Gokhale Education Society's
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Permanently Affiliated to Savitribai Phule Pune University (ID No.: PU/NS/AS/001(1924)
NAAC Re-Accredited: 'A' Grade, ISO 9001:2015 Certified College, Best College award by SPPU 2019-20

Internal Quality Assurance Cell (IQAC)

Mapping of COs & POs for Measuring Attainment Direct and Indirect Methods

POLICY

Introduction:

Course Objective Mapping is a process of aligning course learning objectives with specific learning outcomes, assessments, and instructional strategies to ensure that students achieve the desired knowledge, skills, and competencies. H.P.T. Arts & R.Y.K. Science College, Nashik has been measuring the effectiveness of teaching-learning process through various informal ways and formal ways. As an ISO certified institution, the College has designed internal system to map attainment of Cos and Pos through feedbacks, results and informal interactions with students. However, the College has formulated a more focused and objective methods of mapping the attainment in the past three years. IQAC has taken the initiative to formulate a definite system to monitor mapping of course objectives and its relation with students' performance. The efforts have been made to make this exercise more objective and impersonal so as to offer the real analysis.

IQAC of the College has designed the policy of mapping the attainment at UG and PG levels by using direct methods whereby overall marks secured by the students in internal evaluation and external examination (conducted by the University) are analysed by using the common statistical formula and conclusions are drawn. At the second level, a details analysis of the marks secured by a student in every question of internal evaluation is made by using the 3-Scale formula. Along with these direct methods, various activities including practicals, presentations, participation in cultural/social activities, scrapbooks, projects, film making, field visits, debate, competitions, poster making, skit presentation, street plays, anchoring, singing, event management are used to map various skills developed among students over a period of time. One small will suffice this point. Political Science Department in the College teaches formation and functioning of parliament or legislative assemblies as a part of prescription in the classroom. However, it has been organising 'Mock Parliament' event to provide direct experience of parliament functioning, where students draft bills, discuss it, debate over it and undergo the entire experience of passing a bill and getting it converted into law.

HPT Arts & RYK Science College, Nashik is committed to providing high-quality education and ensuring that its students achieve the desired learning outcomes. This policy outlines the framework for mapping COs and POs to ensure that the college's academic programs are aligned with the desired learning outcomes.

Scope:

This policy applies to all undergraduate and postgraduate academic programs offered by HPT Arts & RYK Science College, Nashik, in Arts and Science streams.

Key words:

1. **Course Outcomes (COs):** Specific learning outcomes that students are expected to achieve at the end of a course.
2. **Program Outcomes (POs):** Broad learning outcomes that students are expected to achieve at the end of a program.

Policy Statement:

The college shall establish a systematic process for mapping COs and POs to ensure that the academic programs are aligned with the desired learning outcomes. The process shall involve the following steps:

1. **Awareness of COs and POs:** The college shall create awareness about COs and POs for each course and program, respectively, among faculty members and students. For this purpose, staff meeting, HOD meetings, orientation programmes and other informal platforms will be used. Staff members will be asked to make students aware about Cos and POs at the beginning of every semester.
2. **Mapping of COs to POs:** The IQAC shall establish a clear mapping of COs to POs to ensure that the course-level learning outcomes are aligned with the program-level learning outcomes. This mapping shall be done by the faculty members and shall be reviewed and approved by the Heads and institutional authorities.
3. **Assessment and Evaluation:** The IQAC shall establish a robust assessment and evaluation system to measure student learning outcomes in terms of COs and POs. The assessment and evaluation system shall include a combination of including direct and indirect methods, focusing on marks obtained in various examination as well as participation in various activities.

4. **Review and Revision:** The college shall review and revise the mapping of COs and POs regularly to ensure that teaching-learning process is aligned with the changing needs of the students, industry, and society.

