Implementation of Outcome-Based Education (OBE)

GITA Autonomous College, Bhubaneswar has successfully adopted and institutionalized the Outcome-Based Education (OBE) framework in alignment with the guidelines of the National Board of Accreditation (NBA), University Grants Commission (UGC), AICTE, and the National Education Policy (NEP 2020). The OBE model focuses on achieving clearly defined learning outcomes, ensuring that every graduate acquires the knowledge, skills, values, and professional competencies required by industry and society. The implementation of OBE at our institution is a well-structured, continuously monitored, and data-driven process that integrates curriculum design, teaching - learning strategies, assessment methodologies, and continuous quality improvement.

Vision and Mission Alignment

The institutional Vision and Mission are aligned with national priorities, industry requirements, and societal needs. Each academic program has a clearly defined **Program Educational Objectives (PEOs)** that reflect the long-term career and professional achievements of graduates.

The PEOs are framed through:

- Stakeholder consultation (industry experts, alumni, employers, parents, and faculty)
- Needs of regional and national development
- Global technological trends
- Institutional goals and values

Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Each engineering program has well-defined:

- **Program Outcomes (POs)** aligned with NBA Graduate Attributes
- **Program Specific Outcomes (PSOs)** reflecting discipline-specific competencies

These outcomes describe the technical, professional, ethical, and lifelong learning abilities expected from graduates.

Teaching - Learning Process

The teaching - learning process is designed to achieve the defined learning outcomes using student-centric pedagogy:

- ICT-enabled smart classrooms
- Blended learning through LMS and MOOCs
- Experiential learning via labs, projects, internships, and industry visits
- Project-based learning and problem-based learning
- Hackathons, innovation challenges, and research-based projects
- Guest lectures by industry experts and academicians

Design of Curriculum and Syllabus

- Define Institution/Department Vision and Mission.

- Formulate Program Educational Objectives (PEOs), Program Outcomes (POs) & Program Specific Outcomes (PSOs).

- Define Course Outcomes (COs) for Each Course, ensuring alignment with POs & PSOs.

- Collect input from Benchmarking premier institutions, industries and regulatory bodies to ensure the curriculum meets global standards and industry needs.

- Collect and Analyze Feedback from Stakeholders.

- Conduct Program Coordination Committee Meeting and prepare draft curriculum.

- Review and Approve Curriculum in the Board of Studies (BOS).

- Academic Council and Governing Body Approval.

