

## **WIT & WIL**

Engineering education scenario can make its impact, only when it is more relevant to the dynamics of today's world, society, industry, economy, and environment. No more is technical education a mere qualifiable fascination – the world needs to be able to quantify the application of engineering knowledge. KPRIT has long- absorbed the philosophy of outcome-based education and thus has indigenously created a variety of internal processes and methodologies to ensure that the Institute's graduates stand exemplary of the renewed spirit of modern engineering education.

WIT & WIL, acronym for “*Why am I Teaching What I am Teaching*” from Teacher's perspective and “*Why am I Learning What I am Learning*” from student's perspective, is one such initiative that has been embedded into the Teaching-Learning process at the institute since 2017, as a part of the Education process Re-engineering. WIT & WIL has a structured framework and definitive metrics to ensure that the course outcomes are met, since learning occurs not by recording information but by interpreting it. It helps students to structure and processes knowledge and in turn makes them as constructors of knowledge. WIT & WIL formats also provide ample scope for modern education technologies and active teaching methods, such as the use of audio-visual content, slideshows, case studies, and storytelling through real-world examples.

A video is designed and created using ICT tools in order to present the teacher's perspective (“WIT”) about scenario of the respective subject. The video is designed such that it maps every topic of the prescribed syllabus to the real-world, in order to give the students a tangible experience of understanding the underlying engineering concepts to perceive for themselves (“WIL”). The mechanism of documenting WIT & WIL is also in line with the revised Bloom's Taxonomy, wherein the students are driven from Lower Order Thinking skills (LOT) to Higher Order Thinking skills (HOT) and develop an innate understanding and appreciation of the subject towards the real-world scenario.

Faculty members of KPRIT are using ICT enabled tools and models for effective teaching learning process. Faculty members have used Google classroom, Group discussion, Project based learning, Plickers, Moodle etc. for improvement in teaching. Students took part enthusiastically when new methods are adopted by faculty members.

<b>Sr. No.</b>	<b>Innovations in Teaching Learning</b>
1	Plickers
2	Demonstration model

3	Google Classroom
4	Self-Learning Material using ECAP
5	Project based learning
6	Group Discussion
7	Moodle subject website

### **1. Plickers:**

Quiz was conducted using the tool Plickers in which students are given cards which carries unique pattern for its answers. Answers may be option A, B C or D. By putting cards in front of mobile camera students can register his or her answer. This quiz was conducted for the subjects of EMTL and PDC.

After completion of quiz answers were displayed on the projector screen so students can know their result. The question in which students got less performance was discussed again so that students got better clarity of that topic or question.

#### **Process:**

- Teacher will put question on screen/board.
- To answer, students will rotate their cards so that their answer choice (A, B, C, or D) is at the top.
- Rotate their card so that their chosen answer choice is at the top
- Ensure that their Plickers card is facing the teacher while answering
- Hold their card still and straight until it is scanned
- Teacher will scan all Plickers cards from his/her mobile.

#### **Outcome:**

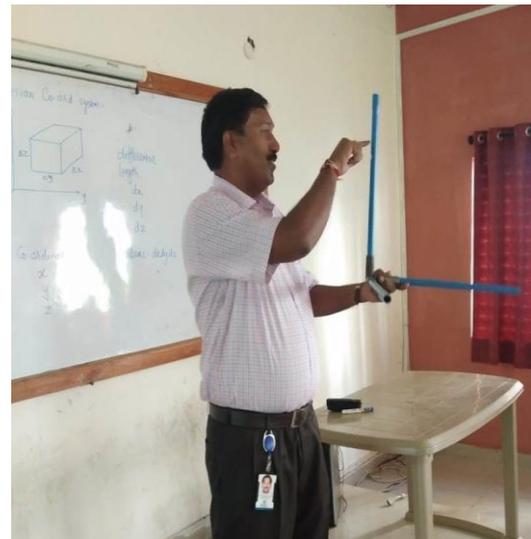
Students will get response of their answers immediately. Teacher will identify the question where the performance is poor and explain those points again. Students will gain their knowledge as teacher will concentrate on the topics where performance is poor.



## 2. Demonstration of Model:

In the subject of Electromagnetic Theory and Transmission Lines, model of three dimensions was shown to students for better visualization of three-dimensional concepts.