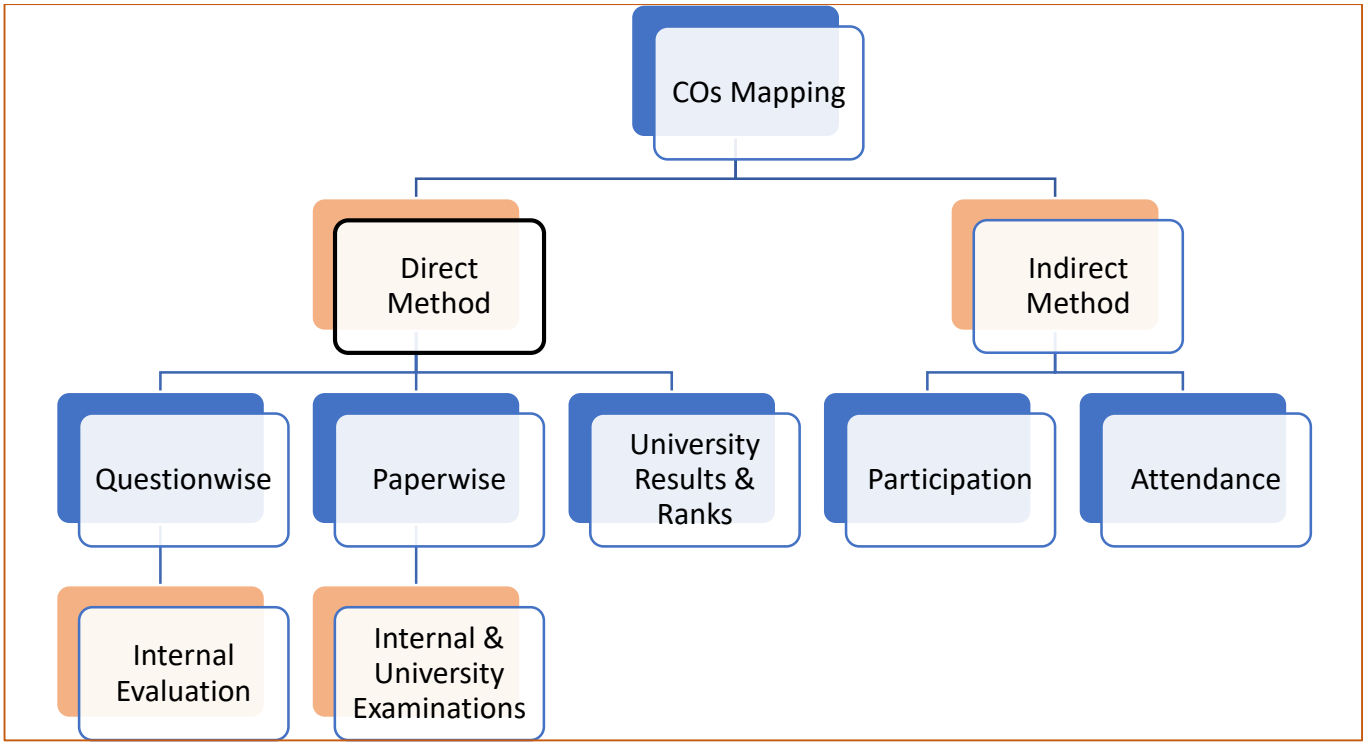
Responsibilities:

1. **Faculty Members:** Faculty members shall be responsible for creating awareness COs and POs, mapping COs to POs, and assessing student learning outcomes.
2. **Departmental Authorities:** Heads of Departments shall be responsible for monitoring and approving the COs and POs, and ensuring that the mapping of COs to POs is accurate and relevant.
3. **Institutional Authorities:** IQAC Coordinator will be chiefly responsible for formulating the system and develop guidelines to map COs and POs. Institutional authorities including Principal, Vice-Principals shall be responsible for overseeing the implementation of this policy.

