JSS MAHAVIDYAPEETHA
JSS ACADEMY OF TECHNICAL EDUCATION
JSSATE Campus, Uttarahalli – Kengeri Main Road, Bengaluru – 560060
Department of Electronics & Communication Engineering

Innovations by the Faculty in Teaching and Learning

Innovative Teaching Methods:

Innovation and Creativity bring about interest and motivation to learners, which eventually lead to better learning. Few of the innovation techniques adopted in our teaching - learning process is specified herewith.

The Documents are maintained in the respective course file by individual subject teacher.

Sl. No.	Innovative Teaching Methods followed in the Department.
1	Simulation Based learning
2	Activity based Learning (Circuit Ideas & its implementation)
3	Flip-Mode Learning (Circulate Video & Audio material in advance & discuss the related topics in the class)
4	Case Studies –Case based learning (Review paper preparation)
5	Teaching concepts through animation-Animation based learning

Academic Year 2022-2023

Sl. No.	Subject	Topic	Innovative type
1.	Analog Electronics Circuits (21EC34)	Seminars on concepts of Analog Electronics Circuits.	Collaborative Learning
2.	Circuits and Controls (21EC43)	Simulation of Networks using TINA TI	Simulation and Lab Assignment
3.	Technological Innovation Management and Entrepreneurship (18ES51)	Case Study - Presentation and Report Writing	Collaborative Learning
4.	Information theory and Coding (18EC54)	Flip Mode – Use various channel coding techniques to reduce the probability of error	Flip Mode, Quiz
5.	Digital Communication (18EC61)	To study the different communication principles like digital modulation techniques,	Crossword

		baseband data techniques, spectrum modulation techniques etc	
6.	Computer Networks (18EC71)	Simulation – Simulation of Networks Topologies	Collaborative Learning
7.	Wireless Communication (18EC81)	To study cellular concepts and propagation models, GSM, TDMA, CDMA technologies, LTE standardisation	Crossword
8.	Network Security (18EC821)	Apply firewalls and its characteristics through biasing and configuration to provide security for the network	Quiz
9.	Network Security (18EC821)	To explain working of network model and network security in real time applications	Quiz

Academic Year 2021-2022

Sl. No.	Subject	Topic	Innovative type
10.	Basic Electronics (21ELN14/24)	Simulation of Analog and Digital Circuits using Multisim	Collaborative Learning
11.	Digital System Design (18EC34)	Quiz on Combinational Circuits	Multiple Choice Questions
12.	Computer Organization and Architecture (18EC35)	Microprocessor Architecture Plan , ARM Cortex plan.	Simulation
13.	Technological Innovation Management and Entrepreneurship (18ES51)	Case Studies	Presentation and Report Writing
14.	Principles of Communication Systems (18EC53)	Develop codes in MATLAB for Simulation of Modulation And Demodulation Techniques	Simulation
15.	Information Theory & Coding (18EC54)	Simulate source and Channel coding algorithms using MATLAB	Simulation
16.	Electromagnetic Waves (18EC55)	Coulomb's Law, EFI, Potential , Laplace Solution	Flip Learn Mode
		MATLAB exercises in Electromagnetic Waves	Collaborative Learning

17.	Verilog HDL (18EC56)	Analyze and Implement digital Systems using HDL	Simulation
		IC design flow	Simulation
		FPGA	Hardware Implementation
		To design the given digital system using Verilog HDL	Collaborative Learning
18.	Computer Networks (18EC71)	Live Demonstration of Switch and Hub	Live Demonstration
19.	Machine Learning (18EC745)	Implementation of mini projects	Collaborative Learning and Simulation
20.	Basic Electronics (21ELN24)	Schmitt Trigger , Inverter using Op Amp	Simulation
		Simulation of Analog and Digital Circuits using MULTISIM	Collaborative Learning
21.	Analog Circuits (18EC42)	Design and Simulation of Analog circuits	Simulation
22.	Control Systems (18EC43)	Response of a Second order system for different damping factors	Simulation
23.	Engineering Statics and Linear Algebra (18EC44)	Implement ESLA concepts using MATLAB and plot the results	Simulation
24.	Signals and Systems (18EC45)	To construct basic signals using MATLAB	Simulation and Collaborative Learning
25.	Microcontroller (18EC46)	8051 codes to interface the peripheral devices	Flip Mode
26.	Digital Communication (18EC61)	Digital Communication Techniques	Collaborative Learning
		Industrial Visit to ISRO	Live Demonstration
27.	Embedded Systems (18EC62)	Design , Formulate and Implement applications using ARM Cortex M3 and its application in IOT	Collaborative Learning
28.	Microwaves and Antennas (18EC63)	Solving Problems on Microwave circuit and Types of Antenna	Flip Learn Mode
29.	Python Application Programming (18EC646)	Python Programming using list dictionaries and regular expressions	Quiz
		Developing Python codes using IDLE	Collaborative Learning

30.	Artificial Neural Networks (18EC642)	Simulation of various neural networks	Simulation
31.	Wireless and Cellular Communication (18EC81)	Implementation of OFDM and CDMA system using MATLAB and SciLab Simulation	Simulation
32.	Wireless Cellular and LTE 4G Broadband (17EC81)	Implementation of SIS - OFDM using MATLAB	Simulation
33.	Fibre Optics & Networks (17EC82)	Optical Fibre Communication sources, detector, amplifiers	Collaborative Learning

Academic Year 2020-2021

Sl. No.	Subject and code	Innovative /Novel Approach practiced	Learning style
1.	Network Theory(18EC32)	Problem Solving	Collaborative Learning
2.	Electronic Devices (18EC33)	Quiz on MOS Transistors and Fabrication of Semiconductor Process	Quiz
3.	Digital System Design (18EC34)	Multiplexer expansion and code converters	SIMULATION
4.	Computer Organization & Architecture (18EC35)	RAM ROM and Virtual Memory	Design
5.	Technological Innovation Management and Entrepreneurship (18ES51)	Case Studies on Entrepreneurship activities and family business	Collaborative Learning
6.	Digital Signal Processing (18EC52)	Realisation of various filters using MAT LAB	Collaborative Learning(Simulation)
7.	Information Theory & Coding (18EC54)	Implementation of ITC concepts using MATLAB	SIMULATION
8.	Verilog HDL (18EC56)	Hardware Modelling using Verilog, IC design flow	SIMULATION
9.	Digital Image Processing (17EC72)	Image Processing Techniques in spatial and frequency domain to enhance and restore the quality of the image	Collaborative Learing

10.	Satellite Communication (17EC755)	Satellite Communication Concepts	Flip Mode
11.	Basic Electronics (21ELN14/24)	Simulation of Analog and Digital Circuits using MULTISIM	Collaborative Learning
12.	Analog Circuits (18EC42)	Design and Simulation of Analog Circuits	SIMULATION and Collaborative Learning
13.	Control Systems (18EC43)	Analyse the stability of the system using various time domain and frequency domain techniques	Collaborative Learning
14.	Engineering Statics and Linear Algebra (18EC44)	Implement ESLA concepts using MATLAB and plot the results	Simulation
15.	Signals & Systems (18EC45)	Concepts of Signals and Systems	Video lecture
16.	Microcontroller (18EC46)	Design and Simulate Microcontroller based applications	SIMULATION and Collaborative Learning
17.	Embedded Systems (18EC62)	Implementation of mini projects using Keil and LPC1768 boards	Collaborative Learning
18.	Python Application Programming (18EC646)	Implementation of mini projects	SIMULATION and Collaborative Learning
19.	Artificial Neural Networks (18EC642)	Demonstration of SVM Classifier using virtual lab	SIMULATION
20.	Wireless Cellular and LTE 4G Broadband (17EC81)	Implementation of OFDM and CDMA systems	SIMULATION
21.	Fibre Optics & Networks (17EC82)	Optical Fibre Communication sources, detector , amplifiers	Collaborative Learning
22.	Micro Electro Mechanical Systems (17EC831)	MEMS and micro system products in various industry	Case Study

Academic Year 2019-2020

Sl. No.	Subject and code	Innovative /Novel Approach practiced	Learning style
1.	Verilog HDL/ 17EC53	Simulation: Simulation of Digital Circuits and applications	Collaborative learning
2.	Satellite Communication/ 15EC755	Presentation and Report Writing	Flip-Mode
3.	Object Oriented Programming using C++/17EC562	Simulation: Simulation and demonstration of various topics like pointers, inheritance, files and constructors from C++	Collaborative learning:
4.	Management and Entrepreneurship /17ES51	Collaborative learning: to Have their own start up	Activity based Learning
5.	Information Theory and Coding	Simulation of ITC Algorithm using MATLAB Animation: Convolution coding	1.Simulation 2.Activity Based Learning (Collaborative Learning) 3.Teaching Concepts Through Animation
6.	Digital Image Processing (15EC72)	1)Morphological operation 2) Simulation of Basic Image Processing Techniques	Video demonstration Simulation based learning
7.	Computer Organization And Architecture /18EC35	Collaborative learning: to simulate memory mapping Techniques	Teaching concepts through Animation
8.	Cryptography/ 15EC744	Animations	Animation based learning
9.	VLSI Design/15EC63	Simulation: Simulation of MOS circuits	Collaborative learning:
10	BASIC ELECTRONICS	Design the circuits and check the output of the designed circuit for their accuracy (circuit ideas and its implementation)	Activity based learning
11	COMPUTER ORGANIZATION/18EC35	Circuit Ideas and ;its implementation)	Collaborative learning

