

## CRITERION 4. CONTINUOUS IMPROVEMENT

### *Student Outcome Assessment Process*

The step by step process for assessing program outcomes is tabulated in Table 4.1.

**Table 4.1: Step-by-step process for assessing Student Outcomes**

<b><u>Step 1:</u></b> The Program coordinator analyses each student outcome by breaking down each outcome into several performance criteria (PC) and weightage and rating scale has been defined for each PC (actions that explicitly demonstrate mastery of the abilities specified). In addition, well designed surveys were used to assess each outcome.
<b><u>Step 2:</u></b> For each outcome define performance indicators (Assessment criteria) and their targets.
<b><u>Step 3:</u></b> Identify/select courses that address the outcome (each course contributes to at least one of the outcomes). Hence, each outcome is assessed in several courses to ensure that students acquire an appropriate level in terms of knowledge/skills of an outcome.
<b><u>Step 4:</u></b> The module coordinators collect the qualitative and quantitative data and is used for outcome assessment in a continual process.
<b><u>Step 5:</u></b> The Program Assessment Committee analyzes the collected data. If the assessed data meets the targeted performance value specified in step 2, the outcome is attained.
<b><u>Step 6:</u></b> The Department Academic Affairs Committee recommends content delivery methods/course outcomes/ curriculum improvements as needed. In case the targeted performance for some outcome is not met, a corrective action plan is put in place which serves as a feedback to the process for continuous improvement.

The assessment process involved in the assessment of Student Outcomes is shown in Figure 4.1:

This assessment is carried out using the following measurable and quantitative parameters and survey/questionnaire techniques/tools.

### **Assessment Tools**

The assessment process uses both direct and indirect measures to measure the attainment of each outcome. The examples of such measures are given below:

#### ***Direct Measures through:***

- Examinations
- Assignments
- Projects or any other instrument used by the academics for assessment

#### ***In-direct measures through:***

- Surveys and questionnaires
  - Course Survey
  - Graduating student's survey
  - Alumni survey
  - Employer survey

## **Course Survey**

Course Survey is completed for every course in each semester to get a formal feedback from students for the courses offered in a semester and provide objective information to the faculty for self-appraisal, self-improvement & development. Formal student feedback is obtained online through semester-by-semester mandatory course evaluation using course survey form and also through discussions with individual students as well as student representatives on the Student Consultative Committee (SCC). The course survey results are compiled by the individual course instructors for his feedback. The detailed feedback report on each course is available to the department head, dean and the Director. This feedback is generally for self-improvement of the faculty. However, in cases when there is an issue which has been repeated or some feedback needs immediate attention, action is taken as appropriate. Also faculty members also provide useful feedback as part of their annual appraisals or during promotion reviews. Summaries of the results are open information and available to the department head. Faculty may report more information from the surveys to the department head, and often do as a part of annual reviews and tenure/promotion reviews.

## **Graduating student's survey**

A questionnaire survey is used to measure the level of achievement of expected student outcomes and also generally about the program. This questionnaire was filled by about 25% of the graduating students picked randomly. The department proposed to make it mandatory for all the graduating students to complete this questionnaire from 2013. Each graduating senior in Mechanical Engineering completes two written survey forms during the month of graduation. The student is asked to rate his perception of achievement of the student outcomes on a scale of 1 to 5 where 1 signifies a poor outcome and 5 signifies a high level of achievement of objectives. The target is set at a minimum average score of 3.0 on the 5 point scale. The assessment results have been documented for the year 2012 and are discussed in the meeting of department faculty to make action points for initiating corrective and preventive actions.

