Srinix College of Engineering
Ranipatna, Balasore, Odisha, INDIA-756001
Accredited by NAAC B^+, Approved by AICTE
Department of Electrical Engineering

1. Use of various instructional methods and pedagogical initiatives:

In order to improve the quality of Teaching and Learning process, the following instructional methods and pedagogical initiatives are followed by the faculty in content delivery.

- Chalk and Talk
- Information and Communication Tools (ICT) (Presentation, Videos, E-learning resources)
- Demonstration (Laboratory/ Physical models)
- Guest Lectures & NPTEL Lectures
- Assignments & Tutorials
- Google Classrooms
- Course files
- Industrial visits and Internships
- Department student associations
- Seminars by students
- Different Learning approaches like independent Learning, Interactive Learning and Collaborative Learning (Group Discussion, Brainstorming sessions and Seminars).

1. **Chalk and Talk:** The faculty use chalk and audio-visual aids in

teaching, Students are also encouraged to interact during the lecture hour by getting the doubts clarified on the spot.

2. **ICT Tools**: For better understanding of the concepts, faculty members use ICT enabled teaching methods such as Presentations, Animated videos are extensively used to improve the teaching –learning process.

3. **Guest Lectures & NPTEL Lectures**: The students are encouraged to register for NPTEL courses and to follow NPTEL lectures. Hence, the students enhance their knowledge by expert lectures through NPTEL videos, workshops which improve the knowledge of students through interactive learning practices. In each class, a considerable number of students are certified by NPTEL.
4. **Google classroom**: Google introduced a new online application called Google classroom, a technology in the classroom app designed to provide a single dashboard to unify instructors. All files uploaded by teachers and students are stored in a classroom folder on Google Drive. Users can access Classroom anytime anywhere. Classroom allow teachers to create classes, post assignments, organize folders, and view work in real –time. Students will have an Exposure to an Online Learning platform. Google classroom can help students become and stay engaged in the learning process.
5. **Course Files**: Course file prepared by the faculty plays a vital role in Teaching- Learning Process. For each subject, course file is prepared by the concerned faculty. The structure of the course file consists of following items.

Sl.No	**Content**
1	Program Outcomes(PO's) and Program Specific Outcomes(PSO's)
2	Syllabus copy
3	Course Outcomes(CO's)
4	Mapping of PO's and PSO's with CO's

5	Academic Calendar
6	Course Time Table
7	Lesson Plan
8	Lecture Notes
9	Question Bank(10 marks and 2 marks)
10	Presentation slides and other any ICT, if any
11	Question Papers of internal examination tests, University question papers and Assignments
12	Two sample answer scripts of IET's and Assignments
13	Key and Scheme of evaluation of IET's
14	Internal Exam marks
15	Record of Attendance(Attendance registers)
16	Assessment of Course Outcomes

6. **Lesson Plan:** Lesson plans with clear course outcomes for each course are prepared by the faculty as per the scheme prescribed by BPUT. Lesson Plan with course outcomes are prepared by the subject-handling faculty before the commencement of the semester and is duly approved by the HOD. According to the lesson plan, HOD can monitor the coverage of syllabus.
7. **Question Bank:** Question Banks are prepared for each course based on the Course Outcomes and considering the nature of the BPUT question papers. The previous question papers of BPUT are also maintained in the course files. Assignments questions list is also included in the course file.
8. **Department Fests/ Associations:** In an Academic year, for each semester the department organizes Engineer's day, department technical association EESA (Electrical Engineering Student Association). Through this program, the department organizes various technical (seminars) and non-technical events. The students are encouraged to organize and participate actively in the events. Hence the students acquire Technical and Non-Technical skills.
9. **Learning Process:** The faculty members are encouraged for making the students to involve actively in the process of learning. Following learning

approaches are followed by the faculty to develop various learning skills among the students.

a. **Independent Learning:** The Central Library has a vast collection of books, journals & project reports, etc. A Library hour is made compulsory for all the students to encourage the students to learn independently. Internet facility is available to the students to learn on their own.
b. **Interactive Learning:** Some of the classrooms are equipped with LCD Projector and internet connectivity. Faculty regularly uses presentations and videos as teaching tools and encourages interactive learning among the students. Organize guest lectures and seminars regularly.
c. **Collaborative Learning:** Faculty facilitate discussion an important concepts within the classroom to encourage combined learning. Departmental association are highly active in the institution. These association regularly organize seminars, discussions and competitions to encourage collaborative learning among the students.

10. **Demonstration (Laboratory/ Physical models):** Faculty members encourage the students through above learning techniques to build a physical model of their own. Electric vehicle is one of the project undertaken by the final year students.

