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**ಶರಣಬಸವ**  
**Sharnbasva**

ಕಲಬುರಗಿ-585 103  
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ಸ್ಥಾಪನೆ : 2017



**ವಿಶ್ವವಿದ್ಯಾಲಯ**  
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Kalaburagi-585 103  
Karnataka-India  
Estd.: 2017



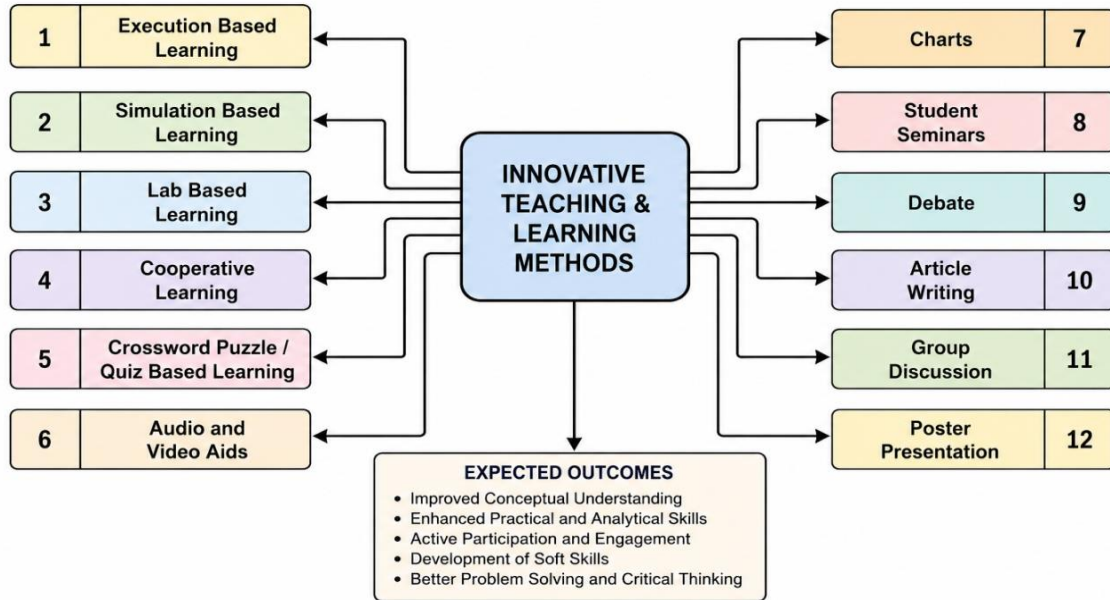
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**Faculty of Engineering & Technology**  
**Department of Electronics and Communication Engineering**

**INNOVATIVE TEACHING AND LEARNING METHODS**



Innovative Methods	Process	Goals	Outcomes
<b>Execution based learning</b>	Execution-based learning” generally refers to a hands-on approach to acquiring knowledge or skills, where the learner actively performs tasks rather than just consuming information passively (like reading or listening to lectures).Courses like Python programming have implemented this method of teaching.	Focus on implementation, projects, labs, internships, and case studies.	Increased confidence in handling real-world projects and ability to use modern tools and technologies



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### Supporting Information

```

35 print ("socket binded to %s" %(port))
36
37 # put the socket into listening mode
38 s.listen(5)
39 print ("socket is listening")
40
41 # a forever loop until we interrupt it or
42 # an error occurs
43 while True:
44
45 # Establish connection with client.
46 c, addr = s.accept()
47 print ('Got connection from', addr )
48
49 # send a thank you message to the client. encoding to send byte type.
50 c.send('Thank you for connecting'.encode())
51 # Close the connection with the client
52 c.close()
53
54 # Breaking once connection closed
55
56 # Create a socket object
57 s = socket.socket()
58
59 # Define the port on which you want to connect
60 port = 12345
    
```

### Simulation Based Learning

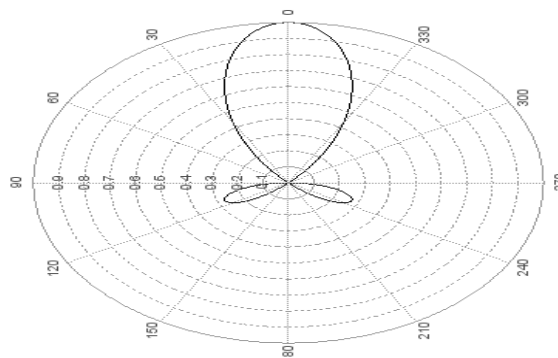
Simulation-based learning of Electromagnetic Waves and Antennas refers to the practice of using computer simulations to study and understand the behavior of antennas and how electromagnetic waves travel through different environments, allowing for design optimization and analysis without the need for physical prototypes in every scenario. Scilab is a good alternative to commercial software, and an effective electromagnetic, and antenna teaching aid for teaching the concepts of antennas. It is a challenging task to demonstrate antenna array performance, and the simulation tool is needed to easily show the properties of antennas to the students.