Also, in subject of Antennas and Wave Propagation, different prototype antennas are shown so that student can get the idea of design of antenna.



## 3. Google Classroom:

Google Classroom is a free web service developed by Google for schools/colleges that aims to simplify creating, distributing, and grading assignments. The primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students.

Google Classroom's purpose is to facilitate paperless communication between teachers and students and streamline educational workflow. Classroom allows teachers to create classes, post assignments, organize folders, and view work in real-time. Students will have an Exposure to an Online Learning Platform.

**Process:**

To create the classroom in the Google class room teacher should follow points given below.

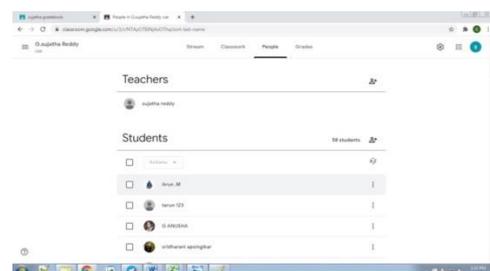
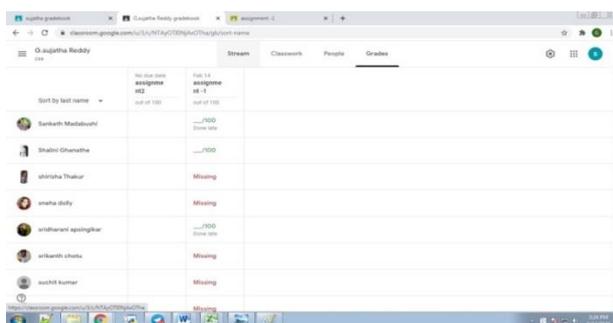
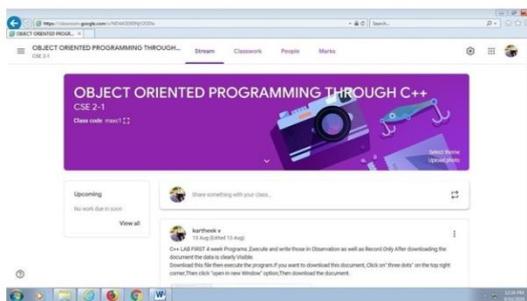
- Open a Web browser and go to [classroom.google.com](https://classroom.google.com). You have to sign in with your Google Apps for Education account.
- On the Welcome screen, click the plus sign at the top and choose Create Class.
- In the Create a Class dialogue box, type in the Class Name and Section.
- Click Create.

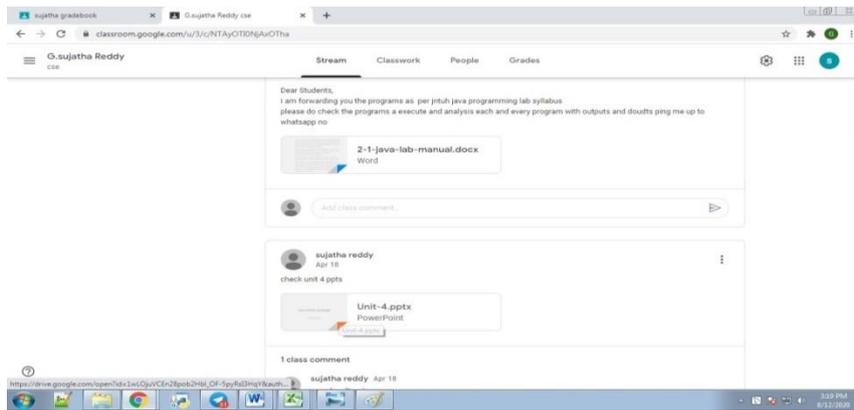
Teachers are designing assignments in the proper documentation form and then publish it in the Google classroom. Students will reply base on the assignment given in the classroom and post the prepared note/graph/work assigned by teachers.

### Outcome:

Details of the students like assignment, class notes etc. will be stored online. So data can be accessed from anywhere. Active learning is possible as students should submit the assigned work within the stipulated time period. Google Classroom helps students to be engaged in the classroom and in the learning process.

Pictorial view of Google Classroom Home page created by faculty member is shown below.





#### 4. Self Learning Material Using ECAP:

ECAP is a software in which teacher can upload the resources like classnotes, e-books, question banks, objective type questions, assignments, laboratory manuals etc. Students can access those material and progress in their study. Teachers can do the entry of attendance online and further analysis can also be done using this software. Marks for assignment and internal examination can also be updated and message can be given to parents whenever required.

