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

Proposed Modifications in computing the attainments of Course Outcomes

Component	Till 2021-22 Admitted Batch	From 2022-23 Admitted Batch
Target level set in the Mid exams/ SEE for measuring the attainment of CO.	60% of maximum marks related to each CO or any other target proposed by the course coordinator and approved by PAC	Same as before
CO attainment: direct component (for theory courses)	60% weightage for the Semester End Examination and 40% weightage for the internal marks that includes ● Mid-term examinations subjective – 15 Marks (20%), ● Mid-term examinations objective – 10 Marks (10%), ● Assignments – 5 Marks (10%)	50% weightage for the Semester End Examination and 50% weightage for the CIE (Continuous Internal Evaluation) ● Mid-term examinations subjective - 20 Marks (20%), ● Mid-term examinations objective – 10 Marks (10%), ● Assignment (Each Assignment carries 5 marks) – 5 Marks (10%) ● Subject Viva-Voce/PPT/Poster Presentation/ Case Study on a topic in the concerned subject - 5 marks (10%)
CO attainment: direct component (for laboratory courses)	60% weightage for the Semester End Examination and 40% weightage for the internal marks that includes ● Mid-term examination -15 marks (20%) ● Day to Day Evaluation -15 marks (20%)	40% weightage for the Semester End Examination ● Write up - 10 marks (10%) ● Experiment/ Program-15 marks(10%) ● Evaluation of Results-15 marks(10%) ● Presentation on another experiment - 10 marks (5%) ● Viva-voce -10 marks (5%) **and** 60% weightage for the internal marks that includes ● Write up on Day to Day Experiment in the lab -10 marks (15%) ● Viva-voce - 10 marks (10%) ● Internal practical examinations 10 marks (10%) ● Laboratory Project - 10 marks (25%)
CO attainment - indirect component	25% weightage for indirect assessment that includes students' online feedback on TLP (10%), CRC feedback (10%) and Course End Survey feedback (5%).	20% weightage for indirect assessment that includes students' online feedback on TLP (10%) and Course End Survey feedback (10%).

Measuring the Overall attainment of CO	75% of weightage for the Direct measurement and 25% weightage for indirect assessment	80% of weightage for the Direct measurement and 20% weightage for indirect assessment

PROCEDURE FOR COMPUTING THE COs ATTAINMENT

(Effective from 2022-23 Admitted Batch)

1. For computing the COs attainment, only the students who attended the exam shall be considered. 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 computing the attainment of COs.
3. For the Objective Paper of mid-term examinations (10 marks), Assignments (5 marks) and, Subject Viva-Voce/ PPT/Poster Presentation/ Case Study (5 marks) on a topic in the concerned course, the marks obtained in each of these categories shall considered for computation of CO attainment. Similarly for the laboratory courses in both CIE (Write up on Day to Day Experiment in the lab - 10 marks, Viva-voce - 10 marks, Internal practical examinations 10 marks, Laboratory Project 10 marks) and SEE (10 marks for write-up, 15 for experiment/program, 15 for evaluation of results, 10 marks for presentation on another experiment/program in the same laboratory course and 10 marks for viva-voce on concerned laboratory course), the marks obtained in each of these categories shall be considered for computation of CO attainment. The attainment so computed shall be made applicable to all COs. This is to reduce the complexity of computation of COs attainment.
4. For measuring the attainment 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/ Descriptive paper: 60% of maximum marks related to each CO
    - Mid Paper Objective: 60% of maximum marks (6 marks out of 10)
    - Assignments : 60% of maximum marks (3 marks out of 5)
    - Subject Viva-Voce/PPT/Poster Presentation/ Case Study on a topic in the concerned subject (3 marks out of 5)
    - 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. For measuring the attainment of COs of a laboratory course (CIE – 40 marks and SEE – 60 marks), the **targets** shall be fixed as per the guidelines given below:
   Under the Continuous Internal Evaluation (CIE) of 40 marks

- Write up on Day to Day Experiment in the lab: 60% of maximum marks (6 marks out of 10)
- Viva-voce: 60% of maximum marks (6 marks out of 10)
- Internal practical examinations: 60% of maximum marks (6 marks out of 10)
- Laboratory Project: 60% of maximum marks (6 marks out of

10) Under the Semester End Examination (SEE) of 60 marks

- Write-up: 60% of maximum marks (6 marks out of 10)
- Experiment/ Program: 60% of maximum marks (9 marks out of 15)
- Evaluation of Results: 60% of maximum marks (9 marks out of 15)
- Presentation on another experiment/program in the same laboratory course: 60% of maximum marks (6 marks out of 10)
- Viva-voce: 60% of maximum marks (6 marks out of 10)

6. The attainment levels are to be fixed using the above targets as follows:

Semester End Exam	
Level indicator for CO attainment	
Level 1	≥ 50% and <60% of Students attain the target Marks
Level 2	≥ 60% and <70% of Students attain the target Marks
Level 3	≥ 70% of Students attain the target Marks

Mid-term Exams – Subjective, Objective, Assignments and Viva-Voce/ PPT/Poster Presentation/ Case Study	
Level indicator for CO attainment	
Level 1	≥ 60% and <70% of students attain the target
Level 2	≥ 70% to <80% of students attain the target
Level 3	≥ 80% of students attain the target

Indirect attainment – Course End Survey 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

7. 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 computation 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 shall be awarded for the student in either of the questions and accordingly the CO related to the question shall be evaluated.