Enhance conceptual understanding, provide safe learning environments, develop practical and technical skills

Better retention and understanding of concepts, Improved practical competency, Ability to use modern engineering and simulation tools

```

*Value of the wavelength (Lambda): 0.4 m*
*Length of the reflector: 0.289 m*
*Length of the dipole: 0.276 m*
*Lengths of the directors Ld1 and Ld2: 0.264 m*
*Length of the director Ld3: 0.258 m*
*Length of the director Ld4: 0.24 m*
*Separation between the reflector and the dipole: 0.18 m*
    
```





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Bardoloi, Dibrugarh, Assam, India, Kollup

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<p><b>Lab based learning</b></p>	<p>Lab-Based Learning is a hands-on teaching method where students learn by conducting experiments in a controlled environment. It helps connect theoretical knowledge to practical applications through observation and testing. Students develop skills like problem-solving, critical thinking, and analysis while working in labs. This method is widely used in science, engineering, and medical education. It makes learning interactive, engaging, and experience-driven.</p>	<p>Train students in handling instruments, tools, software, and equipment safely and effectively. Encourage students to analyze experimental data, identify errors, troubleshoot issues, and improve solutions.</p>	<p>Competency in using modern laboratory tools and technologies. Enhanced troubleshooting and debugging capability</p>
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<p><b>Word search approach</b></p>	<p>Word search approach is an interactive method to build vocabulary on a specific subject. By incorporating word search in teaching and learning will improve vocabulary and enhances problem-solving skills among the students. Faculties have used this method of teaching in courses like Basic Electronics, Soft skills, IoT Technology, ARM Cortex-M3 and Embedded Systems, Sensors and actuators to get start with their courses.</p>	<p>Help students learn and recall technical terms, definitions, and keywords related to the subject. Make learning interactive, enjoyable, and participative.</p>	<p>Increased classroom participation and motivation Improved communication using domain-specific vocabulary</p>
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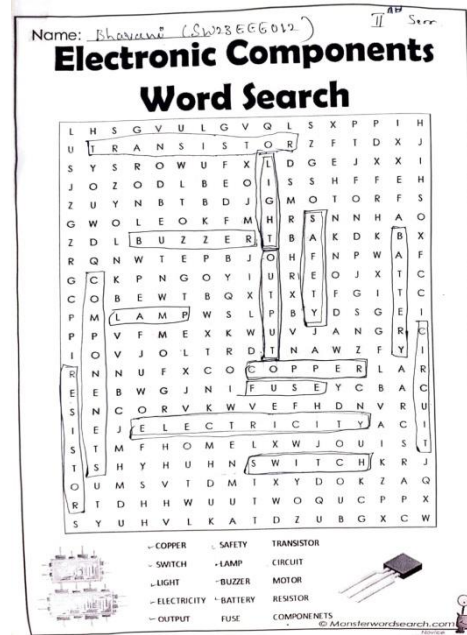
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**Cooperative learning**

Quizzes are a valuable teaching tool that serves multiple purposes in the learning process. By incorporating quizzes in teaching and learning will enhance student engagement, assess knowledge retention. Courses like IBOP have adopted this kind of learning.

Encourage students to learn from peers through discussion, interaction, and teamwork. Enable learners to solve complex problems collectively by sharing ideas and perspectives.

Improved teamwork and collaboration skills, enhanced communication and presentation abilities, stronger leadership and interpersonal skills



**Crossword puzzle**

A crossword puzzle is a word game that involves filling in words to

Encourage reasoning, interpretation,

logical clue and

Improved communication using technical vocabulary, better self-



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complete a grid of clues. By using crossword puzzle in teaching and learning will improve memory, enhances problem solving skills. This particular method is adopted for the courses like Digital electronics, Digital system design.

analytical thinking. Make classroom learning enjoyable, interactive, and less monotonous.

learning and independent thinking ability.

