



**JAGANNATH**  
UNIVERSITY

# **GUIDELINES FOR OUTCOME BASED EDUCATION SYSTEM**

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*Guidelines for Outcome Based Education System*



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# GUIDELINES FOR OUTCOMES BASED EDUCATION SYSTEM

## 1. Introduction

Outcome-based education (OBE) is a model of education that rejects the traditional focus on what the school provides to students, in favour of making students demonstrate that they "know and are able to do" whatever the required outcomes are.

Outcome based education (OBE) is student-centered instruction model that focuses on measuring student performance through outcomes. Outcomes include knowledge, skills and attitudes. Its focus remains on evaluation of outcomes of the program by stating the knowledge, skill and behavior a graduate is expected to attain upon completion of a program and after 4 – 5 years of graduation. In the OBE model, the required knowledge and skill sets for a particular engineering degree is predetermined and the students are evaluated for all the required parameters (Outcomes) during the course of the program.

The key features for implementation of Outcome based education system are --

- Development of curriculum framework that outlines specific and measurable outcomes.
- Instructional Methodology to ensure delivery for specified outcomes.
- Standards-based assessments that determines whether students have achieved the stated standard.

## 2. Title and Application

These Guidelines may be called Outcome Based Education Guidelines

These Guidelines shall apply to all students, faculty members and administrators.

## 3. Objective

The objective of these Guidelines is to ensure fair and reliable measure of students' performance, knowledge and skills against the learning outcomes and discipline pedagogy by evaluating the effectiveness of the teaching process and facilitating continuing improvement and promoting subsequent learning through feedback which shall be clear, informative, timely and relevant.

## 4. Definitions

Outcome-Based Education (OBE) is a student-centric teaching and learning methodology in which the course delivery and assessment is planned to achieve stated objectives and outcomes. It focuses on measuring student performance i.e. outcomes at different levels. Some important aspects of the Outcome Based Education

1. Course is defined as a theory, practical or theory cum practical subject studied in a semester. For e.g. Computer Applications Management

2. Course Outcome (CO) Course outcomes are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course. Outcomes may be specified for each course based on its weightage.

3. Program is defined as the specialization or discipline of a Degree. It is the interconnected arrangement of courses, co-curricular and extracurricular activities to accomplish predetermined objectives leading to the awarding of a degree. For e.g.: B.Tech., MBA etc.

4. Program Outcomes (POs) Program outcomes are narrower statements that describe what

students are expected to be able to do by the time of graduation. POs are expected to be aligned closely with Graduate Attributes.

5. **Program Educational Objectives (PEOs)** of a program are the statements that describe the expected achievements of graduates in their career, and also in particular, what the graduates are expected to perform and achieve during the first few years after graduation.

6. **Program Specific Outcomes (PSO)** are what the students should be able to do at the time of graduation with reference to a specific discipline. Usually there are two to four PSOs for a Program.

7. **Graduate Attributes (GA):** The graduate attributes, are exemplars of the attributes expected of a graduate from a Program.

**5. Knowledge Levels as per Blooms Taxonomy -**

LEVELS	PARAMETERS	DESCRIPTION
L1	Knowledge	It is the ability to remember the previously learned material/information
L2	Comprehension	It is the ability to grasp the meaning of material.
L3	Application	It is the ability to use learned material in new and concrete situations
L4	Analysis	It is the ability to break down material concept into its component parts/ subsections so that its organizational structure may be understood
L5	Synthesis	It is the ability to put parts/subsections together to form a new whole material/idea/concept/information
L6	Evaluation	It is the ability to judge the value of material/concept/statement/creative material /research report) for a given purpose

**6. Assessment Methods:**

Assessment is a core academic activity and an essential component of the learning process. Assessment of Program indicates the quality and extent of student achievement or performance, and therefore by inference a judgment about the student's learning. It inevitably shapes the learning that takes place; that is, what students learn and how they learn it should reflect closely the purposes and objectives of the Program

Program assessment is an ongoing process to support educational quality and student achievement. It is the main mechanism to monitor the effectiveness of the learning environment based on evidences that determine whether students have met the learning outcomes and Program objectives.

The University seeks to ensure that assessment occurs consistently and systematically so that the results contribute to University-wide planning that supports quality education. Assessment practices within the University are based on the general principles of validity and reliability, manageability and fairness. It is expected that staff use these principles while planning, implementing and reviewing assessment tasks and processes.



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Jagannath University, for award of its degree and for purpose of evaluating outcome attainment ensures that defined COs, POs and PSOs are attained, question papers/ assignments are specifically planned in accordance with CO. Direct and Indirect Methods are used for the assessment of the attainment of CO, PO.

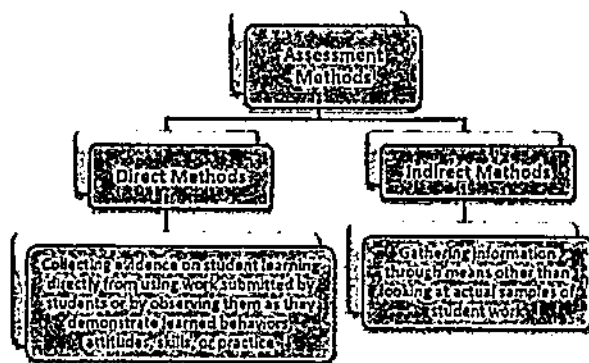
6.1 Direct method of assessment includes three domains of student learning i.e. cognitive domain, affective domain and psychomotor domain.