12	Digital Signal Processing/15EC52	Simulation: Design and demonstration of filter	Collaborative learning
13	NETWORK THEORY / 18EC32	Simulation using TINA software	Simulation based learning
14	Basic Electronics/ 18ELN14	Teaching concepts through Animation	Collaborative learning:
15	Basic Electrical Engineering 17ELE15/25	Service mains, meter board and distribution board. Concealed conduit wiring	Case Studies
16	Advanced Embedded Systems/ 18EVE13	I2C Communication Interface demonstration.	Animation based learning
17	Multimedia Communication/15EC741	Analyze the compression techniques using simulation tools like MATLAB	Collaborative learning
18	MICROWAVE AND ANTENNA 15EC71	Klystron Amplifier youtube video Case Studies	Flip-Mode learning
19	Control Systems (18EC43)	Response of a Second order system for different damping factors	Simulation
20	Microcontroller (18EC46)	Design and Simulate Microcontroller based applications	SIMULATION and Collabrative Learning
21	ARM Microcontroller and Embedded Systems (17EC62)	Implementation of mini projects	SIMULATION and Collabrative Learning
22	VSI Design(17EC63)	Quiz	Quiz

23		Design and Simulate CMOS logic structures using Dsh-Microwind Tool	SIMULATION and Collabrative Learning
24	Computer Communication Networks (18EC64)	Simulation of Network Topologies	Collabrative Learning
25		Live Demonstartion of Switch and Hub	Live Demonstartion
26	Artificial Neural Networks (17EC653)	Demonstration of SVM Classifier using virtual lab	SIMULATION
27	Digital System Design using Verilog (18EC652)	Simulation of Digital Arithmetic Circuits using modern tool	SIMULATION and Collabrative Learning
28	Wireless Cellular and LTE 4G Broadband (17EC81)	Implementation of OFDM and CDMA systems	SIMULATION

Academic Year 2018 - 2019

Sl. No.	Subject and code	Innovative /Novel Approach practiced	Learning style
1.	Computer Communication Network (15EC64)	Simulation and implementation of various routing algorithms.	Collaborative learning:.
2.	VLSI Design (15EC63)	Simulation of MOS circuits	Collaborative learning
3.	ARM microcontroller and Embeddded systems	Design and implementation of simple applications using ARM Cortex M3	Collaborative learning:

	(15EC62)		
4.	ARM microcontroller and Embeddded systems (15EC62)	Case study: Accelerated chip design for drones and cameras with Arm Design Start	Self learning and presentation
		ARM IP in SOC for a wide range of applications	Self learning and presentation
5.	ARM microcontroller and Embeddded systems (15EC62)	Design and implementation of simple applications using ARM Cortex M3	Collaborative learning:
6.	Control Systems (17EC43)	Simulation for control system concepts	Simulation based learning
7.	Signals and Systems (17EC42)	Simulation of Signals and their processing	Collaborative learning:
8.	Digital system design using verilog (15EC663)	Simulation of booth multiplier,8 bit carry look ahead adder,8 bit binary divider,2s complement implementation	Simulation based learning
9.	Multimedia Communication (15EC741)	Demonstration and verification of compression techniques	Collaborative learning:
10.	Basic Electronics (18ELN14)	Implementation of simple circuits using modern tools	Collaborative learning
11.	VLSI Design (15EC63)	Simulation and Fabrication of CMOS circuits through Animations of	Collaborative learning
12.	Microprocessor (17EC46)	Simulation: Execution of 8086 programs	Activity based learning
		Information about advanced microprocessor and implementation of simple programs in hardware	Collaborative learning: to implement simple codes by interfacing hardware to 8086 kit
13.	OOP using C++ (17EC562)	Simulation and demonstration of various topics like pointers, inheritance, files and constructors from C++	Collaborative learning

14.	Digital communication (15EC61)	Simulate and implementation of various digital modulations	Collaborative learning
15.	Power Electronics (10EC73)	Simulation: Simulation of power electronics converter	Collaborative learning
		Activty based learning: Demonstrated the experimental methods in class for few circuits	Collaborative learning:
		Case studies: Application of power electronics: solar, wind power generation systems and laptops and electric vehicles	Case studies
		Animation : AC voltage controller and inverter	Animation based learning

Academic Year 2017-2018

Sl. No.	**Subject and code**	**Innovative /Novel Approach practiced**	**Learning style**
1.	Electrical /17ELE 15/25	Solving Numericals	Collaborative Learning
2.	Analog Electronics 15EC32/3rd	To improve analytical skills	Quiz mode
3.	Analog Electronics 15EC32/3rd	To improve problem solving and analytical ability of students.	Quiz mode Assignment writing
4.	Digital Electronics 15EC33/3rd	To enhances analytical skills	Quiz mode
5.	Digital Electronics 15EC33/3rd	To enhances analytical skills	Quiz mode
6.	Network Analysis 15EC34/3rd	To improve analytical skills. To provide the conceptual view of the circuits.	Quiz mode Collaborative Learning
7.	Network Analysis	To improve analytical skills.	Quiz mode

	15EC34/3rd	To provide the conceptual view of the circuits.	Simulation based learning Collaborative Learning
8.	Electronics Instrumentation-15EC35/3rd	To improve analytical skills. To provide the conceptual view of measuring instruments.	Quiz mode Assignment writing Collaborative Learning
9.	Engineering Electromagnetic Theory 15EC36/3rd	To improve analytical skills.	Demonstration of electric and magnetic fields using MATLAB
10.	Engineering Electromagnetic Theory 15EC36/3rd	To improve problem solving and analytical ability of students.	Quiz mode Collaborative Learning
11.	Management and Entrepreneur 15ES51/5th	Identify roles of management and their function. Develop a character of successful entrepreneur	Quiz mode Assignment learning Collaborative Learning
12.	Management and Entrepreneur 15ES51/5th	Identify roles of management and their function. Develop a character of successful entrepreneur	Quiz Assignment Collaborative Learning
13.	Digital Signal Processing 15EC52/5th	To improve analytical skills. Implement the algorithms in Mat lab.	Quiz Simulation based learning Collaborative learning
14.	Digital Signal Processing 15EC52/5th	To improve analytical skills. Motivate the students use tools to implement algorithms and techniques	Quiz mode
15.	Verilog HDL 15EC53/5th	To improve analytical skills.	Quiz mode Assignment writing Collaborative Learning
16.	Verilog HDL 15EC53/5th	To improve analytical skills.	Quiz mode Assignment writing Collaborative Learning
17.	Information Theory and Coding 15EC54/5th	To improve analytical skills. Implement the algorithms in Mat lab.	Collaborative Learning

18.	Information Theory and Coding 15EC54/5th	To improve analytical skills. Implement the algorithms in Mat lab.	Quiz mode Collaborative learning
19.	Operating System 15EC553/5th	To improve analytical skills.	Collaborativelearning
20.	Operating System 15EC553/5th	To improve analytical skills.	Quiz mode Collaborative learning
21.	Operating System 15EC553/5th	To improve analytical skills.	Collaborative learning
22.	Automotive Electronics 15EC561/5th	Operation of Engine, sensor working principle	VIDEOS demonstration & PPTs
23.	Programming in C++ 15EC562/5th	To improve design and analytical skills.	Collaborative learning
24.	Programming in C++ 15EC562/5th	To improve design and analytical skills.	Collaborative learning
25.	Computer Communication Network 10EC71/7th	To improve skill in networking.	Quiz mode Collaborative Learning
26.	Optical Fiber Communication 10EC72/7th	For better understanding of subject by Individual and Team work.	Quiz mode Assignment writing Collaborative Learning
27.	Power Electronics 10EC73/7th	To enhance students' knowledge w.r.t to utilization of modern tool for	Quiz mode Presentation based learning Collaborative Learning Simulation based learning
28.	Embedded System Design 10EC74/7th	To improve analytical ability of study	Quiz mode
29.	Embedded System Design 10EC74/7th	To improve analytical ability of study	Quiz mode

30.	DSP Algorithms 10EC751/7th	Concepts of DSP Algorithms	PPTs based learning
31.	Image Processing 10EC763/7th	To enhance problem analysis ability and improve design skills	Quiz mode Collaborative Learning

Academic Year 2016-2017

Sl. No.	Subject and code	Innovative /Novel Approach practiced	Learning style
1.	Basic Electronics 15ELN14	For better understanding of subject by Individual	Quiz mode Collaborative Learning
2.	Basic Electronics 15ELN14	For better understanding of subject by Individual	Quiz mode
3.	Basic Electrical Engineering 15ELE13	For better understanding of subject by Individual and team work	Quiz mode Collaborative Learning
4.	Basic Electrical Engineering 15ELE13	For better understanding of subject by Individual and team work	Quiz mode mode Collaborative Learning
5.	Basic Electrical Engineering 15ELE13	For better understanding of subject by Individual	Quiz mode
6.	Basic Electrical Engineering 15ELE13	For better understanding of subject by Individual and Team work	Quiz mode Collaborative Learning
7.	Microprocessor 10EC62	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
8.	Microprocessor 10E62	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
9.	Microprocessor 10EC62	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning