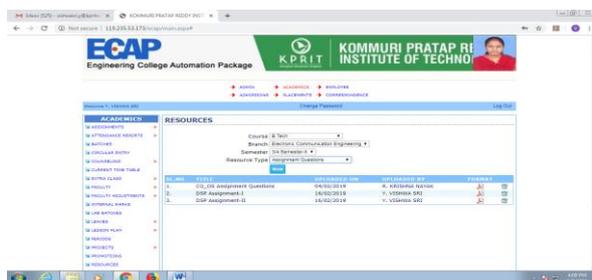
#### Process:

Teacher can login using their credentials and do the work like resource upload, attendance entry, marks entry, additional classes data etc. Students will take those data using their login credentials.

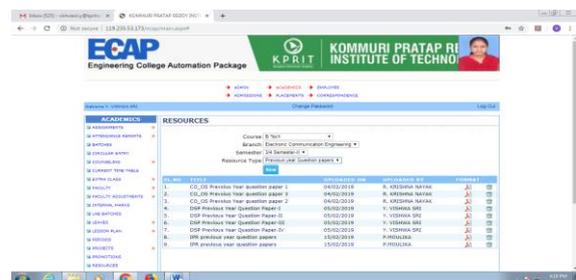
#### Outcome:

Students can access the study material uploaded by teachers. Parents can get information as attendance data can be given to them. Faculty members can access the attendance also do the analysis as per requirement of University.

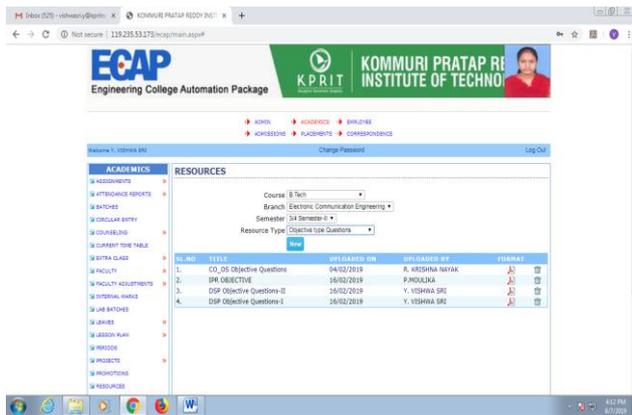
Assignments, Question papers, Objective questions, notes and ppts of the Digital Signal Processing uploaded in the ECAP and pictorial view of these documents when students access is as shown below.