- Curriculum and Syllabi are finalized and disseminated for Implementation.
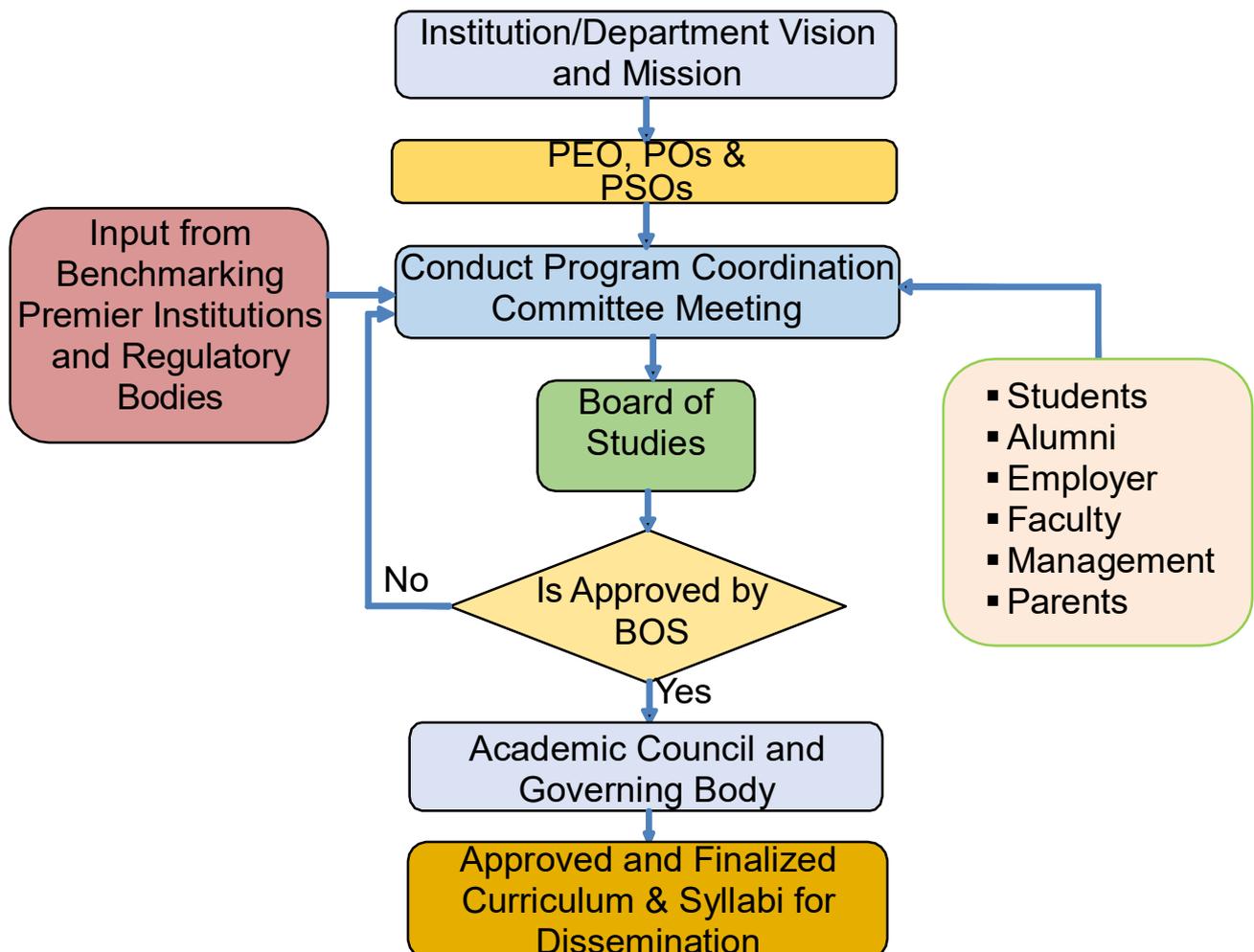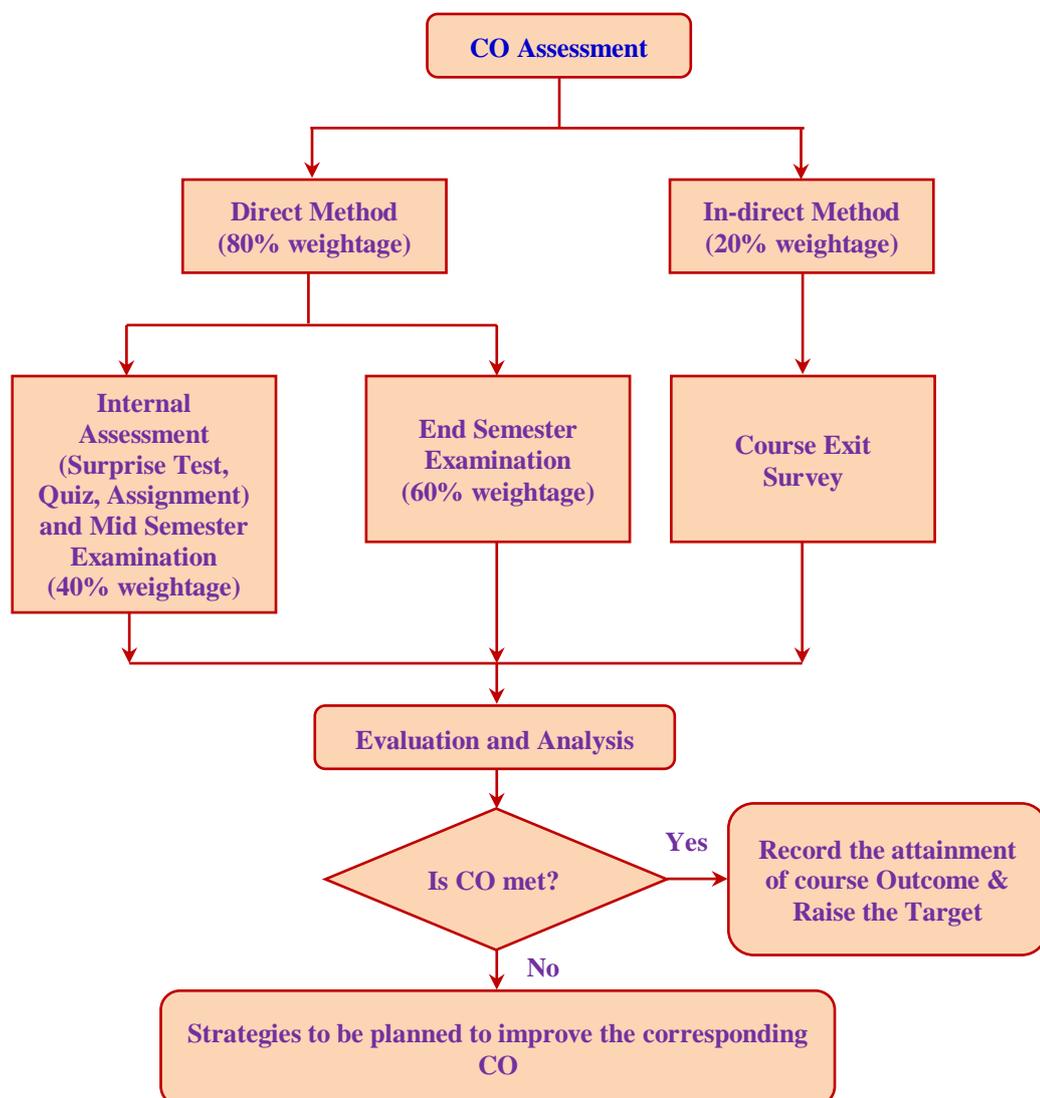
Attainment of COs (Direct and Indirect Assessment Models)