Innovations by the Faculty in Teaching and Learning:

The term “Innovation” in teaching and learning is intrinsically quite broad in perspective and there are a number of views on how to define it. In the department of Electrical Engineering of SCE, Balasore, we define it as follows

“Any teaching strategy, approach, technique, or tool can qualify to be termed as an innovation if it is used in a new way, to produce quantifiable gain for student outcomes or the student experience, and can be implemented widely”.

1. Many of such innovative initiatives taken by faculty and staff of the department can be observed in the Course Files, Laboratory Manuals and other documents that are maintained in the department.
2. Statement of goals form innovations in teaching and learning:
3. Enrich the learning experience of students through innovative tools and techniques.
4. Enhance the understanding and knowledge of students with innovative tools and techniques.
5. Broaden the perspective of students in matters relating to academic, contemporary as well as social issues using innovative tools and techniques.
6. Motivate the students to think, formulate and act innovatively.

Innovative Methods of Learning:

Innovative learning methods are initiated and implemented by the faculty for students to learn in a better manner.

1. Computer-assisted learning
2. Lab Improvement for Future Trends (LIFT)
3. Learn Emerging Advances in Domain Experimentation
4. Group Learning
5. Innovations in Assessment
6. Innovations in Evaluation
7. Providing more opportunities for practical learning
8. Facilitate internships

Process for identifying and publishing innovative initiatives:

The department continuously strives to achieve the goals set towards maintaining the continuity of innovative practices in teaching and learning Methods. Innovation is literally done by each dedicated faculty, knowingly or unknowingly; literally every single working day of his/her career. Some initiatives may be so small to escape attention, and might be difficult to quantify and record; but may affect the learning of students in a subtle but important way. On the other hand, some initiatives might be so impactful so as to be clearly visible as making huge strides in improving the teaching-learning process. Given below is a listing of some of the noticeable initiatives taken by the faculty of the department. However, it should not be construed as a conclusive list; but as a part of an open-ended process of continuous improvement.

1. **Department Space submissions:** Faculty of the department regularly upload a lot of academically relevant documents on the Department Space repository of EESCE. The portal is directly accessible from the institutional website svce.edu.in. The submissions include power point presentations, articles, lecture notes, lab manuals and many other useful documents that are beneficial for the students.
2. **Club activities:** There are KAITES Association that are currently being run by the Department of Information Technology, various club activities in these club's act as excellent grounds for innovative learning. In these clubs, the faculty are not the only disseminators of knowledge; senior students (older club members) pass on their knowledge and learning to the younger generation (new club entrants) via a continuous ritual-like process, which includes hands-on training, presentations, lectures, group discussions and many other innovative procedures. These clubs with their club activities literally act as the most fertile grounds for innovations in the teaching-learning process.

3. **Virtual labs:** In certain labs, for instance the vibration engineering lab, some relevant experiments are conducted online on web browsers with the help of simulators. Such online facilities are called as virtual labs (http://www.vlab.co.in/), and are a part of an excellent innovative initiative taken by the MHRD of India.
4. **MOOCS:** MOOCS or Massive open online courses are a relatively new entry in the academic sector throughout the world. Although the role of MOOCs in effective dissemination of knowledge is still under debate, they are speedily gaining unquestioned acceptance in more and more academic circles as an innovative means of imparting additional knowledge to students. Here at SVCE, we support augmenting our own efforts of effective delivery by MOOCs available through agencies like NPTEL and SWAYAM.
5. **Miniature scale models:** In many relevant subjects, faculty encourage the students to make miniature working models of mechanisms. Thus, enhancing interest and level of learning.
6. **E-mail correspondence with students:** Faculty frequently engages in e-mail correspondence with the students to share notes, remarks, assignments and test results. This significantly boosts the out-of-class learning experience of students.
7. **Student presentations:** In many relevant subjects, students deliver presentations to the rest of their classmates. This significantly boosts students' confidence and their learning experience.
8. **Audio-visual learning:** In many subjects (wherever necessary) audio-visual aids are used. It is a proved fact that audio-visual presentations in the classrooms are more effective in capturing the attention of students.
9. **Classroom quiz sessions:** These help in creating interest by breaking monotony of regular classes while enhancing the learning experience.
10. **Adherence to Bloom's taxonomy:** The mid-term tests for all subjects in

the department are made in strict adherence to the Bloom's taxonomy. This ensures that the learning as well as the assessment mechanism is based on standard practices of the academic fraternity worldwide.

11. **Library assignments:** Students are set such assignments from time to time; wherein they are required to research certain topics from the resources available in the institute library and finally submit a report.