10.	Control Systems 10EC43	Self Learning Usage of Modern Tools for Simulation Individual Team work	Collaborative Learning, Quiz mode
11.	Control Systems 10EC43	For better understanding of subject by Individual	Quiz mode
12.	Signals and Systems 10EC44	For better understanding of subject by Individual Usage of Modern Tools for Simulation	Quiz mode
13.	Signals and systems 10EC44	For better understanding of subject by Individual	Quiz mode
14.	Principles of Communication Systems 10EC45	For better understanding of subject by Individual	Quiz mode
15.	Principles of Communication systems 10EC45	For better understanding of subject by Individual	Quiz mode
16.	Principles of Communication systems 10EC45	For better understanding of subject by Individual	Quiz mode
17.	Linear Integrated Circuits 10EC46	For visual display of circuits and designs For better understanding of subject by Individual	Chart, design Quiz mode
18.	Linear Integrated Circuits 10EC46	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
19.	Linear Integrated Circuits 10EC46	For better understanding of subject by Individual	Quiz mode Collaborative Learning
20.	Digital Communication 10EC61	For better understanding of subject by Individual	Quiz mode

21.	Microprocessor 10EC62	For better understanding of subject by Individual and Team work.	Quiz mode
22.	Microprocessor 10EC62	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
23.	Microelectronics circuits 10EC63	For better understanding of subject by Individual	Quiz mode
24.	Microelectronics circuits 10EC63	For better understanding of subject by Individual	Quiz mode
25.	Antennas and Propagation 10EC64	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
26.	Satellite Communication 10EC662	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
27.	Programming in C++ 10EC665	For improving programming skills	Activity based learning
28.	Wireless Communication 10EC81	Case Study presentation	Quiz mode Collaborative Learning
29.	Digital Switching Systems 10EC82	For better understanding of subject by Individual	Quiz mode
30.	Network Security 10EC843	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
31.	GSM 10EC841	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning
32.	GSM 10EC841	For better understanding of subject by Individual and Team work.	Quiz mode Collaborative Learning

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEE
JSS ACADEMY OF TECHNICAL EDUCATION
JSS Campus, Uttarahalli-Kengeri Main Road, Bangalore - 560

(ODD)
2022-2023

Innovative Teaching

Sem / Sec : 3rd B

Subject : Analog Electronic Circuits **Subject Code:** 21EC34
Faculty : Dr. Anuradha M G
AY: 2022-23(Odd)

Name of the Activity: Seminars on concepts of analog electronics

Description of the activity:

Topics were given to the student. Students could work at group and individual level to present the topic given and submit a report.

Learning Objective of the innovative activity:

1. To understand the basics of analog circuits through seminar.

Learning Outcome of the innovative activity:

LearningOutcome	Statement
L1	Students will be able to the understand the basics of analog electronic circuits to analyze the given circuit

Activity Suggested to the Students :

Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative learning	Analyze the given network.	Analysis of the given circuit	1. Work with teams to solve the problem. 2. Report writing 3. Oral communication

Anuradha.M-G

Staff In charge
Dr. Anuradha.M.G, Asst Prof.

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INNOVATION TEACHING – LEARNING PROCESS

Faculty Name	Mrs. Latha B N	**Semester & Section**	5 / B
Subject Name	Technological Innovation Management and Entrepreneurship	**Date**	24/12/2022
Subject Code	18ES51	**Time**	11.00 AM
Course Code	C301	**Academic Year**	2022 - 2023

Name of the Activity: Collaborative Learning
Description of the activity: Students to work in a group of 4 members. Each group is assigned with questions to present the case studies in the class and submit report.

Learning Objective of the innovative activity:

1. To understand the significance of working in a team
2. To enhance oral and written communication skills

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L3	Apply the skills and Social responsibilities for an Entrepreneur.
L3	Utilize the impact of Feasibility analysis and Idea generation on Family Business.
L3	Construct business model using network analysis and various funding sources.

Activity Suggested to the Students:

Q. No	Questions
1.	Design an organization/Business Model.(product/social service/corporate service)
2.	Corporate social responsible activities of Business leader.
3.	Successful family business. (product/social service/corporate service)
4.	Indian Startup In The Globe. (Coffee Day)
5.	Entrepreneurship (OYO)
6.	Business ethics, if business leaders are unethical, impact on society, advantages and disadvantages

Activity	Content	Methodology	Skill / Competency developed
Collaborative Learning	Case Studies	Presentation and Report writing	Knowledge Analysis Comprehension Linguistic

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JSS ACADEMY OF TECHNICAL EDUCATION, BANGALORE-60DEPARTMENTOFINFORMATION SCIENCE&ENGINEERING

Innovation inTeaching–Learning Process

FacultyName	:	**Dr.Saroja S Bhusare**	18EC53
Course Name	:	**Principles of Communication Systems**	**Date :22-01-2022**
Course Code	:	C212	**Time :17-01-22 to 27-01-2022**
Semester&Section	:	**5ᵇSem, 'C'**	**AcademicYear: 2022-2023**

Name of the Activity: Collaborative Learning- Simulation based Learning

Description of the activity: Students were made to work in a group of 5-6 members. Each group was assigned with a question which was to be carried out using a simulation tool MATLAB for the simulation of modulation and demodulation techniques.Concepts like simulation of amplitude modulation technique, plotting of magnitude spectrum, generation of DSB-SC and SSB-SC modulated waves, and plot of magnitude spectrum, generation of frequency modulated wave, verification of sampling theorem, pulse modulation techniques, representation of line codes and encoding. The report of the activity has to be submitted in a group after carrying out the simulation

LearningObjectiveoftheinnovativeactivity:

1. **Tounderstandthesignificance of working in a team**
2. **To enhance oral and written communication skills**

LearningOutcomeoftheinnovativeactivity:

LearningOutcome	Statement
L1	Take part in team to design, formulate and develop codes in MATLAB for the simulation of modulation and demodulation techniques.

Activity Suggested to the Students :Activity	**Content**	**Methodology**	**Skill/Competencydeveloped**
Collaborative Learning	Develop codes in MATLAB for simulation of modulation and demodulation techniques	Simulation	KnowledgeAnalysisComprehension Linguistic

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JSS ACADEMY OF TECHNICAL EDUCATION
JSS Campus, Dr.Vishnuvardhan Road, Srinivasapura, Bengaluru - 560060.

Innovation In Teaching – Learning Process

Faculty Name	:	Dr. Thejaswini P	
Course Name	:	Information Theory & Coding	Date: 21-1-2023
Course Code	:	18EC54	Time : 10-11AM
Semester & Section	:	5th Sem, 'A'	Academic Year: 2022-23

Name of the Activity: Flipped Mode

Description of the activity: To increase student engagement and learning, Students were made to study the given topics at home, discuss and deliberate in the class. A quiz is given to test the understanding level of students.

Learning Objective of the innovative activity:

1. **Enable students to do self study.**
2. **To enhance analyzing skills.**

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L3	Make use of various channel coding techniques to reduce the probability of error.

Activity Suggested to the Students:

Activity	Content	Methodology	Skill/Competency developed
Flip Mode	Use of various channel coding techniques to reduce the probability of error.	Quiz/discussion	Analysis, differentiating between the efficient techniques for decoding the received sequence.

CO PO PSO Mapping:

Activity	COs	PO1	PO2	PO3	PO5	PSO1
Flip Mode	C304.4	2	2	2	3	2

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2022-23 odd

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
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JSS Campus, Dr.Vishnuvardhan Road, Srinivasapura, Bengaluru - 560060.

Innovation in Teaching – Learning Process

Faculty Name	:	Dr. Thejaswini P	
Course Name	:	Information Theory & Coding	Date: 21-1-2023
Course Code	:	18EC54	Time : 11-12PM
Semester & Section	:	5th Sem, 'B'	Academic Year: 2022-23

Name of the Activity: Flipped Mode

Description of the activity: To increase student engagement and learning, Students were made to study the given topics at home, discuss and deliberate in the class. A quiz is given to test the understanding level of students.

Learning Objective of the innovative activity:

1. **Enable students to do self study.**
2. **To enhance analyzing skills.**

Learning Outcome of the innovative activity:

Learning Outcome	Statement
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Activity Suggested to the Students:

Activity	Content	Methodology	Skill/Competency developed
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CO PO PSO Mapping:

Activity	COs	PO1	PO2	PO3	PO5	PSO1
Flip Mode	C304.4	2	2	2	3	2

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USN: | | | | | | | | | | |

JSS ACADEMY OF TECHNICAL EDUCATION

JSS Campus, Dr. Vishnuvaradhan Road, Bengaluru -60

Department of Electronics and Communication Engineering

Crossword puzzle Innovative teaching

Course Name : Digital Communication
Course Year (Term): 2022 – 2023 (Even)
Course Faculty Name: Dr.STV,Dr.SMU,SGC
Semester / Section: 6th A B C

Course Code: 18EC61
Date: 28/05/2023
Time: 11AM – 12 PM
Max. Marks: 10M

COURSE OUTCOMES COVERED CROSS WORD

C310.1	Develop the representation of band pass signals and systems to equivalent low pass.
C310.2	Analyze the digital communication receiver in the presence of AWGN to deduce the error performance of different digital modulation techniques.
C310.3	Solve intersymbol interference problem in baseband data transmission system.
C310.4	Apply the concepts of spread spectrum modulation techniques for CDMA based applications.