Name: Nida Muthan Bangi (SWJEECE042) Date: 5/11/2022

**sensors**

S	Z	F	W	D	K	S	P	Z	S	V	G	G	E	T	J	P	V	X	H	G	N	V	C
W	F	Q	E	Q	P	G	B	R	O	T	A	R	E	N	E	G	D	N	U	O	S	L	I
E	B	D	L	G	A	Z	D	R	I	L	I	G	H	T	S	E	N	S	O	R	Y	M	F
G	B	A	U	W	B	N	U	C	G	F	Y	V	C	J	B	N	A	H	J	F	E	M	R
K	Z	W	I	U	L	T	R	A	S	O	N	I	C	S	E	N	S	O	R	A	B	J	J
B	E	H	C	X	O	X	V	Z	O	R	O	S	N	E	S	S	S	A	P	M	O	C	U
Y	T	V	F	R	O	S	N	E	S	N	O	I	T	A	R	E	L	E	C	C	A	W	F
I	C	I	Y	V	T	H	R	R	E	F	P	S	L	O	C	T	M	I	N	A	X	I	O
O	F	K	W	Q	I	P	B	A	J	T	M	B	N	V	X	Q	Y	S	O	R	S	B	A
L	N	I	O	B	L	Z	R	J	N	F	I	K	A	E	D	F	H	F	I	M	Z	C	Q
J	G	K	U	X	H	F	H	Z	O	G	U	E	W	M	S	Y	W	S	O	R	O	N	T
V	V	M	Y	Y	X	M	W	Y	W	E	Z	B	X	T	H	X	E	O	O	Q	V	R	B
S	E	T	R	D	Y	S	U	H	L	M	L	E	G	H	O	N	U	N	U	V	T	H	E
W	G	S	O	O	D	R	J	C	F	N	J	K	L	W	R	L	V	O	E	O	J	U	Y
R	O	R	O	M	Z	O	K	V	F	J	E	J	S	A	X	M	I	R	H	N	V	Z	G
S	Q	G	V	E	Y	Z	I	B	O	G	E	C	J	D	D	W	Y	S	G	J	M	C	P
E	M	M	E	L	R	D	N	P	Y	N	I	E	V	Q	T	O	E	Q	H	R	U	I	J
N	Y	V	G	G	N	X	F	T	S	T	N	N	G	G	Z	D	X	V	M	V	T	N	K
S	A	E	R	G	J	W	T	O	P	Z	Z	L	T	H	W	L	T	V	C	H	R	R	M
O	N	V	G	G	J	P	R	O	M	I	N	J	M	P	H	H	O	U	V	V	O	J	C
R	O	S	N	E	S	D	E	R	A	R	F	N	T	I	C	K	N	X	P	P	V	A	H

- acceleration sensor
- sound generator
- Range sensors
- Touch Sensor
- Ultrasonic Sensor
- compass sensor
- Color Sensor
- Gyro Sensor
- Infrared Sensor
- optical sensor
- Light Sensor
- Sensor

**Poster presentation**

Poster presentation is a visual display of projects and ideas which are presented in a public setting such as seminar and exhibition. It helps students to connect with others, improve the presentation skills and confidence; it provides a platform to share an idea with wider audience. Department of ECE has organized Poster presentation during 2023-24 on "Electronics Innovations".

Promote design thinking, creativity, and effective use of visuals. Engage students in preparing, designing, and explaining their posters.

Enhanced creativity and visual design skills and increased communication and presentation confidence



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**Audio visual aids**

PowerPoint presentations (PPTs) are used as an instructional tool that can enhance teaching and learning experiences. By incorporating PPTs in teaching and learning will create enhance student engagement and visually appealing lessons that cater to diverse learning styles.

Expert video lectures delivered by the various eminent resource persons are being shown in the classroom. (NPTEL, YouTube). This particular method is adopted in courses like IoT Technology, ARM Cortex-M3 and Embedded Systems, Digital Image Processing.

Expose students to effective technical communication methods and multimedia presentation techniques.

Stronger self-learning and lifelong learning habits



**Charts**

Teaching with charts is a visual method that uses graphs, diagrams, and tables to explain concepts. It helps students see relationships between ideas, making

Students will understand complex ideas through visual representation.

Ability to organize and represent information systematically and Improved presentation and communication skills



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complex topics easier to grasp. Charts make learning more engaging and memorable through visual representation. They are useful for summarizing large amounts of information quickly. This method supports better retention and understanding for visual learners.

Present large amounts of data or processes in an easy-to-understand format.



**Student seminars**

Student seminar method is a teaching approach where students research and presenta topic to their peers. It encourages active learning and helps students build confidence in public speaking. Learners develop research, organization, and communication skills through preparation and delivery. Teachers act as facilitators, guiding discussions and clarifying key points. This method promotes peer-to-peer learning and deeper engagement with the subject.

Improve self-confidence, stage presence, and leadership qualities. Motivate students to explore topics beyond the syllabus and engage in self-learning.