Conclusion:

The policy for mapping COs and POs at HPT Arts & RYK Science College, Nashik is designed to ensure that the college's teaching-learning as well as other co/extra-curricular activities are aligned with the desired learning outcomes. The college is committed to implement this policy effectively and continuously reviewing and revising it to ensure that it remains relevant and effective.

Methods Adapted for COs Mapping



CO-PO Mapping by Using Direct Method of Result Analysis

The direct method of result analysis is a straightforward approach to CO-PO (Course-Program Outcome) mapping. It involves analysing the results of internal & external examinations and mapping them directly to the course outcomes. The following step-by-step guide lays down the process to perform CO-PO mapping using the direct method of result analysis:

Step 1: Identify the Program Outcomes

1. Review the program's learning outcomes and identify the specific knowledge, skills, and competencies that students are expected to demonstrate upon completion of the program.
2. Ensure that the program outcomes are specific, measurable, achievable, relevant, and time-bound (SMART).

Step 2: Collect Course Assessment Results

1. Gather the results of course assessments, such as quizzes, exams, projects, and assignments.
2. Ensure that the assessments are aligned with the course learning objectives and are measuring the students' achievement of those objectives.

Step 3: Analyse the Assessment Results

1. Analyse the results of the course assessments to determine the level of student achievement.
2. Use statistical methods, such as mean, median, and standard deviation, to analyse the results.

Step 4: Map the Assessment Results to Course Outcomes

1. Map the assessment results directly to the program outcomes.
2. Use a matrix or table to illustrate the mapping, with the program outcomes on one axis and the course assessments on the other.
3. Indicate the level of alignment between the assessment results and the program outcomes, using a scale of 3 such as:
    1) Fully (Scale between 2-3)
    2) Mostly (Scale between 1-2)
    3) Partially (Scale between 0.75 – 1)
    4) Not Aligned (Scale between 0 – 0.75)

Step 5: Interpret the Results

1. Interpret the results of the mapping to determine the level of alignment between the course assessments and the program outcomes.
2. Identify areas where the course assessments are not aligning with the program outcomes.
3. Use the results to inform revisions to the course assessments and the program outcomes

Direct Attainment Method (Paper wise)

Direct attainment tools are:
i) End semester examination
ii) Internal examination

Affiliated University (SPPU) conducts End Semester Examination (ESE) for various faculties as follows:

Faculty	UG	PG
Science	70% (35 marks)	70% (70 marks)
Arts	70% (70 marks)	50% (50 marks)
Library Science	50% (50 marks)	50% (50 marks)

Continuous Internal Assessment (CIA) for various faculties as follows:

Faculty	UG	PG
Science	30% (15 marks)	30% (30 marks)
Arts	30% (30 marks)	50% (50 marks)
Library Science	50% (50 marks)	50% (50 marks)

Calculation of direct CO attainment for various faculties as follows :

Faculty	UG	PG
Science	30%(Internal) + 70%(External)	30%(Internal) + 70%(External)
Arts	30%(Internal) + 70%(External)	50%(Internal) + 50%(External)
Library Science	50%(Internal) + 50%(External)	50%(Internal) + 50%(External)

For Example:

1. 50%(Internal) + 50%(External)

Under all CO Attainment = 50% of CIA (Internal) + 50% of SEE (External)
= (0.50 x 3) +(0.50 x 3) = 1.5+1.5 = 3.0

2. 30%(Internal) + 70%(External)

Under all CO Attainment = 30% of CIA (Internal) + 70% of SEE (External)
= (0.30 x 3) +(0.70 x 3) = 0.9 + 2.1 = 3.0

Direct Attainment Process:
i) Target level of CO attainment for Continuous Internal Assessment (CIA):