Student learning outcomes are assessed through Attainment of Course Outcomes and Program outcomes.

Assessment of attainment of Course Outcome (CO):

Course Outcome is based on both direct and indirect assessments where the weightages are 80% and 20% respectively. The assessment process for CO attainment is shown in Fig.1. The indirect CO assessment is based on feedback collected from the students for each Course at the end of every semester.

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                        ┌──────────────────┐
                        │  CO Assessment   │
                        └──────────────────┘
                    ┌────────────┴─────────────┐
          ┌──────────────────┐       ┌──────────────────┐
          │  Direct Method   │       │  In-direct Method│
          │ (80% weightage)  │       │ (20% weightage)  │
          └──────────────────┘       └──────────────────┘
         ┌─────────┴──────────┐                │
┌──────────────────┐  ┌──────────────┐  ┌──────────────┐
│    Internal      │  │ End Semester │  │ Course Exit  │
│   Assessment     │  │ Examination  │  │   Survey     │
│ (Surprise Test,  │  │(60% weightage)│  │              │
│ Quiz, Assignment)│  └──────────────┘  └──────────────┘
│ and Mid Semester │
│   Examination    │
│ (40% weightage)  │
└──────────────────┘

              ┌──────────────────────────┐
              │  Evaluation and Analysis │
              └──────────────────────────┘