Increased participation and engagement in learning and Improved teamwork and collaboration during group seminars



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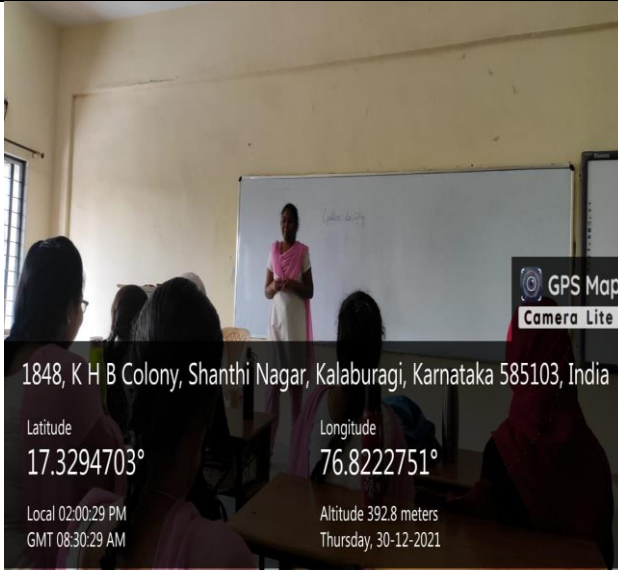
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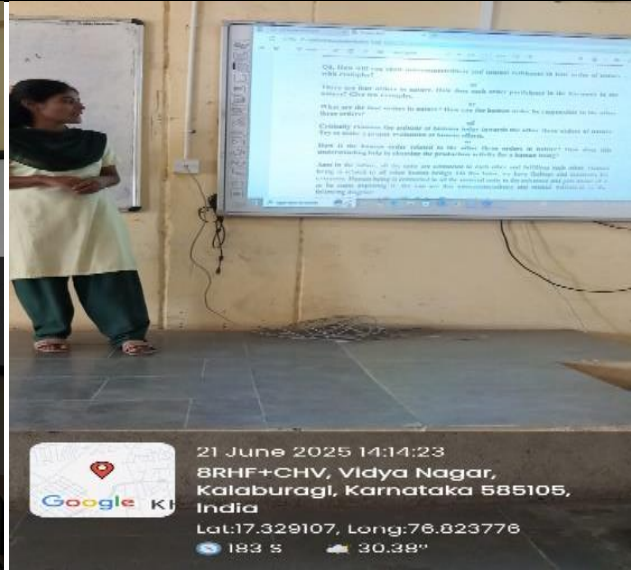
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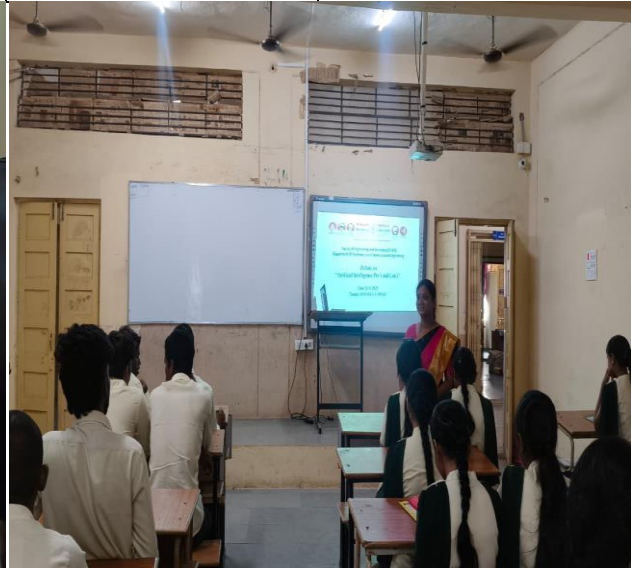
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India  
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**Debate**

Debate as a teaching and learning method encourages critical thinking, active participation, and deeper understanding of a topic. It allows students to research, analyze, and present arguments while also listening to and evaluating opposing viewpoints. This method improves communication skills, logical reasoning, and teamwork, making learning more interactive and engaging compared to traditional lectures.

Develop speaking, listening, presentation, and persuasive communication abilities. Involve students actively in discussions instead of passive learning.

Increased confidence and public speaking skills and better decision-making and reasoning capability



**Article writing**

Article writing as a teaching and learning method helps students organize their thoughts, research deeply, and express

Develop clarity, structure, grammar, and technical writing ability. Encourage

Improved technical and academic writing skills, Enhanced ability to organize and present information logically



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ideas clearly. It encourages creativity, critical thinking, and analytical skills while improving writing proficiency. By composing articles, learners engage with a topic more thoroughly, fostering deeper understanding and the ability to communicate knowledge effectively to others.

deeper study of concepts before presenting them in written form.



**Group Discussion**

Group discussion as a teaching and learning method encourages students to share ideas, listen to different perspectives, and think critically about a topic. It promotes active participation, teamwork, and communication skills, while helping learners clarify doubts and deepen their understanding through peer interaction. This method also builds confidence and nurtures a collaborative learning environment.

Train students to work effectively in groups and respect diverse opinions. Enable collective exploration of solutions to academic or real-world issues.

Improved listening and interpersonal skills, better decision-making and problem-solving ability



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