Instructions: ***Answer the following questions***

1. Hilbert transform exclusively operates in which domain? (Left to right)
2. By applying concept of pre-envelope to a bandpass signal, signal is transformed into which equivalent representation? (Left to right)
3. In polar NRZ, power spectrum of a signal is large near which frequency? (Left to right)
4. Another name for Bipolar RZ. (Top to bottom)
5. In AWGN channel, if transmitted signals are equally likely, the optimum receiver which minimises the average probability of error is ____. (Top to bottom)
6. Which functions are time synchronised WRT transmitted signals? (Left to right)
7. Output of the matched filter at the sampling instant is ____ of input signal. (Left to right)
8. Correlator is combination of multiplier and ____. (Left to right)
9. Which probability decides the favouring of symbol '1' when 0 is transmitted. (Left to right)
10. DPSK eliminates need for a ____ reference signal at receiver by combining 2 basic operation at the transmitter. (Top to bottom)
11. What is used to split even and odd sequences in QPSK. (Left to right)
12. The required bandwidth of QPSK is ____ of bandwidth required compared to BPSK. (Top to bottom)
13. Spectrum of a signal having 0 at f=0 is called modified ____. (Left to right)
14. ISI occurs due to the ____ of the channel. (Top to bottom)
15. Closure of eye in the eye diagram is decided by which factor? (Top to bottom)
16. For the rectification, a ____ spectrum is used for band limited signals. (Left to right)
17. The spectrum spreading is accomplished by channel coding through code ____. (Left to right)
18. Generators in spread spectrum digital control system are ____ binary valued sequences. (Left to right)
19. Rectangular pulse in direct spread spectrum is called ____. (Left to right)
20. Processing gain = ____ of the PN segment. (Left to right)

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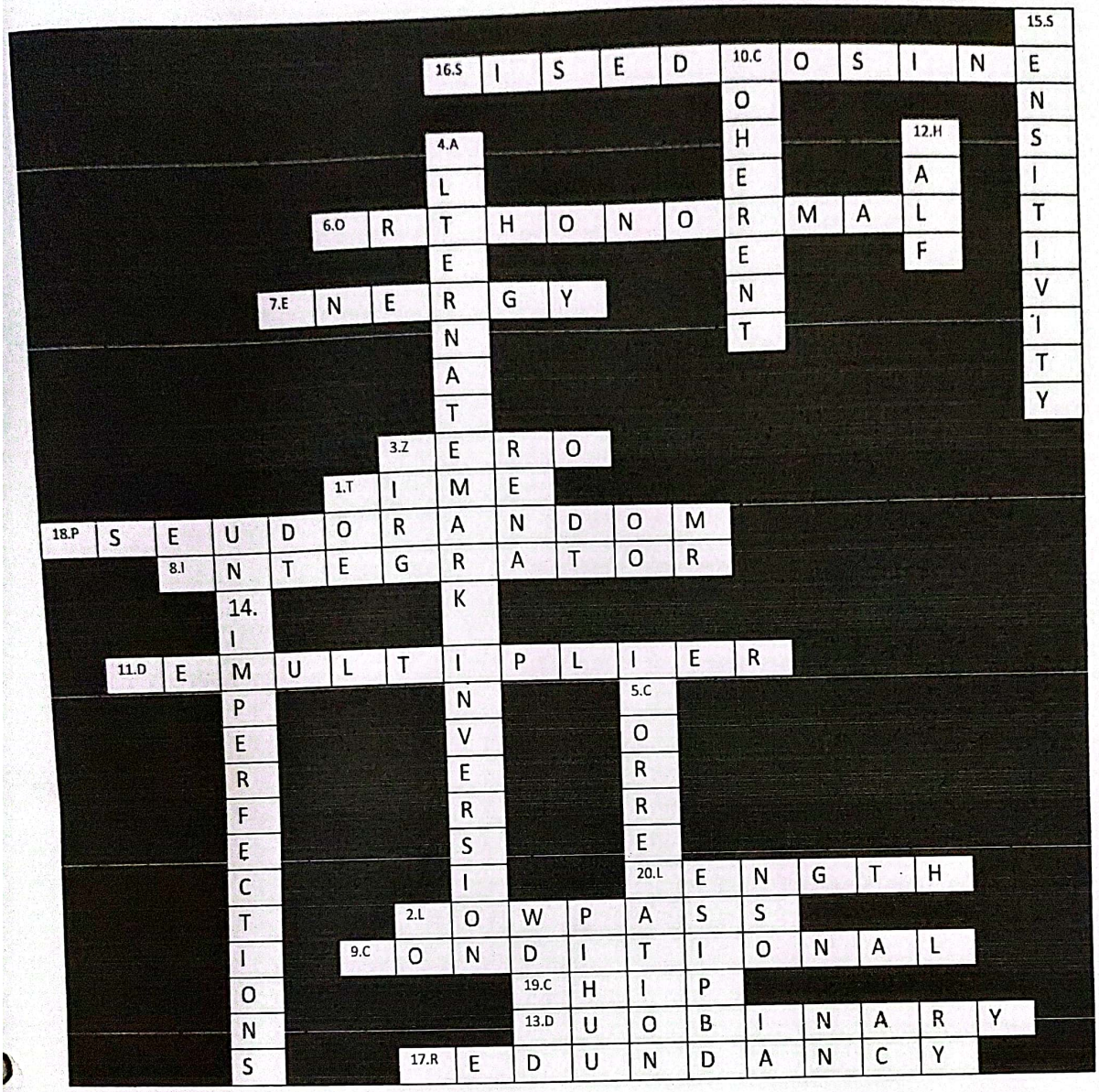
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O 19.C H I P
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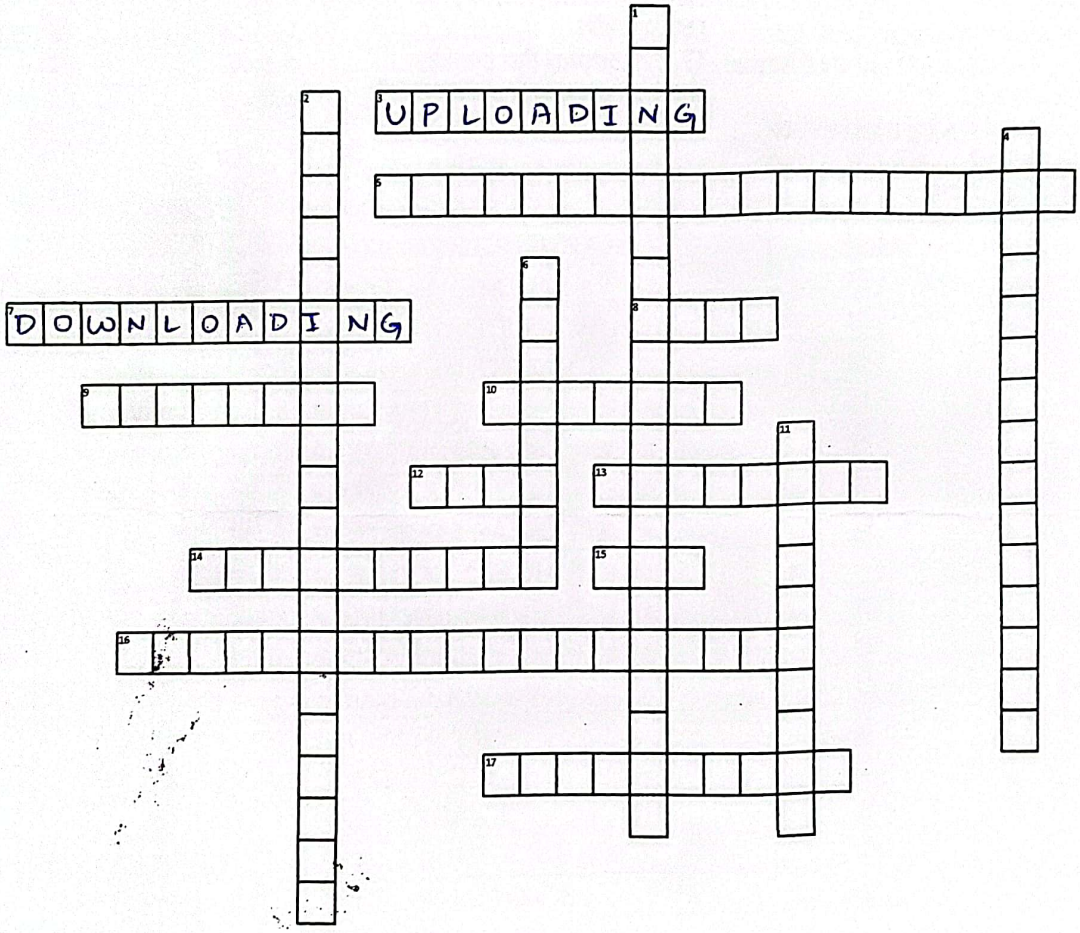
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
JSS ACADEMY OF TECHNICAL EDUCATION
JSS Campus, Uttarahalli - Kengeri Main Road, Bangalore - 560060.

Innovative Teaching Method- Quiz

Sem / Subject & Subject Code: VIII ECE/Wireless and Cellular Communication/ 18EC81.
Date /Time/ Max Marks: 08 .05.2023/10.50-11.00am/**10.**
Faculty Incharges: SAC, SKN, SGC

All COs are Covered.

USN: 1JS20EC410 **Name:** S. HARSHA VARDHANAN.



