

Sardar Patel Institute of Technology
(An Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (West), Mumbai-400058-India

Electronics & Telecommunication Engineering Department

Subject: Electronic Devices EC202 Sem: III Academic Year: 2022-23

A report on Innovative Teaching Learning Practices

Title: Analysis of electronic circuits with moderate level of complexity than a usual circuit studied as a part of contents of the course on Electronic Devices: A Case Study Approach.

Date: 29th August to 9th Dec 2022

Duration: 14 Weeks

Evaluation Methodology: Introduced the concept of Case Study approach as a part of ISE for the subject of Electronic Devices, S.E. class Sem III. It was a Group activity. Students were expected to identify the discrete electronic circuit consisting of active and passive components and seems to have a slightly more complex nature than the circuits included in the regular curriculum. The evaluation methodology includes Phase wise Evaluation.: Phase 1 (Identification of Circuit), Phase 2 (Analysis of Circuit Diagram in terms of working principle and expected output) and Phase 3 (Simulation/Hardware). The continuous evaluation was done in Phases so it was possible to engage students in a better and justified manner. Moreover, a Teaching Assistant (TA), a student of the Third Year Electronics & Telecommunication Department. who chose TA as a credit-based SEVA-SATVA activity under me was given the responsibility to technically support and guide these groups. For the students group and TA, it was a peer learning experience.

Purpose: Evaluation of an individual student is an integral part of the academics to know how much is his/her involvement in the subject. Further, it helps teachers to know which learners need more attention and who may be given the challenging task/tasks to be solved. Marks for the task completed should be taken positively by the learner and may not just do the task for the award of marks. Simple assignment work which does not require any creativity to solve does not help an individual student to learn the subject better. It is also important to know the rubrics of evaluation; the exact expectation of the evaluator for the assigned task.

In today's education time, evaluation of such tasks becomes more challenging due to issues like one to one engagement of long duration. Working in a team is an integral part of an Engineering profession. Therefore; tasks need to be framed which take optimum duration to solve, should reflect creativity and experiential learning through teamwork. If a learner pursues higher education or wishes to do research in the same domain to which the course contents are aligned then these kinds of tasks undertaken builds a confidence in his/her capacity. Further this kind of activity may help the learner to apply the skills acquired in his/her professional life.

Mapping: CO1 to CO6

Feedback: The feedback was collected as a part of the course exit survey. The question in the feedback was framed as follows mentioning the purpose of conducting this activity as stated in the beginning of this report. Students were also asked to rate the approach between 1 to 5 (5 being the highest).

How do you rate the Case Study Approach of evaluation and yourself considering the task given, and your contribution to that?39 responses

Good

8/10

Good

Very good method of evaluation. Encourages us students to think outside the box.

Nice approach, I have nothing to add to it.

3 out of 5

3/5

It's a good approach of case study

Neutral

Support such kind of assessment

Yes it was very helpful

I rate case study approach as 5 and myself as 4(on a scale of 0-5,5 being High)

Neutral

3.5

2

This is a very good approach

Great learning curve

3

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Case study approach is a very good initiative taken by our college and faculty.

Case study was helpful in understanding the working principle of timers and op amps

It was great experience

4

The case study was a good way for us to apply everything that we had learnt throughout the subject. The approach of evaluation was well structured as it focused on what we were learning while doing the case study.

The case study was a great way to apply everything we have learnt throughout the course. It served as a great medium to learn new topics and apply this knowledge in our case study. The approach of evaluation was well structured as it was focused on what we had learned while doing the case study.

Outcome:

The main objectives of conducting this activity was to motivate students to search for various discrete circuits to realize electronic systems with moderate complexity which otherwise they would not have studied as a part of the regular contents of the course. As it is a group activity it helped students to build teamwork spirit. Looking at the feedback it has also impacted on students' performance.

To my surprise, students liked the concept of stretching the depth of the Case Study to a hardware-based approach. They also agreed that this approach is innovative, promotes creativity and teamwork, it blends the theoretical concept to practical implementation and many more

encouraging points. However, one feedback that I would like to kindly mention is that the Department should provide all the necessary requirements which are needed for this type of activity like the expenses incurred by the students for purchasing of the hardware components, PCB needed to develop the final circuit and the need of 24x7 availability of laboratory resources during implementation and testing.