Geethanjali College of Engineering and Technology (Autonomous)

Accredited by NAAC with A+ Grade; B.Tech. CSE, EEE, ECE accredited by NBA

Sy. No: 33 & 34, Cheeryal (V), Keesara (M), Medchal District, Telangana – 501301

Department of Computer Science and Engineering

PROCEDURE FOR MEASURING THE COs ATTAINMENT

FROM BATCH 2019 ADMITTED

1. For calculating the COs attainment, all the students who attended the exam shall be considered for the calculation of COs attainment. Absentees should not be considered for the evaluation of COs.
2. For the Subjective Paper of mid-term examinations and for Semester End Examinations (Part - A and Part - B), CO-wise attainment shall be calculated. Marks obtained in each question shall be taken into consideration for evaluating the attainment of COs.
3. For the Objective Paper of mid-term examinations, Assignments and Tutorials, the overall CO attainment shall be calculated which shall be made applicable to all COs and it would be presumed that all COs have the same attainment level. This is to reduce the complexity of calculation of COs attainment.
4. For measuring the attainments of COs of a theory course (both in CIE and SEE), the **targets (**can be defined differently for each CO or the same target for all COs as per the deliberations that took place in the course coordinator's meeting with the instructors, approved by PAC) are to be fixed as per the guidelines given below:
   - Mid Paper Subjective: 60% of maximum marks related to each CO
   - Assignments and Tutorials (if any): 60% of maximum marks (3 marks out of 5)
   - Mid Paper Objective: 60% of maximum marks (6 marks out of 10)

   Semester End Examination: 60% of maximum marks related to each CO or any other target proposed by the course coordinator and approved by PAC
5. The attainment levels are to be fixed using the above targets as follows:

	Semester End Exam **Level indicator for CO attainment**
Level 1	≥ 40% and <50% of Students attain the target Marks
Level 2	≥50% and <60% of Students attain the target Marks
Level 3	≥60% of Students attain the target Marks

	Mid-term Exams-Subjective, Objective, Assignments and Tutorials **Level indicator for CO attainment**
Level 1	≥ 60% and <70% of Students attain the target Marks

Level 2	≥ 70% and <80% of Students attain the target Marks
Level 3	≥80% of Students attain the target Marks

Indirect attainment – Course End Survey, CRC and TLP feedback Level indicator for CO attainment	
Level 1	≥ 60% and <70% of feedback score
Level 2	≥ 70% and <80% of feedback score
Level 3	≥80% of feedback score

6. Whenever a choice is given in the question paper and if a student answers more than one question against one question which he is supposed to answer, the question in which the student earned more marks shall be considered for the calculation of CO attainment, leaving the marks obtained in other question(s). Similarly if a student doesn't attempt any question when he is expected to answer one out of the two questions that are given, zero marks have to be awarded for the student in either of the questions and accordingly the CO related to the question shall be evaluated.
7. In measuring the attainment of each CO,
   - 75% of weightage shall be given for the Direct measurement that includes attainments in mid-term examinations (subjective and objective), semester end examinations, assignments, tutorials and
   - 25% weightage for indirect assessment that includes students' online feedback on TLP (10%), CRC feedback (10%) and Course End Survey feedback (5%).
8. For determining the Direct measurement
   - 60% weightage shall be given for the Semester End Examination and
   - 40% weightage for the internal marks that includes
     - mid-term examinations subjective (20%),
     - mid-term examinations objective (10%),
     - Assignments (5%) and
     - Tutorials (5%).
     - In the absence of tutorials, 10% of weightage shall be given to Assignments.
9. Both mid-1 and mid -2 shall be considered together in measuring the attainment levels of COs.

Direct Attainment of CO = 0.2* Mid-term Subjective + **0.1*** Mid-term Objective + **0.05*** Assignment + **0.05*** Tutorial + **0.6*** End Sem. Exam

Indirect Attainment of CO = 0.4* Feedback on TLP+ **0.4*** Feedback on CRC + **0.2*** Feedback on Course End Survey

Overall CO Attainment = 0.75* Direct Attainment Level + 0.25* Indirect Attainment Level

10. For internal and semester end practical examinations, 60% of maximum marks shall be kept as target for measuring the attainment, the same way is defined for theory courses. Out of the 100 marks allotted for laboratories, 70 marks shall be awarded based on the SEE, 15 marks based on CIE and the remaining 15 marks by way of conducting two mid-term practical examinations each for 15 marks and taking the average of the two. In laboratories, either in

the internal or external practical examination, a student will be asked to perform only one experiment out of the 12 or 14 experiments that are listed in the syllabus book. As it is not possible to measure the attainments of all COs that are related to different experiments, it is assumed that the attainment level obtained for a particular CO that is related to an experiment which is given during examination, is equally applicable for the remaining COs. That is if a student gets 70% of marks (Level 2) in the internal examination and 60% of marks (Level 1) in the end semester practical examination, the attainment of each CO is calculated as: 0.4 * 2 + 0.6 * 1 = 1.4 (Direct measurement). If the attainments in Course End Survey, CRC Feedback and Feedback on TLP are 75% (Level 2), 65% (Level 1) and 83% (Level 3) respectively, the indirect measurement can be calculated as: 0.4 * 2 + 0.4 * 1 + 0.2 * 3= 1.8.

The overall course attainment (which also is the attainment of each CO) =

0.75 * 1.4 + 0.25 *1.8 = 1.5

Note: Similar procedure has to be adopted for Projects, Seminars, Mini Projects, Internships and other such similar courses.

Example: Attainments measured of a CO in a particular course are as indicated below. The same procedure has to be adopted for measuring the remaining COs' attainment levels.

Components that contribute to direct attainment of CO

Mid-term Subjective= 85% (LEVEL 3) Mid-term Objective=78% (LEVEL 2)
Assignment = 96%
(LEVEL 3)

Tutorial=100%
(LEVEL 3) End Sem.
Exam = 40% (LEVEL
1)

Components that contribute to the Indirect attainment of CO

Feedback on TLP = 95% (LEVEL 3) Course End Survey = 88% (LEVEL 3) Feedback in CRC = 82% (Level 3)

Direct Attainment of CO = 0.2*3+ 0.1*2 + 0.05*3+ 0.05*3+ 0.6*1 = 1.7

Direct Attainment Level = 1.7 (According to Target Levels Set)

Indirect Attainment of CO = 0.4*3+ 0.4*3 + 0.2*3 = 3
Overall CO Attainment = 0.75* Direct Attainment Level (1.7) + 0.25* Indirect Attainment Level (3) = 2.025 (on a scale of 3)