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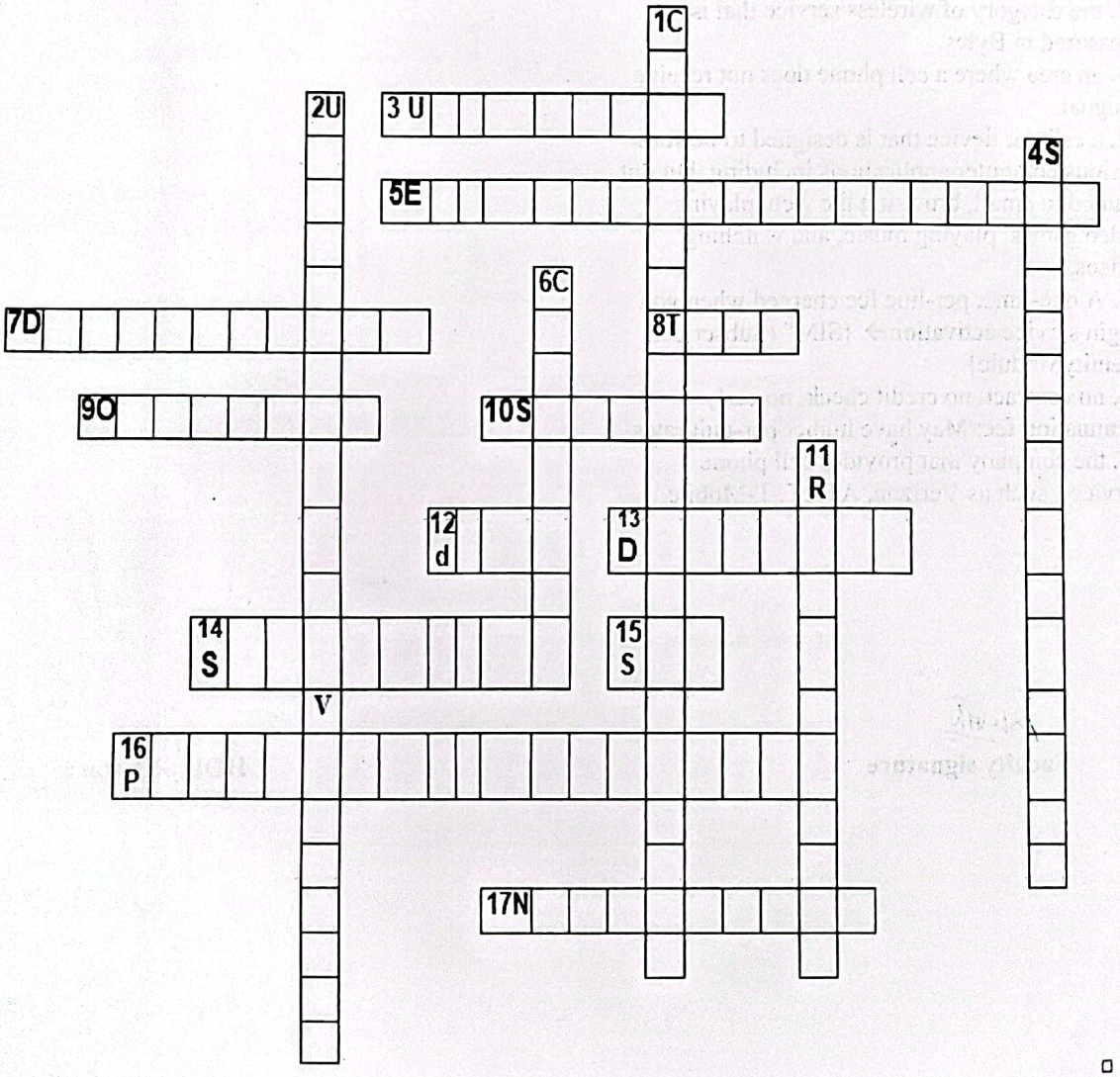
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG.

Subject: Wireless and Cellular Communication **Date: 08/ 05 / 2023**
Subject Code: 18EC81 **Staff: Savitha A C**
Max. Marks: 10 **QUIZ**

Cos	Wireless and Cellular Communication	Bloom's Level
C409.1	Analyze cellular concepts and propagation models in wireless communication system	L4
C409.2	Build wireless communication networks using GSM and TDMA technologies.	L3
C409.3	Develop wireless communication networks using CDMA technologies.	L3
C409.4	Apply the basic of LTE standardization and specifications to Wireless Communication network.	L3



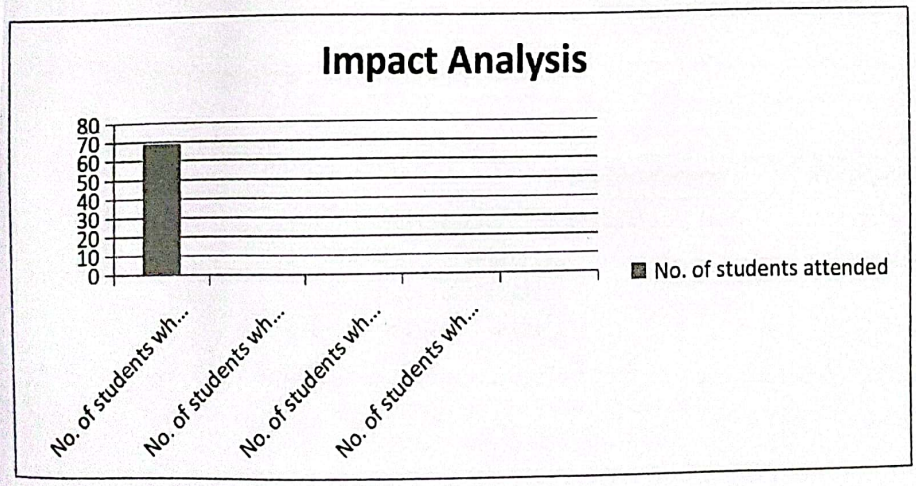
Department of Electronics and Communication Engineering
JSS ACADEMY OF TECHNICAL EDUCATION
JSSATE Campus, Dr. Vishnuvardhana Road, Bangalore – 560 060

bject: Wireless and Cellular Communication **Date: 08/ 05 / 2023**
bject Code: 18EC81 **Staff: Savitha A C**
ıx. Marks: 10

QUIZ

os	Wireless and Cellular Communication	Bloom's Level
09.1	Analyze cellular concepts and propagation models in wireless communication system	L4
09.2	Build wireless communication networks using GSM and TDMA technologies.	L3
09.3	Develop wireless communication networks using CDMA technologies.	L3
09.4	Apply the basic of LTE standardization and specifications to Wireless Communication network.	L3

lo. of Students Attended	Marks scored/Grade			
	No. of students who scored 10M	No. Of students who scored 8-9M	No. Of students who scored 6-7M	No. Of students who scored <6M
69	69	0	0	0



D Signature

Faculty signature

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FLIP MODE ACTIVITY

Sem / Sec: VIII EC A
Subject: Network Security
Subject Code: 18EC821
Faculty In-charges: Dr Thejaswini P

Time: 9:15-9:45AM
Max Marks: 5
Duration: 30min
Date: 28-4-2023

In this ACTIVITY, the students are able to attain the following course outcomes from the given questions.

Course Outcomes:

C401.4	Apply firewalls and its characteristics through biasing and configuration to provide security for the network.	L3

1. Packet filtering firewalls are vulnerable to------

a Hardware vulnerabilities	b. MiTM
c. Phishing	d. Spoofing

2. Gateway firewalls are deployed in application-layer of OSI model

a Application level gateway firewalls	b. Circuit level gateway firewalls
c. Packet filtering firewalls	d. Stateful multilayer inspection firewall

3. We can also implement---- in Stateful multilayer inspection firewall

a external programs	b. algorithms
c. policies	d. all of the above

4. A proxy firewall filters at the

a physical layer	b application layer
c. data link layer	d. network layer

5. Firewalls can be of --- kinds

a 1	b. 2
c. 3	d. 4

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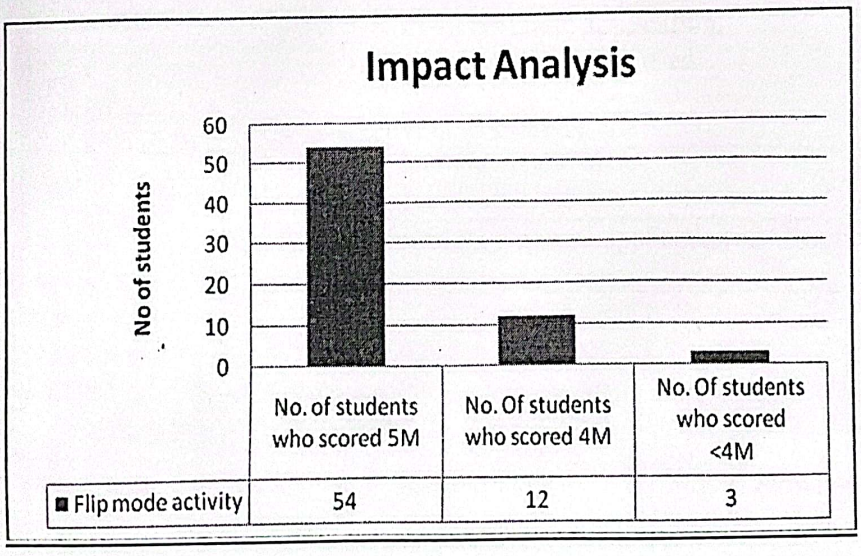
IMPACT ANALYSIS

No. of Students Attended	Marks scored/Grade			Attainment	PO's Mapped	PSO's Mapped
	No. of students who scored 5M	No. Of students who scored 4M	No. Of students who scored <4M			
69	54	12	3	3	PO1,PO2,PO3	PSO1



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DEPARTMENTOF ELECTRONIC AND COMMUNICATION ENGG

Innovating Teaching-learning process

Faculty Name	:	Basavaraju N M	
Course Name	:	Network Security	Date : 9am-10am
Course Code	:	18EC821	Time : 20/03/2023
Semester & Section	:	VIII 'B'	Academic Year: 2022-23

Name of the Activity: Quiz

Description of the activity: A quiz refers to a short test of knowledge, typically around 30 questions in length, with question formats often including multiple choice, fill in the blanks, true or false and short answer. A quiz is much shorter than a traditional test or exam and is rarely impactful on a final course grade.