Level of Attainment		Threshold value for Internal Assessment = 50% (UG Science ≥ 8 marks) (PG Science ≥ 8 marks) (UG Arts ≥ 15 marks) (PG Arts ≥ 25 marks)
3	**High**	70% and above of the students
2	**Moderate**	60% - 69% of the students
1	**Low**	50% - 59% of the students
0	**Not Applicable**	Below 50% of the students

ii) Target level of CO attainment for End Semester Examination (ESE) :

Level of Attainment		Threshold value for External Assessment = 50% (UG Science ≥ 18 marks) (PG Science ≥ 35 marks) (UG Arts ≥ 35 marks) (PG Arts ≥ 25 marks)
3	**High**	70% and above of the students
2	**Moderate**	60% - 69% of the students
1	**Low**	50% - 59% of the students
0	**Not Applicable**	Below 50% of the students

Direct Attainment Method (Question wise)

The following method is used to do question and test-wise CO Mapping.

1. Question papers are prepared as per course outcomes of the respective paper's syllabus.

2. Answers are evaluated, and marks are assigned.

3. The number of students securing 60 per cent or above in each question / internal test, as the case may be, is calculated.

4. The number is converted on a scale 3 using the formula **N x 3 / T**.

N-No's of students scoring 60 per cent or above in each question / internal test,

T- Total number of students appeared.

5. The number arrived after the calculation is compared to three scale CO mapping charts, and respective alignment values are assigned

0-0.75- Not Aligned

0.75-1.00- Partially Aligned

1.00-2.00 Mostly Aligned

2.00-3.00- Fully Aligned

6. An action plan is suggested by the subject teacher based on the Course Outcomes

CO-PO Mapping Indirect Method

Introduction

In the realm of educational assessment and accreditation, CO-PO mapping has emerged as a vital tool for institutions to evaluate the effectiveness of their academic programs. The indirect method of CO-PO mapping offers a robust framework for measuring the attainment of program outcomes (POs) through the assessment of course outcomes (COs). By establishing a clear correlation between the knowledge, skills, and attitudes acquired by students in individual courses and the overall program objectives, educators can gain valuable insights into the strengths and weaknesses of their curricula. This indirect approach enables institutions to refine their teaching-learning processes, make data-driven decisions, and ultimately enhance the quality of education. In this context, CO-PO mapping using the indirect method plays a crucial role in fostering a culture of continuous improvement and accountability in higher education institutions.

The direct method is more straightforward and quantitative, while the indirect method is more complex and nuanced, allowing for a deeper understanding of the relationships between course outcomes and program outcomes. The Direct Methods are more focused on **measurable** outcomes in terms of marks, ranks and results whereas indirect methods emphasise more on **performance and participation** that offer learning experiences. Hence, without considering Indirect methods, any measurement of attainment of CO-PO will be incomplete and incomprehensive.

The Indirect Methods involves

- Surveys of Students
- Participation Co-Curricular Activities
    1. Seminar
    2. Conference
    3. Presentation
    4. Field Visits
    5. Study Tours
    6. Group Discussions
    7. Scrapbooks
    8. Projects
    9. Poster Making
    10. Model Making
    11. Quizzes

