KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE, WARANGAL-15

OFFICE OF THE PRINCIPAL

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CIRCULAR

Sub: Outcome Based Education – Imparting 21st Century skills – Student-centered Active Learning –Implementation - Reg.

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Dear Students!

Greetings!

The class work for the EVEN semester for AY 2021-22 will commence on 24.01.2022.

As part of Outcome Based Curriculum (OBE) and Teaching Learning Process (TLP), it has been decided to implement **Active Learning strategies to impart 21st Century skills**

Active Learning:

For **21st century technical education, students are expected to take ownership of their learning to master the knowledge, skills and qualities (KSQs) for holistic growth and development.**

Active learning strategies are an integral part of outcome based education (OBE). In fact, active learning stands in contrast to **traditional modes of instruction** in which students are passive recipients of knowledge from an expert.

- Active learning is a student-centered learning
- Active learning is any approach to instruction in which all students are asked to engage in the learning process.
- Mandatory involvement of students in class discussions
- Students as active participants in the learning during class time with their instructor
- Student self-learning happens during course teaching
- Course faculty encourages the students and create learning environment in the classroom

In this connection, your course faculty will post the Outcome Based Lecture Plan (OBLP), Outcome Based Lecture Schedule (OBLS) and other learning resources in CourseWeb before commencement of the class work which helps you to prepare well in advance.

Dear Students,

In active learning strategy, you should participate in the classroom discussion by preparing well in advance.

You have to meticulously follow the guidelines mentioned hereunder as part of student-centered active learning

1. **Purchase Laptop** and start coding to acquire programming skills. You should be able to code in any programming language to solve the problems. **You have to code to solve the problems of Assignments A1 & A2**
2. **Purchase course textbook** for each course
3. Show purchased course textbook to the course teacher (with roll number and name written on cover page) during first week of semester
4. Textbook reading is an essential part of course learning
5. You should refer to **Outcome Based Lecture Schedule** (OBLS) to participate in class activity of that day
6. Preparation in advance, as per the OBLS posted by faculty
7. Mandatory participation in class activities as per **Outcome Based Lecture Plan** (OBLP) to harness the skills
8. **Self-Learning Topics (SLTs)** : Read and work out the SLTs on your own with the help of Self-learning resources as indicated in Lecture Schedule
9. Read lecture summaries posted in CourseWeb. This helps students for summarizing the lectures at the end of the class
10. **Classroom Discussion Topics (CDTs):** Read the text book for the topics mentioned in this OBLS and attend the class with complete preparation to take part in active learning by participating in classroom discussion
11. You have to sold the **Lecture Level Practice Problems (LLPs)** to test whether you have achieved the **Lecture Level Outcomes (LLOs)**
12. Attend tutorial classes fully prepared to solve the problems on black board / white board
13. Students will be identified, as per the **Tutorial Matrix Sheet** (posted in CoureWeb) and hence you should be ready with preparation, to solve problems in tutorial class
14. Solve the Assignment problems in a separate note book, as the course progresses

Dear Students, for reference, a template of 50 mins. lecture plan which will be followed by your course faculty, is given below. Get ready to participate in class discussion!

S. No	Activity	Duration (minutes)	Details
1.	RECAP *on previous class lecture*	2	• Course faculty identifies, at random, one of the students • The student recaps the Salient points of previous class discussion • Faculty maintains a record of student participation in class activity of that day in the attendance register (*This will be a first step for our future evaluation parameter- student participation in class activity*)
2.	Lecture Learning Outcomes (LLOs)	1	• Course faculty gives a short introduction of topics scheduled for class room discussion • Course faculty displays the PPT slide on students' expected learning outcomes of the lecture (LLOs) • Same LLOs are available in the lecture summary also