Learning Objective of the innovative activity: (Example)

1. **To understand the network security in real time application.**
2. **To explain how the network model works and can be used.**

Learning Outcome of the innovative activity: (Example)

Learning Outcome	Statement
L1	Student will be able to understand the real time application and function of network Security

Activity Suggested to the Students :

Activity	Content	Methodology	Skill/Competencydeveloped
Quiz	Set of 10 questions	Individual assessment	Knowledge Analysis Comprehension Application

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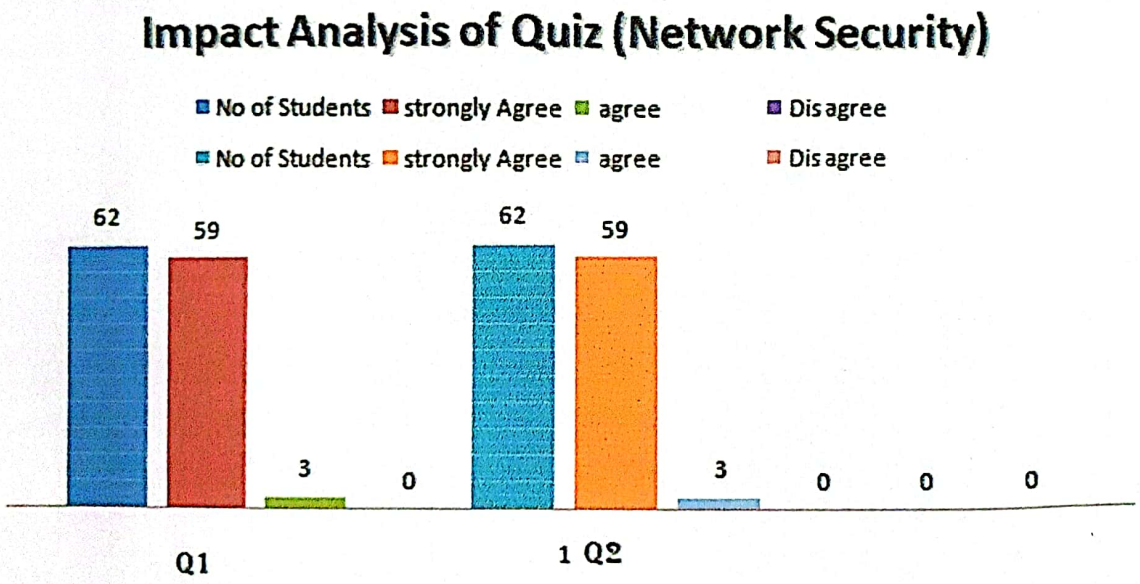
IMPACT ANALYSIS

Q1. Whether the activity was useful in better learning of the course?

Q2.Did this activity help you to improve your presentation and writing skills?

No. of Students Attended	Whether the activity was useful in better learning of the Routing problems in Network concepts?			Did this activity help you to improve your presentation and writing skills?		
	Strongly Agree	Agree	Disagree	Strongly Agree	Agree	Disagree
62	59	03	-	60	02	-



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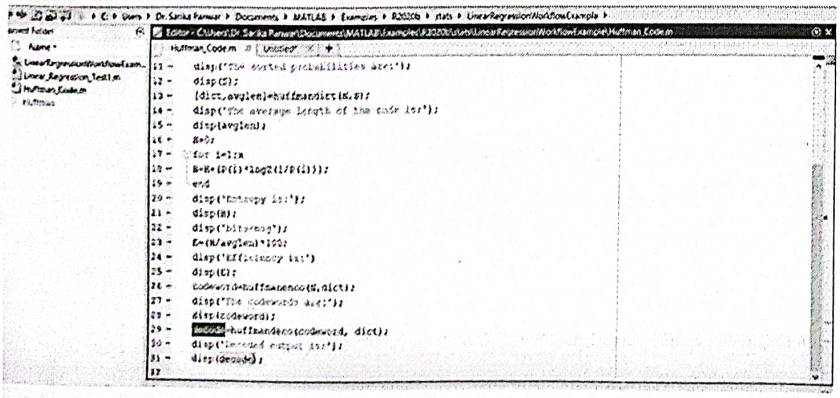
Innovation in Teaching–Learning Process

FacultyName	:	**VeerammaYatnalli**	
Course Name	:	Information Theory and Coding	**Date :10/12/2021**
Course Code	:	**18EC54**	**Time :3 to 4 PM**
Semester&Section	:	**5th Sem, A and C**	**Academic Year: 2021-2022**

Name of the Activity: Implementation of Information Theory and Coding algorithms using MATLAB

Description of the activity:

Information Theory and Codingcourse is studied through MATLAB as reinforcement to classrooms lecture. MATLAB is used as a supplement for teaching an undergraduate ITC course. The aims are to familiarize students with basic MATLAB commands so as to improve their conceptual understanding of the course. The attention is mainly towards exploration, visualization of graphs and multiple representations of ITC concepts. The study recommended maintaining an appropriate balance between the use of the software for learning concepts and the traditional learning.



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Innovation inTeaching–Learning Process

FacultyName	:	Dr.Sathish Shet K	
Course Name	:	Electromagnetics	Date :29/11/21
Course Code	:	18EC55	Time :10-11
Semester&Section	:	V A	AcademicYear: 2021-22

Name of the Activity: Flip Learn Mode

Description of the activity: In this mode Course teacher circulated the material (PPT and Nots) prior to the discussion. Asked the students to go through the theory part. To check the understanding level course teacher asked some random questions. Later Course teacher will explain in detail and solved the numerical related to the topics. This method enhances the learning skill and problem-solving skills.

LearningObjectiveoftheinnovativeactivity:

1. **TounderstandtheapplicationElectric and Magnetic fields.**
2. **Tosolve the problems related to Electric and magnetic fields**

LearningOutcomeoftheinnovativeactivity:(Example)

Learning Outcome	Statement
L1	Studentwillbeabletounderstandsolving numericals in all three coordinate systems related to electric and magnetic field.

Activity Suggested to the Students:

ctivity	Content	Methodology	Skill/Competencydeveloped
lving oblems	Coulombs Law, EFI, Potential, Laplace solutions	FLIP Learn Mode	KnowledgeAnalysisComprehension Linguistic

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Innovation in Teaching – Learning Process

Faculty Name	:	Gouri S Katageri	
Course Name	:	Electromagnetic Waves	Date : 15th January 2022
Course Code	:	18EC55	Time : 11am to 12 pm
Semester & Section	:	5th Sem B & C	Academic Year: 2021-2022 (ODD)

Name of the Activity: Collaborative Learning/ MATLAB Tool Based

Description of the activity:

Electromagnetic Waves subject is taught using wacom digital writing pad and writing pen, In this activity Course teacher circulated the material (PPT and Notes) prior to the discussion. Asked the students to go through the allotted experiment which is to be conducted in MATLAB tool. To check the understanding level course teacher made groups and assigned a topic for simulation. Later Course teacher will explain in detail and solved the numerical related to the topics. This method enhances the learning skill and problem-solving skills.

Drive Folder- Google class room link- n4ywcog

https://drive.google.com/drive/u/0/folders/1lTd0znsUumqECyIZwAwkT3hS8x5jzB6G

Learning Objective of the innovative activity: (Example)

1. To understand basic laws of Electromagnetics using simulation tool.
2. To solve the problems related to Electromagnetic laws.

Learning Outcome of the innovative activity: (Example)

Learning Outcome	Statement
1	Student will be able to understand the usage of MATLAB tool to solve problems on electromagnetic waves

Activity Suggested to the Students:

Activity	Content	Methodology	Skill/Competencydeveloped
Simulation	MATLAB exercises In Electromagnetic Waves	Collaborative learning	Knowledge Analysis Comprehension

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Innovation in Teaching–Learning Process

Faculty Name	:	Mahendra H N	
Course Name	:	Verilog HDL	Date :22/03/22
Course Code	:	18EC56	Time :11.10-12.05
Semester & Section	:	5th D	Academic Year: 2021-22

Name of the Activity: Hardware modeling using Verilog and simulation

Description of the activity: Develop the Verilog HDL code various digital circuits and verify the same using test bench.

Learning Objective of the innovative activity: (Example)

1. **To understand how digital circuits are modelled using verilog HDL code .**
2. **To model the digital circuits using Verilog .**

Learning Outcome of the innovative activity:(Example)

Learning Outcome	Statement
L1	Student will be able to understand the requirement of verilog in hardware modeling.

