

## Teaching - Learning Processes

Department follows the academic calendar of the college which is based on the RTM university academic calendar. It consists of the activities planned for the semester which includes internal examination dates for theory and practical courses, conduction of events like Guest Lectures, Workshops, Continuous learning programs for students, Conference, Site visits, Extra and Co curricular activities, Educational Tours etc.

- Subject allotment is done well in advance for the staff to prepare teaching plan, lecture notes, power point presentations etc.
- As per the university guidelines, assigned numbers of experiments are conducted. In addition to that, some advanced and additional experiments are also conducted to stimulate student's interest in the subject. Laboratory Manuals explaining the details of the experiments are available in the laboratory and are referred by the students. Log books are maintained with all details in each laboratory.
- The faculties of the department adopt various methods of teaching and learning to create best learning environment for student.
- The methodologies include traditional blackboard teaching, presentations, video lecturing, and group discussion. Collaborative learning methods are used to create an environment of active, involved, exploratory learning which enhance thinking skills, builds self esteem in students.
- The faculty are oriented towards outcome based education and actively utilizing the OBE to cater the learning requisite of the students in an experimental way.

The following process is followed to improve the quality of teaching and learning process:

### *Practices of Teaching Learning Process*

1. **Course Plan:** Course plan is prepared for each course in each semester considering the curriculum/ syllabus (units) and complete lecture schedule with plan is discussed with the students.
2. **Lecture Notes:** Subject teacher prepared the notes which include lectures delivered by the faculty as per the syllabus also the contents beyond syllabus. Contents beyond syllabus help to bridge the gap between syllabus and recent trends in Engineering and Technology.
3. **Assignments:** Assignments are given in a semester for each course to cover the complexities of the subject, to provide awareness and knowledge about topic also promotes self-learning.
4. **Tutorials:** Tutorial slot is given in the time table which is once in a week to enhance the problem solving skill among the students and to revise the previously covered topics which improves self esteem and attitude towards learning.
5. **Subject Activity:** Subject activity in terms of Tests, Quiz, Puzzles, PPT presentation, chart and model making etc. is conducted in each course to build confidence and enhance the understanding of the course. Such type of activities adds interest and boost speaking skills.

6. **Additional Laboratory Experiments:** Additional and advanced laboratory experiments are conducted in laboratories to deepen, students understanding by relating theory to practice. It provides coherence towards achievement of POs.
7. **Seminar:** Seminars on course content or general topics related to new technological developments in Civil engineering was presented by students to impart broad knowledge of new research topics and their application in modern day. It also helps them to convey their own ideas to others.
8. **Workshops:** Workshops are organized as per availability and requirement of the course. People from different industries, firms and institutions are invited for delivering the recent innovations and practices in concerned fields. Students acquire with latest trends and technologies. Students assimilate new ideas and approaches about the topic. Get opportunity to interact with experts face-to-face.
9. **Expert lectures:** Inviting eminent personalities, who have achieved some feat in science and technology to take some seminars for the students. It greatly helps them to understand the present and ongoing advancements in the technical fields. Students get exposed to additional contents and advanced technologies.
10. **Industrial Interaction:** Industrial tour is carried out once in the program and site visits as required during the academic year for each course. Students get exposed to the practical and various aspects of working environment. Industrial visits help students to know the information useful for knowledge up gradation and thus build up better academic involvement.
11. **PPTs:** Power Point Presentations are prepared by the respective course faculty for typical topics for better and easy understanding to the student.
12. **Mini Project:** Mini project is undertaken for enhancing the knowledge.
13. **Remedial Classes:** After first Sessional evaluation, weaker students are identified and remedial classes are conducted to improve their performance. Remedial teaching provides the foundation for learning a subject in greater detail.
14. **E-learning portal:** Spanned throughout the program. Students have an access to the complete learning material for all the subjects at their convenience. Due to flexibility e learning is an efficient way of delivering courses which promotes active and independent learning.
15. **Question Bank:** Question banks are prepared for each unit in the course based on the course objectives and considering the nature of the university question papers. The previous question papers of University are also maintained in the course files. Question banks are made available in the e-Learning portal for the students.
16. **Software courses:** Expert lectures to spread awareness about new software's are organized in each semester. Also software training courses are made available in the department for the students.
17. **Library and Internet:** Students and faculties are provided with access for reputed e-journals and internet facility.
18. **Guardian Teacher Counselling:** Students are motivated by Guardian Teacher towards academic, curricular and extracurricular activities.