                   ╱ Is CO met? ╲ ──Yes──► ┌──────────────────────┐
                   ╲            ╱            │ Record the attainment│
                        │                    │ of course Outcome &  │
                        No                   │   Raise the Target   │
                        │                    └──────────────────────┘
     ┌─────────────────────────────────────────────┐
     │ Strategies to be planned to improve the      │
     │         corresponding CO                     │
     └─────────────────────────────────────────────┘
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Attainment of POs (Direct and Indirect Assessment Models)

Direct method

Continuous Assessment: It is based on the theory and sessional work and consists of internal assessments, quality assessments, term paper presentation, seminars, subject-related projects, etc. Continuous assessment marks will be awarded based on the continuous assessment made during the semester as per the guidelines issued from time to time by the common curriculum development cell.

End Semester: The Institute conducts End Semester examinations in all subjects during the last fortnight of each semester in December (Odd Semester) and May (Even Semester) every year.

Indirect Method

The HoD conducts class committee meetings twice a semester with the representatives of each class. Feedback is collected from students regarding the teaching, and the orientation towards the attainment of COs. Deficiencies/ Deviations indicated by the students are communicated to the faculty for necessary corrective actions. At the end of the semester, a Course exit survey is conducted to assess the satisfaction level of the students towards the attainment of course outcomes.

Indirect assessment is carried out by conducting surveys among Graduates, Employers, Parents and Alumni.

Program exit survey

Program exit survey is conducted and the feedback is collected from the graduates at the time of completion of the Program.

Alumni survey

The feedback from the Alumni is collected through a set of questionnaires.

Employer survey

Employers provide their feedback on the skills, knowledge, and values of the employees (graduates) through a survey.

Parent's Feedback

The feedback from the Parents is collected during Parent's meet and also through the mentor-parent discussion.

The results of the direct assessment and indirect assessment are combined and the final level of attainment of course outcome is obtained for each subject. Based on the attainment of the Course Outcomes, the accreditation committee suggests suitable modifications to be

incorporated in the level of question paper setting, valuation of answer sheets and direct assessment methods.

Assessment of attainment of Program Outcome (PO)

The assessment of attainment of POs is effectively carried out and PO attainment process is shown in Fig. 2. This process is carried out at the end of each semester. The final attainment of POs and for a particular batch of students is done at the end of 4 years. It includes two components, i) direct attainment and ii) indirect attainment. The direct attainment is obtained from the attainment of COs of each course, while indirect attainment is obtained from the survey reports which consists of the following four components: i) Exit survey from graduates during the time of graduation, ii) Alumni feedback, iii) Employers' feedback, and iv) Parents' feedback.

