	<b>MGUPO No.</b>
PSO1	Describe a business problem and identify its stakeholders	PO2
PSO2	Apply tools/techniques to analyze business problems.	PO2
PSO3	Evaluate and make choices among alternatives that indicate a deep Comprehension of the business problem.	PO2
PSO4	Explain how a given decision or intervention affects each of the key Functional areas of a firm	PO3
PSO5	Apply analytical tools and techniques from more than one functional Area to address a Problem or a case.	PO3
PSO6	Make oral presentations effectively in a professional business context.	PO4
PSO7	Write effectively in business context	PO4
PSO8	Articulate prominent leadership concepts/theories, analyze and critique these concepts/theories.	PO5
PSO9	Practice team leadership through active group participation.	PO5
PSO10	Discuss and apply principles of corporate social responsibility to business issues and operations	PO6
PSO11	Identify and evaluate different strategies for responding to social/ethical/ environmental/sustainability issues.	PO6, PO7,PO8
PSO12	Define key components of countries' business environments and give examples of how environmental components differ across countries	PO9
PSO13	Explain the position/role of Indian business in global environment	PO9

<b>Course Name</b>	<b>Management Information Systems</b>					
Type of Course	Core					
Course Code	MBM21C13					
Course Summary & Justification	This course is to acquaint the students with the role, functions and development of information systems at different levels and functional areas of the organisation.					
Semester	2	Credits			3	
Total Student Learning Time (SLT)	Learning Approach	Lecture	Tutorial	Practical	Others	Total Learning Hours
	Authentic learning	25	10	10	---	45
	Collaborative learning	5	3	2	---	10
	Independent learning	5	-	-	---	5
Pre-requisite	Basic Knowledge in management, processes, models					

## Course Outcomes

### COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome <i>Upon completion of this course, students will be able to;</i>	PSO No.
1	MEMORISE and REPRODUCE all basic formulae covered in the syllabus, basic definitions	1,2
2	EXPRESS different business requirements in automated system, lifecycles, processes, documentations	1
3	ILLUSTRATE relationships, relationship between processes, dataflow	3
4	INTERPRET basic definitions, graphs and diagrams Identify different automation system work with it to answer relevant business questions.	1, 3,4
5	CREATE information system models, dataflow, documents, SDLC models	2,4

## COURSE CONTENT

		Hrs	CO.No.
<b>Unit 1: Foundation of Information Systems</b>		10 Hrs	
1 . 1	<b>Evolution of MIS concept-</b> framework for understanding and designing MIS in an organisation, Concept of information-definition, features, types, Information generation and communication, Quality and value of Information ,information overload		1,3
1 . 2	<b>System-</b> Concept and definition, Different types and characteristics of system, Control in system <b>Feedback-</b> Positive and negative feedback system, negative feedback control system, control flow-input, process, output Law of requisite variety		1,3
<b>Teaching and Learning Approach</b>	<b>Classroom Procedure (Mode of transaction)</b> Direct Instruction: Brainstorming lecture, Explicit Teaching, E-learning, interactive Instruction: Active co-operative learning, Seminar, Group Assignments Authentic learning, Library work and Group discussion, Presentation by individual student/Group representative		
<b>Assessment Types</b>	<b>Mode of Assessment</b> <ul style="list-style-type: none"> <li>• Continuous Assessment (CA)               <ul style="list-style-type: none"> <li>a. Tests – One MCQ based and on extended answer type</li> <li>b. Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar</li> <li>c. Open Book Surprise Test</li> </ul> </li> <li>• End Semester Examination</li> </ul>		

## Attainment of Course Outcomes

- **Computation of Average Percentage of Course Outcome based on Continuous Internal Assessment (CIA)**

$$y = \left( \frac{(x_1 + x_2 + x_3 + \dots + x_n)}{(z_1 + z_2 + z_3 + \dots + z_n)} \right) 100$$

Where

y- CO of individual student for internal assessment

x<sub>1</sub>- marks obtained for Q1

x<sub>2</sub>- marks obtained for Q2

x<sub>3</sub>-marks obtained for Q3

x<sub>n</sub>- marks obtained for Q<sub>n</sub>

Z<sub>1</sub>-maximum mark for Q1

Z<sub>2</sub>-maximum mark for Q2

Z<sub>3</sub>- maximum mark for Q3

Z<sub>n</sub>-Maximum mark for Q<sub>n</sub>

- **CO Computation from External Examination or II Average Percentage of Course Outcome based on Semester End Exam (SEE)**

$$c = \left( \frac{(a_1 + a_2 + a_3 + \dots + a_n)}{(b_1 + b_2 + b_3 + \dots + b_n)} \right) 100$$