## **Alumni survey**

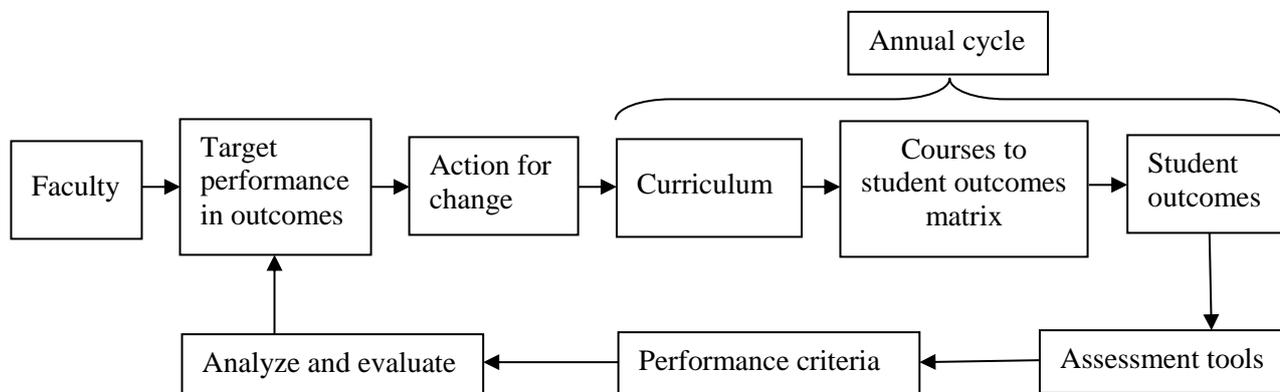
It is believed that the perception of students change from the time of graduation to some point in their respective careers as they get more mature and have learnt tricks of the trade on the job. At this point of time, they are in a better position to provide more valuable and objective feedback on the learning in their undergraduate program and also how much of the student outcomes (on some scale) have actually been possible. To obtain this information, a survey was conducted for practicing alumni who graduate during the last 2 to 5 years. This survey like the graduating student survey was targeted at the student outcomes achieved during the last 2 to 5 years. Again, the respondents were asked to rate each outcome on a scale of 1 to 5. The findings of the survey are being processed and will be used for effecting improvements in the program to achieve the program educational objectives and program outcomes. The Alumni survey was administered by the Alumni Relations Office which had the databank of the alumni.

## **Employer survey**

All the students of program to be accredited are required to spend a full six month's semester in the industry completing an industrial project under the joint supervision of industry supervisors and Thapar University faculty. All the faculty members are required to visit one or two organizations two times during their six month's semester in the industry for evaluation of students placed for their work term in these organizations. This provides an opportunity to take feedback of our graduated students working in these organizations. During the course of interaction with the employer of our students, the employers provide information on their performance against each outcome and the employers are requested to fill survey form to compile the record of employer survey. The survey form, like the other forms, has questions related to the student outcomes. The rating is again given on a scale of 1 to 5 with 5 representing the best performance.

On the basis of results of assessment tools, the assessment of level of attainment of each outcome is carried out. The assessment loop for each student outcomes is shown in Figure 4.1

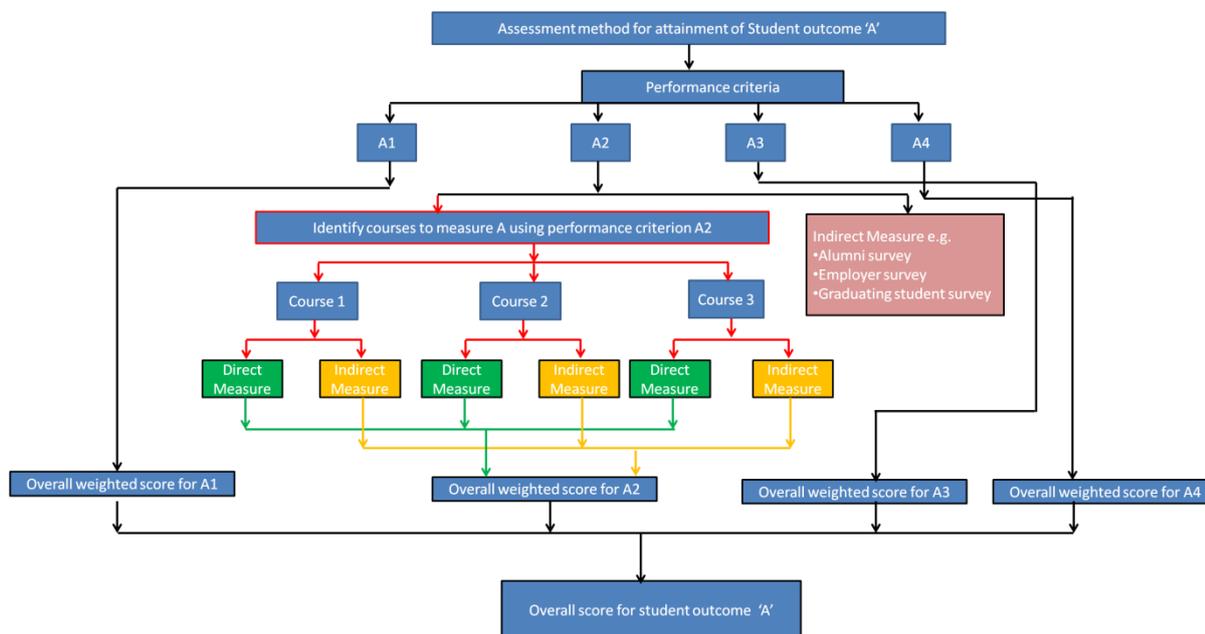
The student outcomes assessment loop is shown in Figure 4.1



**Figure 4.1: Student outcomes assessment loop**

**Assessment of Attainment of Student Outcomes**

To assess each outcome, we use performance criteria for that outcome. For example in outcome A, we defined four performance criteria (A1 to A4) that need to be met to successfully achieve that outcome at a minimum target performance level for a program. In the section below the assessment of outcome A is explained using a flow chart depicting the step by step methodology used to measure attainment of outcome ‘A’ is provided below in Figure 4.2.