19. **Student Feedback:** Time to time feedback from students through sets of questionnaires helps in reviewing the rate of growth of department.
20. **Resource Learning:** It incorporates NPTEL and Project Based Learning for the students. In Project study, a student learns about various previously completed projects, research and methodology aspects. Students browse through NPTEL, which enables him to understand the subject better. Students are able to review and assess his own progress week after week and also get his doubts clarified mutually or by the faculty in charge or by mentors immediately.
21. **Case studies:** Real life examples/ case studies are undertaken for better understanding with practical exposure. Wherever applicable.

## Teaching Process

For the effective teaching process various pedagogical and instructional approaches are adopted mentioned as follows:

- a. **Class room teaching:** Class room teaching is initiated by a well-structured lesson plan which is developed by the concerned faculty. During the lectures, teachers use pictures charts to know the topic deeply. All the faculty members take up curriculum classes with course outcomes. Faculty members also refers NPTEL courses for upgrading their class room teaching skills and for better delivery of topic in the class. Faculties continuously encourage, motivate, and guide the students for better performance.
- b. **Continuous assessment in laboratory:** Continuous assessment methodology is applicable in all the practical courses, i.e., all the laboratories through daily experimental observations, daily performance, record submission and correction. Experiments are demonstrated before the experimentation, to ensure students understanding level on theoretical and practical concepts. In some course practical's, advanced and additional experiments are also conducted.
- c. **Student Counselling:** Teacher guardian is appointed for the students and Counselling is done in the view of the student's career, curricular and extracurricular activities, so they guide and motivate students towards their career development.
- d. **Contents beyond the curriculum:** To enhance the course outcomes, additional and advanced experimentation have been incorporated in the laboratory courses and appropriate concepts in the theory classes have been covered using several teaching learning methods.
- e. **Lecture Notes:** A detailed learning notes for each unit is prepared by respective course faculty according to the prescribed syllabus before the commencement of the individual semester class work.
- f. **Question Bank:** Question banks are prepared for each course based on the course objectives and considering the nature of the university question papers. The previous question papers of University are also maintained in the course files. Question banks are made available in the e-Learning portal and course files.
- g. **PPTs:** Power Point Presentations are prepared by the respective course faculty for typical topics for better and easy understanding of the student.
- h. **Assignments:** Assignment questions are framed based on the attainment of the Course Outcomes and Program Outcomes such that it reflects the Bloom's Taxonomy.

- i. **Tutorials:*** More numerical are practiced in the tutorials to enhance problem solving skills among the students.
- j. **Remedial Classes:*** Weaker students are identified and remedial classes are conducted to improve the performance.
- k. **Student Feedback:*** Student feedback is taken regularly by class in charge and committee members to further improve teaching learning environment within the classroom.

### **Learning Process**

To ensure effective teaching learning environment, the various practices / modes that are facilitated for enhancing the learning process among the students. Following are the initiatives by the departments.

#### *a. Interactive Learning*

- Besides traditional classrooms with a blackboard, some classrooms are equipped with an LCD projector and entire campus has internet connectivity.
- Faculty uses presentations and videos as teaching tools and encourages interactive learning amongst the students.
- Department also organizes expert lectures and workshops for the students as a part of interactive learning.

#### *b. Collaborative Learning*

- Faculties facilitate discussions on important concepts within the classroom to encourage combined learning.
- Faculties regularly organize seminars, activities, group discussions and competitions to encourage collaborative learning among the students.
- As a subject activity student discuss a topic of his/her interest in classroom or give PPT presentation. This is an initiative taken by departments to encourage public speaking among students.

#### *c. Independent Learning*

- E-Learning: The central library has a vast collection of books, journals, magazines, e-books, project reports, etc and made available for students. Additionally, an e-learning activity through NPTEL has been introduced. It is available for the students in the college website such that students can access it at their convenience. A list of objective questions covering the syllabus is available for preparation of internal examinations. Lecture notes, Question papers are available on college web site for ready reference to the students. Importantly, subject wise standard reference text books and all the lab manuals were also provided for the ease of learning. ([www.KDKCE.edu.in](http://www.KDKCE.edu.in))

#### *d. NPTEL based learning:*

NPTEL based online resource materials are referred by the faculty for enhancing their teaching skills and smooth conduct of the teaching process. Even in tutorial slot subject teacher explain the content using NPTEL videos or lectures. Similarly, students are supported with NPTEL video lectures in the central digital library and a data bank of the CD's of courses are made available in the department library.