Where

c- CO of individual student for external assessment

a<sub>1</sub>- marks obtained for Q1

a<sub>2</sub>- marks obtained for Q2

a<sub>3</sub>-marks obtained for Q3

a<sub>n</sub>- marks obtained for Q<sub>n</sub>

b<sub>1</sub>- maximum mark for Q<sub>1</sub>

b<sub>2</sub>- maximum mark for Q<sub>2</sub>

b<sub>3</sub>- maximum mark for Q<sub>3</sub>

b<sub>n</sub>- Maximum mark for Q<sub>n</sub>

- **Setting CO attainment target (fixing the CO attainment target) (in class average percentage)**

Course Outcome	Target
CO1	55
CO2	50
CO3	60
CO4	55
CO5	55

- **Computation of CO in direct attainment**

$$p = W_{of\ 40\%} * q + W_{of\ 60\%} * r$$

p - Attainment of CO (Direct)

w of 40% - Weight of internal (40%)

q - Attainment of CO as percentage in Internal

w of 60% - weight of External (60%)

r - class average marks percentage in External

For Example:

Course Outcome	Internal	External	Direct CO Attainment
CO1	85.5799373	54.96	67.20611285
CO2	53.92720307	45.75	49.02030651
CO3	68.4729064	52.59	58.9408867
CO4	52.87356322	51.27	51.91404298
CO5	71.0031348	45.59	55.75757576



- **Computation of CO Indirect Attainment through Course Exit Survey**

**(Indirect Attainment (in overall % of response) is through course exit survey conducted at the completion of course)**

For Example:

Course Outcome	Indirect Attainment
CO1	75
CO2	70
CO3	60
CO4	80
CO5	70

- **Overall CO Attainment and Attainment Gap (90% through Direct and 10% through Indirect)**

$$O = 0.9 * M + 0.1 * N$$

Where,

O - Computation of Attainment of COs

M - Direct CO Attainment

N - Indirect CO Attainment (Course exit Survey)

Gap is the difference between Target and Overall Co Attainment

Course Outcome	Internal	External	Direct CO Attainment	InDirect CO Attainment (Course Exit Survey)	Overall CO Attainment	Target	Attainment Gap
CO1	85.5799373	54.9569	67.20611285	75	67.98550157	55	-12.98550157
CO2	53.92720307	45.74904	49.02030651	70	51.11827586	50	1.118275862
CO3	68.4729064	52.58621	58.9408867	60	59.04679803	60	0.95320197
CO4	52.87356322	51.27436	51.91404298	80	54.72263868	55	0.277361319
CO5	71.0031348	45.59387	55.75757576	70	57.18181818	55	2.181818182

Note: When there are no attainment gaps or attainment gaps are negative it is expected that the instructor will enhance the CO target next time, he offers the course.

## • Closing of the Quality Loop - Action Taken step

- Close the quality loop for each CO
- Attainment < Target then Plan improvement actions
- Attainment  $\geq$  Target then Revise the target

Example:

Course Outcome	Internal	External	Direct CO Attainment	Indirect CO Attainment (Course Exit Survey)	Overall CO Attainment	Target	Attainment Gap	Plan for improvement	Enhancement of Target
CO1	85.57	54.96	67.21	75	67.99	55	-12.99		To 65%
CO2	53.93	45.75	49.02	70	51.12	50	-1.118		To 55%
CO3	68.47	52.59	58.94	60	59.05	60	0.95	more Visual Content to be added	
CO4	52.87	51.27	51.91	80	54.72	55	0.28	More Case study to be added	

## • CO to PSO Mapping Strength and contribution to PSO for the entire course

Strength of CO-PO/PSO Mapping Sample

- Relate the level of PO/PSO with the number of hours devoted to the COs which address the given PO.
- If >40% of classroom sessions addressing a particular PO/PSO, it is considered that PO is addressed at Level 3
- If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2
- If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1
- If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed

*This is done by HOD/IQAC Co-ordinator of School/department*

## • Contribution to PSO for all Courses in each Semester

$$Y_n = X_{n1} + X_{n2} + \dots + X_{nn}$$

Where  $Y_n$  – attainment of PSO

$X_{n1}$  – Attainment of CO1

$X_{n2}$  – Attainment of CO2

$X_{nn}$  – Attainment of Con

Course Code	PSO1	PSO2	PSO3	PSO4	PSO5	...
MBA01-MIS	0.592561338	0.642291014	0.575266	0.561981464	0	0
MBA02-MS	0	0	0	0	0	0
MBA03-FMS	0	0	0	0	0	0
.....	0	0	0	0	0	0
MBA07-Marketing	0	0	0	0	0	0
Average Contribution						

- Setting target for each PSO

Programme Specific Outcome	Target
PSO1	65
PSO2	55
PSO3	60
PSO4	65
PSO5	55

- Total attainment PSO for each Semester

$$Y_n = Y_{n1} + Y_{n2} + \dots + Y_{nn}$$

$Y_n$  - Attainment of Total PSO for Semester n

$Y_{n1}$  – Attainment of PSO1

$Y_{n2}$ - Attainment of PSO2

$Y_{nn}$ - Attainment of PSO<sub>n</sub>

- Compute overall attainment of PSO's for all semesters

$$Y_i = Y_1 + Y_2 + Y_3 + Y_4 + \dots + Y_n$$

**Y<sub>i</sub>**= Overall attainment of PSO's

**Y<sub>1</sub>**= Attainment of total PSO for Semester I

**Y<sub>2</sub>**= Attainment of Total PSO for Semester II

**Y<sub>3</sub>**= Attainment of Total PSO for Semester III

**Y<sub>4</sub>**= Attainment of Total PSO for Semester IV

**Y<sub>n</sub>**= Attainment of Total PSO for Semester n

- **Compute PSO attainment gap and action taken**

Gap is the difference between Target and Overall PSO Attainment

- Close the quality loop for each PSO
- Attainment < Target then Plan improvement actions
- Attainment >= Target then Revise the target
- Example for Improvement Action Plan:
  - Add an extra communications lab in the third semester as a value-added core course
  - Introduce a seminar starting from third semester
  - Add in the 4th Semester, a 5-day workshop on communication skill

- **PSO to PO mapping strength matrix and contribution to PO for a particular programme**

$$X_i = \sum_{i=1}^n Y_i$$

**X<sub>i</sub>**- PO of ith Programme

**Y<sub>i</sub>**- PSO's of ith programme

To be executed by IQAC

- **Setting target for each PO**

Programme Outcome	Target
<b>PO1</b>	<b>65</b>
<b>PO2</b>	<b>65</b>
<b>PO3</b>	<b>60</b>
<b>PO4</b>	<b>60</b>
<b>PO5</b>	<b>55</b>
<b>PO6</b>	<b>60</b>
<b>PO7</b>	<b>60</b>
<b>PO8</b>	<b>60</b>
<b>PO9</b>	<b>60</b>
<b>PO10</b>	<b>60</b>

- **Overall Attainment of PO for all Programmes for the entire Institution**

$$O_i = 0.9 * M_i + 0.1 * N_i$$

Where,

O<sub>i</sub> - Computation of Attainment of POs

M - Direct PO Attainment

N - Indirect PO Attainment (Programme Exit Survey)

Gap is the difference between Target and Overall Co Attainment

- **Compute PO attainment gap and action taken for the Entire University**

Contribution of CO in PO attainment and Continuous Improvement

<b>All CO-PO attained</b>	<b>PO attainment gap</b>	<b>Action to be taken</b>
<b>Highly</b>	<b>2.5</b>	Set new higher targets or attainment levels for next Academic Year and activities with HOT
<b>Moderately</b>	<b>5</b>	Record observations, Continue action plan of last A.Y. with plan for improvements
<b>lowly</b>	<b>7.5</b>	Record observations, assess the target set, revise/improve action plan of last A.Y. to achieve the attainment with plan for improvements
<b>Poor performance (not attained)</b>	<b>&gt;7.5</b>	Record observations, Critical assessment of target with Program Assessment Committee (PAC), Revise action plan of last A.Y. at faculty/department level. Identify concerned courses, plan for immediate improvements, guide, support and monitor its execution

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