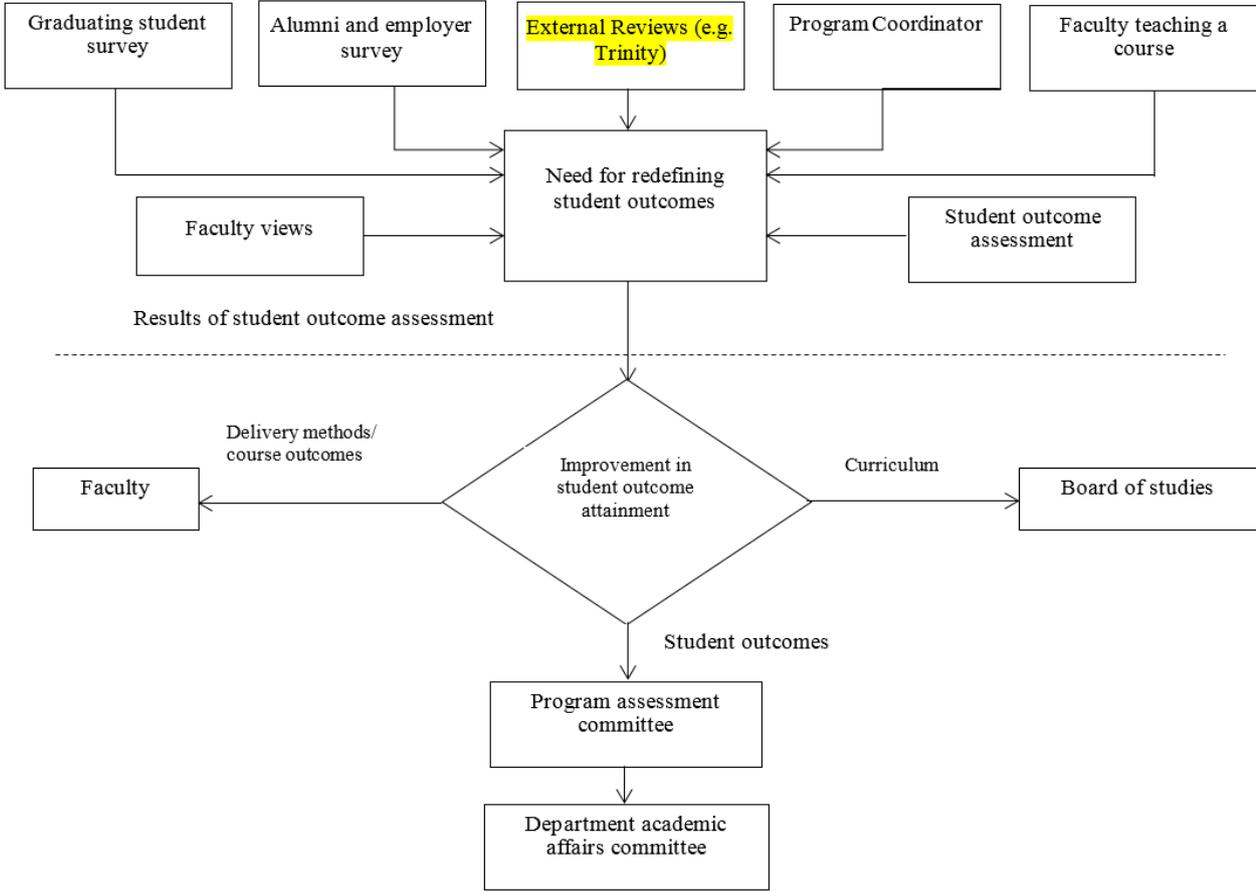


**Figure 4.2: Process for measurement of attainment of outcome ‘A’**

**Continuous Improvement**

Figure 4.3 illustrates the process of revising/redefining existing student outcomes. The need for revision / redefining of existing student outcomes is identified with the help of the assessment results of PO attainment from direct/indirect assessment methods. The improvement of student outcome attainment is considered in three possible phases: Curriculum, Delivery methods/course outcomes and student outcomes. For curriculum, the program coordinator initiates the process with the views of Module coordinator. The department academic affairs

committee notices the required changes and takes approval with BOS. The module coordinator initiates the process to change delivery methods/course outcomes in course assessment and discuss with program assessment committee. To improve the program performance, the Program Coordinator analyze the student outcome assessment and attainment and discuss the necessary revise changes in existing student outcomes with program assessment committee/department academic affairs committee.



**Figure 4.3: Revision of Student Outcomes**