Based on the assessment to enhance the attainment of POs, the Course Outcomes are revisited, brainstormed and rephrased focusing on the improvement for the subsequent batches. The revisions are documented and presented in the Curriculum Development Cell, Board of studies and Academic Council meetings.
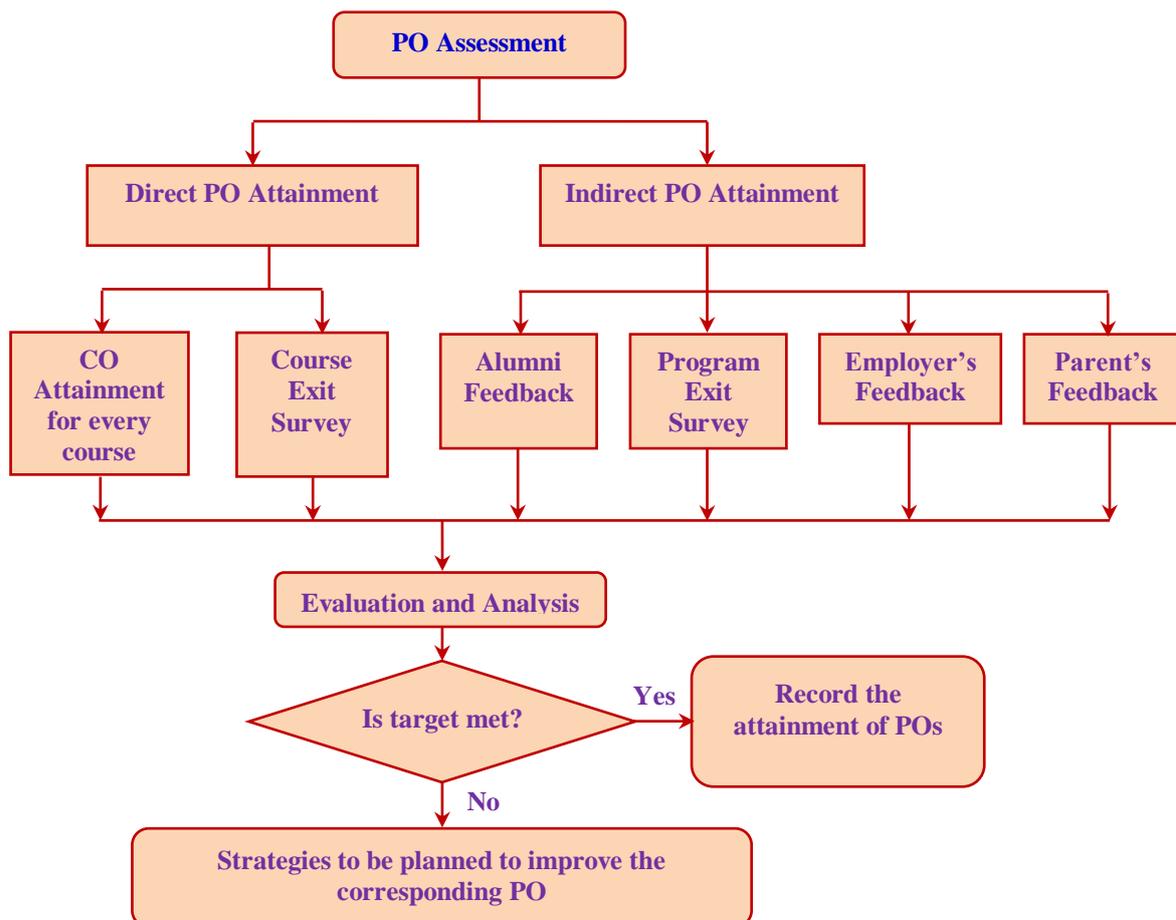
Continuous Quality Improvement (CQI)

Continuous improvement is a core pillar of OBE implementation.

- Attainment gaps are reviewed in Department Advisory Committee (DAC) and IQAC meetings
- Root cause analysis is performed
- Corrective actions are implemented such as:
    - Curriculum enrichment
    - Faculty development programs
    - Additional laboratory resources
    - Industry training and certification
    - Academic support programs

The effectiveness of actions is reviewed in subsequent cycles.

Faculty Empowerment and Capacity Building

Faculty members are continuously trained in OBE methodology through:

- AICTE ATAL Faculty Development Programs
- NBA and NAAC orientation programs
- Curriculum design workshops
- Assessment and evaluation training
- Digital pedagogy and LMS training

Every faculty member actively contributes to curriculum development, assessment planning, and CQI implementation.

Industry and Stakeholder Engagement

Industry partners actively participate in the OBE framework through:

- Curriculum co-design
- Guest lectures and expert sessions
- Internship and live project supervision
- Feedback on graduate performance
- Placement and skill development programs

Alumni and employers provide valuable input for program improvement.

Digital OBE Framework

The institution has deployed a digital OBE management system that includes:

- CO–PO–PSO mapping modules
- Assessment analytics
- Attainment dashboards
- Feedback systems

- Academic performance tracking

This ensures transparency, data integrity, and continuous monitoring.

Impact of OBE Implementation

- Enhanced academic quality and learning effectiveness
- Improved graduate employability
- Strong industry alignment
- Research and innovation culture
- NBA and NAAC accreditation readiness
- Global recognition of academic standards