Assessment is done through two ways - external and internal

- External – Theory exam, lab/practical exams and project evaluation
- Internal – Mid-term, class assignments, tutorials, seminars/class project

6.2 Indirect method of assessment conducted by collecting and analysis of feedback from the stakeholders, alumni, employers to reflect on student's learning. The students also give feedback on each course and programme after each semester.

Innovative methods or modifications in the existing assessment methods may be done upon the recommendations of UGC and BoS based on the periodical review of the assessment methods.



### Assessment of Learning Outcomes and analysis of Assessment Findings

- Teacher will assess each student's performance in each course and provide feedback to the student.
- Student will reflect on program experiences and provide feedback
- Program faculty will evaluate the curriculum and the students' collective performance with respect to stated learning outcomes and report their evaluation to the department.
- Internal and external reviewers provide feedback regarding the overall quality of the program and the experiences that relate most directly to student achievement of stated learning outcomes

### 7. Procedure to Develop Outcome Based Syllabus

The syllabi of all Programs shall include Program Outcomes (POs), Program Specific Outcomes (PSOs), course objectives, content, course outcomes, text books and references, lecture outlines, etc.

The Program Outcomes (POs), Program Specific Outcomes (POs) and Course Outcomes (COs) of all Programs and courses are to be prepared in alignment with University vision, mission and the learning requirements of the students.



The Course outcomes shall further be mapped with the Program outcomes and aligned with the Bloom's taxonomy learning levels. Similarly, Course outcomes shall further be mapped with the Course Delivery methods. Dean/HoDs will finalize course outcomes for each course after the series of discussions with all the teachers of the department.

The list of assessment methods along with the mapping of outcomes and assessment tools shall be put up for consideration in the Board of Studies (BoS) and further put up for the approval of Academic Council (AC).

The syllabus will be circulated to the respective members of faculty.

## **8. Process to Develop CO & PO and Attainment**

### **8.1 Define Program Educational Objectives (PEO)**

The Programme Educational Objectives of a program will be framed describing the expected achievements of graduates in their career, and also in particular, what the graduates are expected to perform and achieve during the first few years (3-5) after graduation. It should be prepared in consultation with all stakeholders.

### **8.2 Identify Graduate Attributes (GA)**

Graduate Attributes is a set of individually assessable outcomes that are indicative of the graduate's / post graduate's potential to acquire competencies in a specific programme.

### **8.3 Develop Program Outcomes/Program Specific Outcomes**

Program outcomes are narrower statements that describe what students are expected to be able to do by the time of graduation. POs are expected to be aligned closely with Graduate Attributes.

### **8.4 Develop Course Outcomes**

The course outcomes are the statement that describes the knowledge & abilities developed in the students by the end of course (subject) teaching. The focus will be on development of abilities rather than content only. There can be 5 to 7 course outcomes of a course except for practical courses. These are to be written in specific terms and not in general.

### **8.5 Set Target levels for Attainment of Course Outcomes**

The course outcome attainment will be assessed in order to track the graduate performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduate ability through appropriate learning & teaching strategies.

- In order to assess student performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome attainment shall be measured /calculated.
- In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping will be done.

### **8.6 Set Target level for Attainment of Program Outcomes/Program Specific Outcome**

The program outcome attainment is assessed in order to track the graduates' performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies. In order to assess students' performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome attainment and program outcome attainment is measured/ calculated. The program outcome attainment will be governed by curricular, co-curricular and extra-curricular activities.



In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping is done. The set target level is the set benchmark to ensure the continuous improvements in the graduate's performance.

### 8.7. Attainment of CO

- a. The CO attainment will be based on end term examination assessment and internal assessment;
- b. A common format will be used for finding the average attainment of COs.
- c. The following are the three target levels: Low, Moderate and High attainment for direct and indirect methods
- d. Course Attainment Target Levels:
  - i. Level-1: 40% students scored more than class average
  - ii. Level-2: 50% students score more than class average;
  - iii. Level-3: 60% students score more than class average.
- e. Target level for attainment of COs will be set based on average marks of that course in the previous academic year.
- f. Attainment Level Calculation for each CO = 70% of direct level + 30% of indirect level of that CO
- g. The CO attainment will be measured and the results obtained. Based on the results of attainment, the corrective measures/remedial action will be taken.

### 8.8 Attainment of PO/PSO

- a. Program outcomes will be attained through direct and indirect methods.
- Direct Attainment: All the courses which are mapped to a particular PO will be considered. Then the direct attainment value will be calculated based on the following formula:

Direct PO Attainment=

$$\frac{\text{Sum of the average attainment level of the course outcomes mapped to a PO}}{\text{Total number of courses}}$$

- Indirect Attainment: In this method, the feedback of students, parents, alumni and parents on the framed questionnaires will be considered
- d. The target level set, indicates the current target. The PO attainment is measured and the results are obtained. Based on the results of attainment, the corrective measures/remedial action are taken.
- e. PO Attainment = 70% (Attainment level in end term examination) + 30% (Attainment level in internal examination).
- f. The PO attainment is based on the average attainment level of corresponding courses through Direct Method and Indirect method.