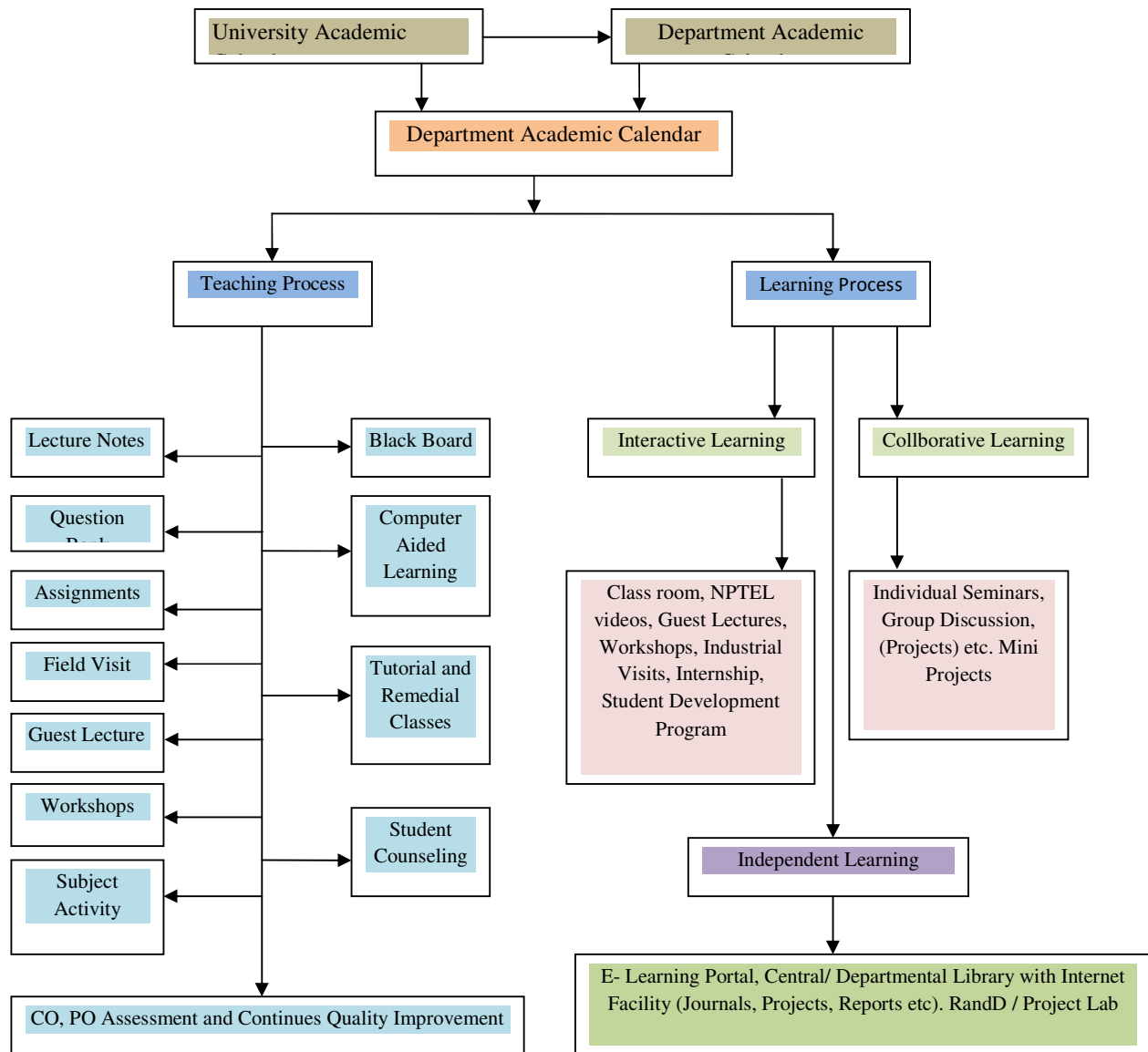
#### *e. Resource Learning:*

Learning through the resources is made available to the students by providing slots in the

time table. In its domain students are provided with NPTEL and Project Based Learning (PBL).

- **Project Based Learning:** In PBL, the students are taken to the Project Lab and are explained the projects that are carried out in the deptt. They understand various aspects of the projects and get aware about many engineering concepts and methodologies.
- **NPTEL:** Students are taken to the computing facilities, to browse required NPTEL resources. They study and understand various topics of the course in the NPTEL resources.

The detailed teaching-learning process at a glance is illustrated in Fig. 2.2.1.1



*Flowchart for Teaching Learning Process*