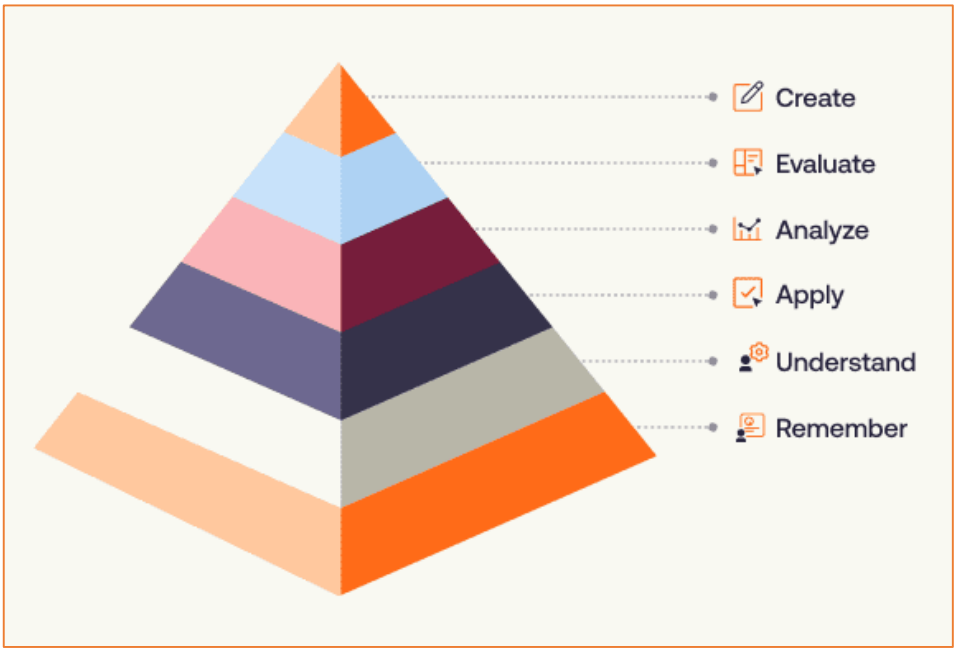
- Extracurricular & Extension Activities
    1. Elocution
    2. Debate and Discussions
    3. Essay Writing Competition
    4. Recitation Competition
    5. Story Writing competition
    6. Drama/Skits writing
    7. Acting in plays/skits

8. Poetry writing
9. Poetry reading/ recitation
10. Dance Performance
11. Painting/Drawing/Mehndi
12. Writing Articles, stories, reviews
13. Editorial work
14. Awareness Rallies
15. Cleanliness Drive
16. Counselling school girls
17. Street plays
18. Blood Donation

Interlinking Bloom's Taxonomy and Indirect Methods

Bloom's Taxonomy is a classification system developed to provide a common language for educators to discuss and exchange learning and assessment methods. It is a powerful tool that helps develop learning outcomes by explaining the process of learning. The taxonomy is used to define and classify the various stages of thinking, learning, and understanding in humans. Developed by Benjamin Bloom and his collaborators in 1956, it is a framework for categorizing educational goals. The system enables teachers and instructors to create curricula, course plans, lesson plans, and learning activities, as well as formative and summative assessments. By using Bloom's Taxonomy, educators can understand the level at which students have learned a particular concept.

Levels of Bloom's Taxonomy



Classification of Activities

Levels	Co-curricular Activities	Extra-Curricular/ Extension Activities
Remember	• Quiz Competitions • Scrapbooks	• Poetry Recitation • News Bulletin Reading • Anchoring /hosting programme • Celebration of Days
Understand	• Discussion • Debate • Role-playing • Report Writing	• Conducting Surveys • Book Club • Film Club
Apply	• Socio- Scientific Exhibition • Poster Making • Model Making • Presentations • Field Visits • Study Tours	• School Girls' Counselling • Writing News • Writing articles • Writing Reviews • Essay Writing • Street Play Presentation • Dance Performance • Singing • Voluntary work in villages • BIS- door to door campaign
Analyse	• Projects • Poster Projects	• Documentary Making • Need based work during NSS camps in villages • Coordinating events in College • Work carried out during Covid-19
Evaluate	• Best Student Award • Prizes given for Co-curricular activities like Socio-Scientific Exhibitions • Scanning of projects for Avishkar Research Competition	• Competitions during Annual Gathering including personality development • Prizes given for competitions like poetry, mehndi, Best Personality • Appreciation Certificates given to participants
Create	• Prepare Policy and Legislative Bills	• Writing Skits • Poetry writing • Sketching • Stagging plays/skits • Drawing Rangoli

Levels	Co-curricular Activities	Extra-Curricular/ Extension Activities
		• Drawing mehndi • Music Composition • Photography • Experimental Journal / Newspaper publication

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