Activity Suggested to the Students :

Activity	Content	Methodology	Skill/Competency developed
Simulation	Digital circuits	IC Design flow	HDL programming
Implementation	FPGA	FPGA	Hardware Implementation

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209

Innovative Teaching

Subject Name/Code: Machine Learning/18EC745
Semester/Section: 7th/A,B,C
Semester Duration: Oct 2021-Jan 2021
Academic Year: 2021-2022
Faculty Name: Mrs. Sunita Shirahatti

Innovative Teaching methods

Method	Activity	Indicate with Tick mark
M1	SIMULATION	✓
M2	Activity based Learning (Collaborative learning & implementation of given problem statement)	✓
M3	Flip-Mode (Circulate Video & Audio material in advance & discuss the related topics in the class)	
M4	Case Studies	
M5	Teaching concepts through Animation	

SL.NO	Topic for teaching	Activity to students	COs	POs	PSOs	Bloom's level	CO attainment Level
1	Simulation: Implementation of mini projectsand Simulation of the same	Collaborative learning: to simulate and verify functionality using modern tool	C4045.6	PO1, PO2, PO3, PO4,PO5, PO8, PO9, PO10, PO12	PSO2, PSO3	L3	1

Inference:

Through collaborative learning students could work in team and individual level to implement, Simulate the given mini project problem statement mentioned in activity, submit a report and present the topic in the class.

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Innovation in Teaching – Learning Process

Faculty Name	:	Dr.Poornima N, Mrs.Kavitha M	
Course Name	:	Analog Circuits	Date : 27-08-2022
Course Code	:	C212	Time : 10.00AM
Semester & Section	:	4th Sem(A,B and C)	Academic Year: 2021-2022

Name of the Activity: Collaborative Learning

Description of the activity: Students were made to work in a group of 6-8 members. Each group is assigned with one design question and simulation of the same has to be done. The report of the activity has to be submitted and each group has to present the same.

Learning Objective of the innovative activity:

1. **To understand the significance of working in a team**
2. **To enhance oral and written communication skills**

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L1	Student will be able to work in a team to design and simulate a given circuit.

Activity Suggested to the Students :

Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative Learning	Design and Simulation of analog circuits	Simulation	Knowledge Analysis Comprehension Linguistic

Signature of faculty

HOD, ECE

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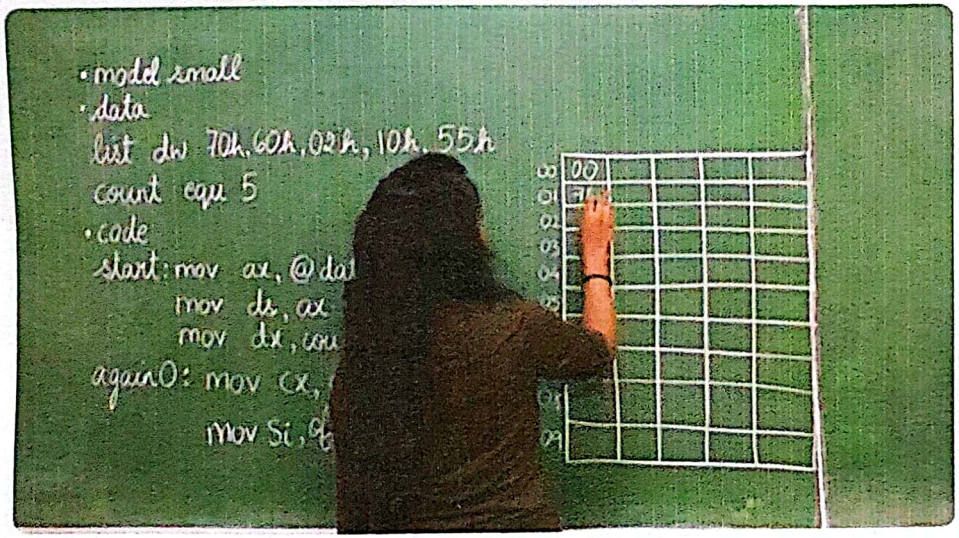

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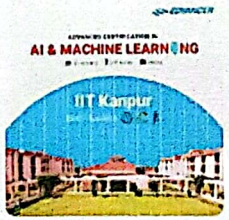

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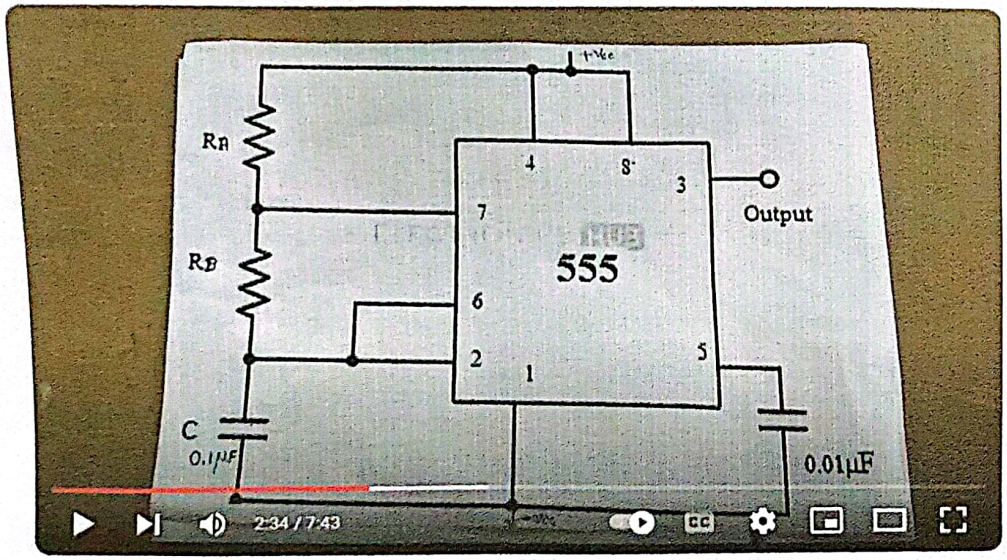

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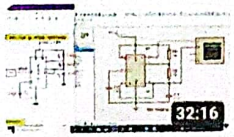

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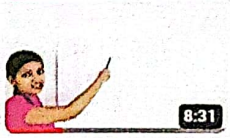

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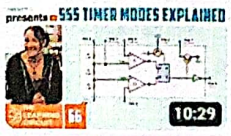

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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

Innovation in Teaching – Learning Process

Faculty Name	:	**Dr.Mallikarjunaswamy S**	
Course Name	:	**Basic Electronics and Communication Engineering**	**Date : 27-08-2022**
Course Code	:	**21ELN14**	**Time : 12.00PM**
Semester & Section	:	**1th Sem Mech & RA**	**Academic Year: 2020-2022**

Name of the Activity: Collaborative Learning

Description of the activity: Students were made to work in a group of 4-5 members. Each group is assigned with a question which is to be carried out using a simulation tool. The report of the activity has to be submitted and each group has to present the same.

Learning Objective of the innovative activity:

1. **To understand the significance of working in a team**
2. **To enhance oral and written communication skills**

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L1	Student will be able to work in a team to design and simulate a given circuit.

Activity Suggested to the Students :

Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative Learning	Simulation of Analog and Digital Circuits	Simulation	Knowledge Analysis Comprehension Linguistic

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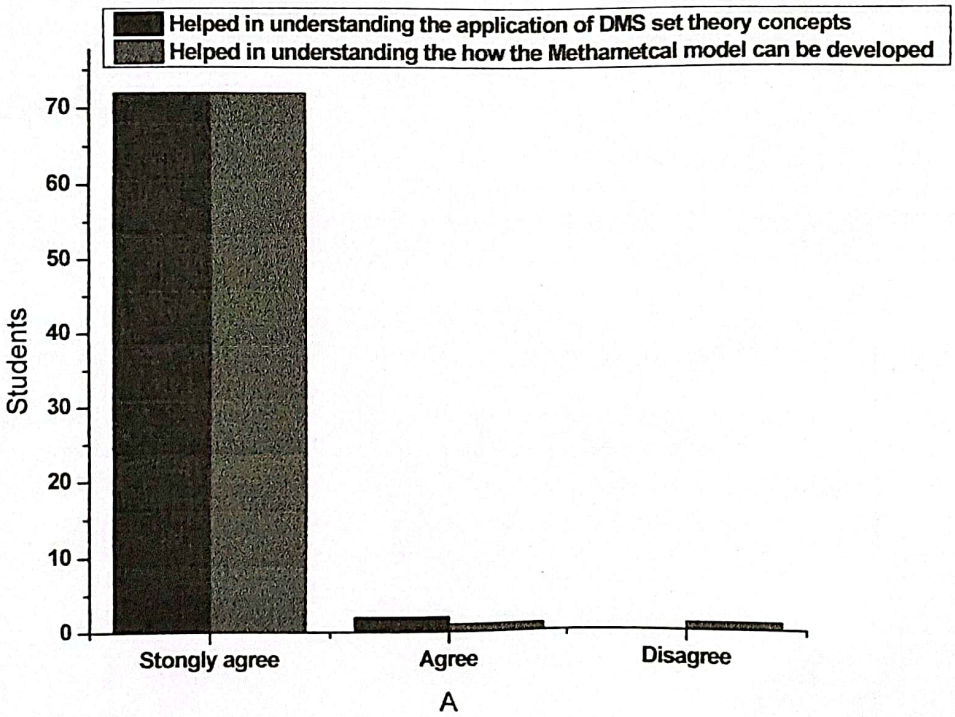
IMPACT ANALYIS

Whether the activity was useful in better learning of the basic electronics circuit
ncepts?
Did this activity help you to improve your presentation and writing skills?