8. As per the AR22 Regulations of the subjective part of the mid-term examinations, students must answer any 4 out of the 6 questions given. It is mandatory to ensure that each student is evaluated based on 4 questions. If a student answers fewer than 4 questions, they will receive zero marks for the remaining questions to ensure evaluation for 4 questions. Similarly, if a student answers more than 4 questions, only the top 4 answers with the highest marks will be considered for computation of COs.

9. In measuring the attainment of each CO,
   - 80% of weightage shall be given for the Direct component that includes attainments in mid-term examinations (subjective and objective), semester end examinations, assignments, and Viva-Voce/PPT/Poster Presentation/ Case Study
   - 20% weightage for indirect assessment that includes students' online feedback on TLP (10%), and Course End Survey feedback (10%).

10. For determining the Direct component in a theory course
    - 50% weightage shall be given for the Semester End Examination and
    - 50% weightage for the internal marks that includes
      - Mid-term examinations subjective – 20 marks (weightage 20%),
      - Mid-term examinations objective – 10 marks (weightage 10%),
      - Assignments – 5 marks (weightage 10%) and
      - Viva-Voce/PPT/Poster Presentation/ Case Study on a topic – 5 marks (weightage 10%).

11. For determining the Direct component in a laboratory course
    - 40% weightage for the Semester End Examination
      - Write up – 10 marks (weightage 10%)
      - Experiment/ Program – 15 marks (weightage 10%)
      - Evaluation of Results – 15 marks (weightage 10%)
      - Presentation on another experiment – 10 marks (weightage 5%)
      - Viva-voce – 10 marks (weightage 5%)
    - 60% weightage for the Internal Exams
      - Write up on day to day Experiment – 10 marks (weightage 15%)

- Internal Practical Examinations – 10 marks (weightage 10%)
- Laboratory Project – 10 marks (weightage 25%)
- Viva-voce – 10 marks (weightage 10%)

12. Both mid-1 and mid -2 shall be considered together in computing the attainment levels of COs.

For Theory Courses:

Direct Attainment of CO = 0.2*Mid-term Subjective+ 0.1* Mid-term Objective+ 0.1* Assignment+ 0.1*Viva-Voce/PPT/Poster Presentation/ Case Study on a topic + 0.5* End Sem. Exam

Indirect Attainment of CO = 0.5*Feedback on TLP+ 0.5* Course End Survey

Overall CO Attainment = 0.80* Direct Attainment Level + 0.20* Indirect Attainment Level

For Laboratory Courses:

Direct Attainment of CO = 0.1* Internal practical examinations + 0.15* Day to Day Experiment in the lab + 0.1*Viva-Voce/PPT/Poster Presentation/ Case Study on a topic + 0.25 Laboratory Project + 0.4* End Sem. Exam

Indirect Attainment of CO = 0.5*Feedback on TLP+ 0.5* Course End Survey

Overall CO Attainment = 0.80* Direct Attainment Level + 0.20* Indirect Attainment Level

13. For internal and semester end practical examinations, 60% of maximum marks shall be kept as **target** for measuring the attainment, the same way it is defined for theory courses. Out of the 100 marks allotted for laboratories, 60 marks shall be awarded based on the performance in SEE, 40 marks based in CIE (Write up on Day to Day Experiment in the lab (10 marks), Viva-voce (10 marks), Internal practical examinations (10 marks), Laboratory Project (10 marks))
14. 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.

Example: Lab Course

15. Direct Attainment of CO = 0.1* Internal practical examinations + 0.15* Day to Day Experiment in the lab + 0.1*Viva-Voce/PPT/Poster Presentation/ Case Study on a topic + 0.25 Laboratory Project + 0.4* End Sem. Exam (Refer Point 12 for the split of End sem.)

Thus if 71% of students attain the target marks (60% of maximum marks) in the internal examination (Level 2) and 55% of students attain the target marks (60% of maximum marks) in the end semester practical examination (Level 1), the attainment of each CO is calculated as:

0.6 * 2 + 0.4 * 1 = 1.6 (Direct measurement).

If the attainments in Course End Survey, and Feedback on TLP are 75% (Level 2), and 83% (Level 3) respectively, the indirect measurement can be calculated as: 0.5 * 2 + 0.5 * 3 = 2.5.

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

0.80 * 1.6 + 0.20 *2.5 = 1.78

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

Example: Theory Course

Direct Attainment of CO = 0.2*Mid-term Subjective+ 0.1* Mid-term Objective+ 0.1* Assignment+ 0.1*Viva-Voce/PPT/Poster Presentation/ Case Study on a topic + 0.5* End Sem. Exam

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) Presentation=90%

(LEVEL 3) End Sem. Exam = 55% (LEVEL 1)

Components that contribute to the Indirect attainment of CO

Feedback on TLP = 95% (LEVEL 3)

Course End Survey = 88% (LEVEL 3)

Direct Attainment of CO = 0.2*3+ 0.1*2 + 0.1*3+ 0.1*3+ 0.5*1 = 1.9 Direct Attainment Level = 1.7 (According to Target Levels Set) **Indirect Attainment of CO = 0.5*3+ 0.5*3= 3**

Overall CO Attainment = 0.80* Direct Attainment Level (1.9) + 0.20* Indirect Attainment Level (3) = 2.12 (on a scale of 3)