3.	Discussion on the CDT & Doubt clarification session	20	• Faculty starts discussion with Q&A on classroom discussion topic (CDT) • Students one after another *(randomly selected by faculty)* will continue & complete the topic discussion • Faculty moderates the discussion • Faculty clarifies doubts in the process
4.	SUM UP *and* *Review*	5	• Course faculty identifies, at random, one of the students to SUMUP • Student will SUMUP the class discussion • This summary will be in tune with the lecture summary uploaded in CourseWeb, which the student is expected to read before attending the class • Faculty shares the importance of the topic • Faculty discusses real-world applications of the topic
5	TESTING *Lecture Learning Outcomes (LLOs) & Recording LLO achievement %*	20	• Course faculty checks whether lecture learning outcomes (LLOs) are achieved with the help of LLPs • All students will be instructed to solve the LLPs • Lecture outcome attainment: Faculty checks how many students achieved the outcomes and records the % of LLO achievement in attendance register • Faculty addresses all learners' needs, thereafter
6	Throwing light on the next Lecture	2	• Instructions on topics to be prepared for next class • Resources provided in CourseWeb
7	Giving reference to Tutorial sheets		• During topic discussion, faculty will give reference to the problems given in tutorial sheet
8	Tutorial Matrix Sheet: Giving reference to the students who are expected to solve the tutorial problems in tutorial class		• Faculty gives reference to Tutorial Matrix Sheet • Faculty, in every class, announces the names of students who are expected to solve the problems in tutorial class, to happen next week • Also announces the name of student, who is expected to prepare solutions to that tutorial sheet

ASSIGNMENTS A1 & A2
CODING FOR PROBLEM SOLVING

Dear students,

It's time for a change!

To make you industry ready engineers, your course faculty has been integrating I²RE into course TLP to impart 21st Century skills. Now, your course faculty will be integrating coding into course learning to impart problem solving through coding skill

You should be coding in your courses, from the ensuring even semester onwards

For all courses, the assignments A1 and A2 will be on problem solving using coding. You will have to write code to solve the problems of A1 and A2. We want you to write code from scratch. You can use the language you are comfortable such as C, C++, Java, Python, R and several other programming specific languages, which includes

- MatLab
- ANSYS
- Embedded C for Micro Controller based application
- VHDL or Verilog descriptions for given hardware
- VHDL or Verilog for implementing DSP algorithms in FPGs
- Real-time audio/image processing application in C, C++, Java
- ETAP, etc.

Integrating CODING into course learning to impart problem solving and coding skills

After successful execution of code, you have to submit soft copy (PDF file) of the codes you executed to solve the given problems. **Your code will be subjected to plagiarism check! You are advised to write code on your own.**

Through the coding Assignments A1 and A2 for all courses every semester, you'll make programming a daily habit

> 1. **Make programming a daily habit**
> 2. **It helps you solve problem using coding with critical thinking**
> 3. **As an engineering graduate, you are expected to demonstrate coding skills in C/C++/Java/Phython. It helps you to clinch high CTC jobs**

Annotate code:

Dear student, you have to add annotations to code. Annotated codes are very important. When you look back on what you have coded, annotations help to explain what a line / section of code is trying to accomplish.

> **Martin Fouler**, a software developer, author and international public speaker on software development, once said
> *"A fool can write code that a computer can understand.*
> *Good programmers write code that humans can understand"*

Dear Students,

A well-written and indented programs are easier to understand, debug or maintain.

A programmer can write complex codes to solve the problem / tasks, but only **brilliant programmer write programs that can be interpreted by others and can be maintained if any errors come down the line. So always add annotation to your code! and become a good / brilliant programmer.**

Dear students, we are on a mission of **imparting industry 4.0 KSQs through active learning** from ensuing even semester and hence we need your active participation to implement student-centered OBE.

Please follow the instructions of your course faculty and HoD

Good Luck for active learning!

PRINCIPAL

To
All HoDs
- **for student circulation**
- **for faculty information**

Copy to: 1. *Secretary & Correspondent*
2. *Dean, Academic Affairs*
3. *Professor I/c, OBE*
4. *AO*
5. *WebTeam*