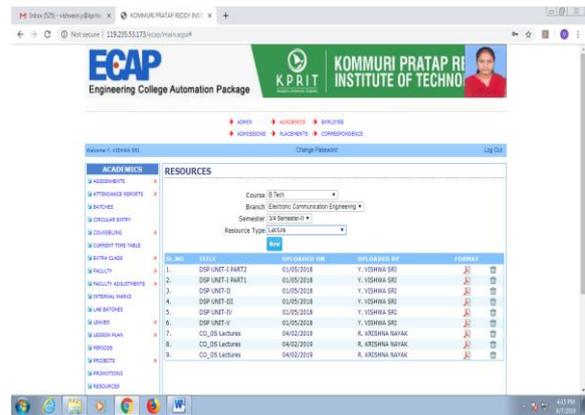
DSP Assignments-I&II



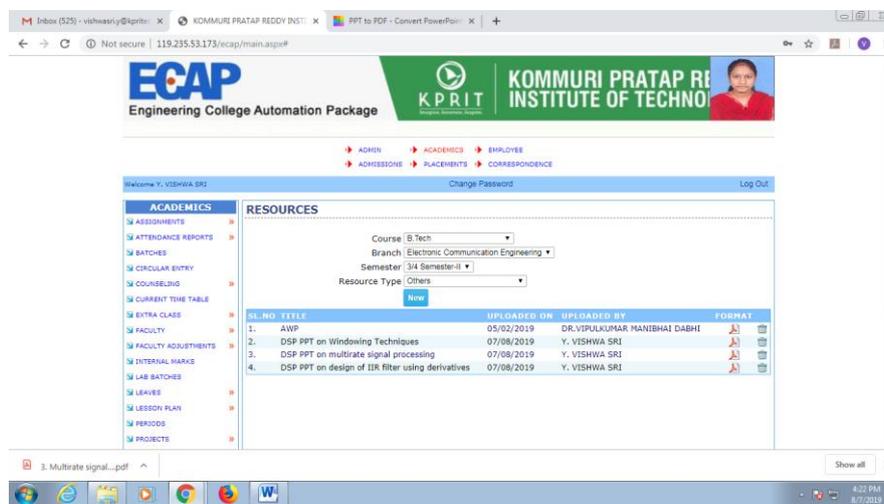
DSP Previous Year Question Papers



DSP Objective Questions



DSP Notes



DSP PPTs

## 5. Project Based Learning

Project-based learning is a comprehensive approach to classroom teaching and learning that is designed to engage students in investigation of authentic problems. Faculty members indicate factors in project design that affect motivation and thought; examine difficulties that students may encounter with projects; and describe how technology can support students as they work on projects, so that motivation and thought are sustained.

### Process:

Students follow this strategy for the completion of project.

1. Identify Outcomes/Assessments. PBL fits best with process-oriented course outcomes such as collaboration, research, and problem solving.
2. Design the Scenario.
3. Introduce PBL.

4. Research.
5. Product Performance.
6. Assessment.

**Outcome:**

Project-based learning develops in depth understanding of the concepts than in traditional classroom-based learning and results in improved levels of student's creativity.



**6. Group Discussion**

Group discussions can encourage students to learn from one another and to articulate course content in their own words. While generally not conducive to covering large amounts of content, the interactive dynamic of discussion can help students learn and motivate them to complete homework and to prepare for class. Leading discussions in which students contribute meaningfully requires a great deal of teacher forethought and creativity.

**Process:**

Students form circles of four or five. Give students a topic, and allow them a few minutes to organize their thoughts about it. Then the discussion begins, with each student having up to three minutes (or choose a different length) of uninterrupted time to speak.

**Outcome:**

Group discussions offer an opportunity for extended speaking (and listening!) practice by all the students. Group discussion practice and skill development is therefore useful for all students.



## 7. Moodle Subject Website:

Moodle website created for the subject of Electromagnetic and Transmission Lines (EMTL). The subject website is [emtl.gnomio.com](http://emtl.gnomio.com).

In this website, Students are asked to enroll on the website. They are doing self-enrolment in the website and they have access to visit the website. Crossword puzzle quiz was conducted and students have taken active part in the crossword puzzle.

After completion of the quiz, students can see their result of the quiz. Maximum three attempts are given to attend the quiz. Highest grade is considered for the final result. Snapshot of the website and crossword puzzle quiz is shown below.

The left screenshot shows the Moodle course page for 'Unit I: Electrostatics'. The sidebar menu includes 'EMTL', 'Participants', 'Badges', 'Competencies', 'Grades', 'Course Objectives and Course Outcomes', 'Unit I: Electrostatics', 'Unit II: Magnetostatics', 'Unit III: EM Wave Characteristics', and 'Unit IV: Transmission Lines - I'. The main content area displays the course description for 'Unit I: Electrostatics' and a list of activities including 'Glossary 1' and 'Crossword'.

The right screenshot shows a crossword puzzle quiz interface. The grid is 9 rows by 7 columns. The clues are:

- Across 4: Cartesian coordinate system has \_\_\_\_\_ coordinates.
- Across 8: Only magnitude and no direction
- Down 1: In cylindrical coordinate system, rho is
- Down 6: \_\_\_\_\_, 6 letters. Cross Product of two vectors are always \_\_\_\_\_.

The grid shows the following letters filled in:

		C				
		A				
		R				
		T				
		E				
		S				
		I				
		A				
		N				

The interface also includes a 'Grade 0 %' indicator, a 'Check crossword' button, and an 'End of crossword game' button.

emti.gnomio.com/mod/game/attempt.php

Moodle Admin User

Grade 0 %

1		C				
2		A				
3		R				
4		T				
5		E				
6		S				
7		I				
8		A				
9		N				

••A•••  
Across, 6 letters.  
Only magnitude and no direction

OK Cancel

Check crossword End of crossword game Print

**Across**  
4: Cartesian coordinate system has \_\_\_\_\_ coordinates.  
8: Only magnitude and no direction

**Down**  
1: In cylindrical coordinate system, the z

