



# KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506 015, Telangana, INDIA.

काकतीय प्रौद्योगिकी एवं विज्ञान संस्थान, वरंगल - ५०६ ०१५ तेलंगाना, भारत

కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ - ౫౦౬ ౦౧౫ తెలంగాణ, భారతదేశము

(An Autonomous Institute under Kakatiya University, Warangal)

(Approved by AICTE, New Delhi; Recognised by UGC under 2(f) & 12(B); Sponsored by EKASILA EDUCATION SOCIETY)

## KITSW INSTITUTE BEST PRACTICES

### BEST PRACTICE-I

#### 1. Title of the Practice

Integrating Research & Entrepreneurship activities in Outcome based Teaching & Learning

#### 2. Objectives of the Practice

Outcome based education ensures students to acquire desired knowledge and skills at the end of the programme.

The objectives of this practice are to:

- i. impart relevant 21<sup>st</sup> century skills to students for industry 4.0
- ii. inculcate self-learning ability to students
- iii. orient students towards lifelong learning
- iv. foster innovation and entrepreneurial skills

#### 3. The Context

The outcome of engineering education is to create industry - ready engineers by imparting necessary 21<sup>st</sup> century skills. The essential 21<sup>st</sup> century skills include critical thinking & problem solving, creativity & innovation, collaboration & leadership and communication & lifelong learning.

Every course should contribute in imparting these essential skills to students as part of their learning. In this context, we have designed innovative LTP to be followed for every courses, which

- (i) facilitates a successful active learning
- (ii) make students exposed and involved in activities which import 21<sup>st</sup> century knowledge and skills.

This TLP integrates the innovation, incubation, research and entrepreneurship activities into course teaching.

#### 4. The Practice

Classwork is followed as per Almanac. A detailed Outcome Based Lecture Schedule (OBLS) is prepared and shared to students on institute learning management system called CourseWeb. This CourseWeb features the information pertaining to the course with OBLS, Classroom Discussion Topics (CDTs), Self Learning Topics (SLTs), Program based Assignments, Course Research Papers, Course Patents, Course Projects (CPr) and relevant learning material.

- Before the commencement of each semester, OBLS is made available on the CourseWeb. OBLS consists of topics and lecture level outcomes indicating the skills to be imparted to students.
- As per OBLS, the CDTs & SLTs of each lecture session are shared to the students well in advance. CDTs & SLTs consists of a two-page summary of the session, lecture level practice problems (LLPs) and lecture outcomes. Students refer to the respective CDT/textbooks and attend classes with prior knowledge. This active learning enables students to participate proactively in class discussions, solve LLPs and problems to be solved during Tutorial sessions.
- Coding Assignments are given in each course to enhance student' coding skills.
- Course faculty will share a Course Research Paper (CRP) and Course Patent (CP) relevant to the course. Students submit a 2-page summary on CRP and CP as Special Assignments.
- Interested students will do Course Projects under the supervision of course faculty.

#### 5. Evidence of Success

- Active learning enabled students to improve problem solving skills.
- Coding skills are improved through Coding Assignments
- Special Assignments on CRP & CP exposed students to patents & research literature and enhanced self-learning/lifelong learning abilities.

#### 6. Problems Encountered and Resources Required

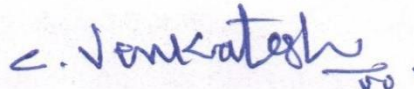
Additional effort required by the faculty in adapting ICT and Outcome based lecture in preparation of digital content like CDTs, SLTs and lecture videos. Resources like laptop,

video camera/webcam, digital slate and video editing software were required in preparing the effective lecture videos.


- i. Some of the faculty required training on the use of ICT tools for video recording and preparing session summaries.
- ii. Students to be motivated towards self - learning and read some time to get accustomed to student-centered active learning.

### 7. Notes (Optional)

Outcome based education is now the era of learning in order to make students industry ready and acquire skills as per accreditation regulations. Students have to acquire skills during their course work and class room sessions. These acquired skills are to be assessed properly by the faculty during class session. Hence effective is implementation of active learning is becoming the new norm. Our institute is implementing ICT enabled Outcome based teaching and learning method to produce students with 21<sup>st</sup> century skills.

  
Coordinator, IQAC



  
PRINCIPAL  
*Principal*  
KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE  
Opp: Yerragattugutta, Vill: Bheemaram,  
Hanamkonda, Warangal-506015. (TS)