	Whether the activity was useful in better learning of the analog circuit design concepts?			Did this activity help you to improve your presentation and writing skills?			
	Strongly Agree	Agree	Disagree	Strongly Agree	Agree	Disagree	
	58	08	-	60	06	-	



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Innovative Teaching

2021-22 ODD

Subject Name/Code: BASIC ELECTRONICS & COMMUNICATION ENGINEERING
SUBCODE: **24ELN24/14**

Semester/Section: I ECE 'A'
Semester Duration: Dec 2021-April 2022
AY: 2021-2022_ODD
Faculty Name: Dr. Usha S.M

Innovative Teaching methods

Method	Activity	Indicate with Tick mark
M1	SIMULATION	✓
M2	Activity based Learning (Circuit Ideas & its implementation)	
M3	Flip-Mode (Circulate Video & Audio material in advance & discuss the related topics in the class)	
M4	Case Studies	
M5	Teaching concepts through Animation	

SL.NO	Topic for teaching	Activity to students	COs	POs
1	Analog & Digital circuits Simulation using Multisim	Simulation of Analog & Digital circuits using Multisim and report submission	CO5	PO5

Inference:

Students learnt the usage of Multisim Software and Simulation of Analog and Digital circuits using multisim.

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Innovative Teaching

2021-22 ODD

Subject Name/Code: BASIC ELECTRONICS & COMMUNICATION ENGINEERING
SUBCODE: **24ELN24/14**

Semester/Section: I ECE 'A'
Semester Duration: Dec 2021-April 2022
AY: 2021-2022_ODD
Faculty Name: Dr. Usha S.M

Innovative Teaching methods

Method	Activity	Indicate with Tick mark
M1	SIMULATION	✓
M2	Activity based Learning (Circuit Ideas & its implementation)	
M3	Flip-Mode (Circulate Video & Audio material in advance & discuss the related topics in the class)	
M4	Case Studies	
M5	Teaching concepts through Animation	

SL.NO	Topic for teaching	Activity to students	COs	POs
1	Analog & Digital circuits Simulation using Multisim	Simulation of Analog & Digital circuits using Multisim and report submission	CO5	PO5

Inference:

Students learnt the usage of Multisim Software and Simulation of Analog and Digital circuits using multisim.

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Impact Analysis for Innovative Learning

ACADEMIC YEAR 2021-2022_ODD
Semester: I ECE 'A'

Note: The students were asked to evaluate using the 3 categories of marks- 3-Excellent, 2-Good and 1- Satisfactory.

SUBJECT: **BASIC ELECTRONICS & COMMUNICATION ENGINEERING**
SUBCODE: **24ELN24/14**

Sl. No	Questionnaire	Very Good (3)	Good (2)	Satisfactory (1)
1.	Whether the activity was useful in better learning of the course?	47	3	
2.	Did this activity help you to improve your writing skills?	45	5	

Signature of the Course Teacher

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Innovation in Teaching – Learning Process

Faculty Name	:	SOWMYA R. BANGARI	
Course Name	:	NETWORK THEORY	Date :11-03-2022
Course Code	:	18EC32	Time : 10.00 – 11.00
Semester & Section	:	III AND B	Academic Year: 2021 – 22

Name of the Activity: Simulation of Networks using TINA software

Description of the activity:

Collaborative learning activity was given to the students. Through collaborative learning, students could work in individual and team level to solve the problem mentioned in activity and submits a report. Unique questions were given to individual group to enhance the problem solving ability

Learning Objective of the innovative activity:

1. To understand the usage of TINA software to simulate the given networks.

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L1	Student will be able to simulate the networks using TINA software

Activity Suggested to the Students:

Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative Learning	To simulate the networks	Implementation using TINA	1. Work with teams to solve the problem. 2. Report writing 3. Using software tool to solve the problem.

Signature of Faculty:

HOD

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Innovation in Teaching – Learning Process

Faculty Name	:	**Anuradha.M.G**	
Course Name	:	**Electronic Devices/18EC33**	**Date : 17-02-22**
Course Code	:	**C203**	**Time : 1.45 – 2.45 PM**
Semester & Section	:	**3rd A**	**Academic Year: 2021-22**

Name of the Activity: Seminar on basic topics of Electronics

Description of the activity:

Group Seminar was given to the students. Through seminars, students could work in team and individual level to understand the topic given to them and present it in the class and submit a report.

Learning Objective of the innovative activity:

1. To understand and present the topic given to the group.

Learning Outcome of the innovative activity:

LearningOutcome	Statement
L1	Students will be able to understand analyze the given problem and present it in the class

Activity Suggested to the Students :

Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative learning	Basics of Electronics	Group of students were given the topic to present it in the class.	1. Work with teams to solve the problem. 2. Report writing

Anuradha.M-G

Staff In charge
Dr. Anuradha.M.G, Asst Prof.

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Impact Analysis for Innovative Learning

Faculty Name	:	Anuradha.M.G	
Course Name	:	Electronic Devices/18EC33	Date : 17-02-22
Course Code	:	C203	Time : 1.45 – 2.45 PM
Semester & Section	:	3rd A	Academic Year: 2021-22

ACADEMIC YEAR 2021-22

Questions for collaborative learning

Course Outcomes:

CO#	CO Statement	BLL
C203.1	Make use of atomic structure to explain the principles of semiconductor Physics.	L3
C203.2	Identify the characteristics of different types of semiconductor devices.	L3
C203.3	Utilize the mathematical models of semiconductor junctions and MOS transistors for circuits and systems.	L3
C203.4	Compare the fabrication process of semiconductor devices.	L2,L4

CO covered	Question number	Seminar topic
C203.1	Set1:	Bonding forces in solids, Energy bands
C203.1	Set2:	Conductivity and Mobility, Effects of temperature and doping on mobility, Hall Effect.
C203.2	Set3:	Forward and Reverse biased junctions- Qualitative description of Current flow at a junction
C203.2	Set4:	Reverse bias breakdown- Zener breakdown, avalanche breakdown, Rectifiers.
C203.2	Set5:	Fundamentals of BJT operation, Amplification with BJTS.
C203.2	Set6:	The coupled Diode model (Ebers-Moll Model), Switching operation of a transistor
C203.3	Set7:	Basic pn JFET Operation, Equivalent Circuit and Frequency Limitations
C203.3	Set8:	Basic MOSFET Operation- MOSFET structure, Current-Voltage Characteristics. Energy band diagram.
C203.4	Set9:	Thermal Oxidation, Diffusion, Rapid Thermal Processing
C203.4	Set10:	Ion implantation, chemical vapour deposition, photolithography.
C203.4	Set11:	CMOS Process Integration, Integration of Other Circuit Elements.

Inference:

Through collaborative learning students could work in team and individual level to solve the problem mentioned in activity, submit a report.

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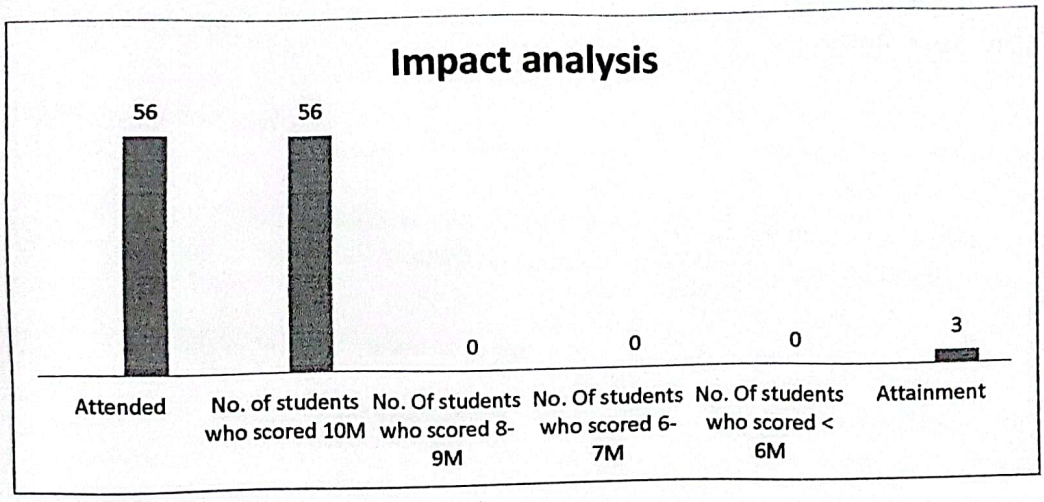
No. of Students Attended	Marks scored/Grade				Attainment
	No. of students who scored 10M	No. Of students who scored 8-9M	No. Of students who scored 6-7M	No. Of students who scored <6 M	
56	56	0	0	0	3



Anuradha.M-G

Staff In charge
Dr. Anuradha.M.G, Asst Prof.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Innovation in Teaching – Learning Process

Faculty Name	**:**	**Mrs Kavitha M**	
Course Name	**:**	**Digital System Design**	**Date : 10-11-2020**
Course Code	**:**	**C204**	**Time : 4.00PM**
Semester & Section	**:**	**3rd Sem, 'C'**	**Academic Year: 2020-2021**

Name of the Activity: Quiz

Description of the activity: Students were given ten multiple choice questions on the combinational circuits. Individual students are required to answer the questions within duration of 15 minutes.

Learning Objective of the innovative activity:

1. **To understand the theoretical concepts.**
2. **To remember the concepts learnt.**

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L1	Utilize combinational logic circuits concepts for digital system design.

Activity Suggested to the Students:

Activity	Content	Methodology	Skill/Competencydeveloped
Quiz	Quiz on combinational circuits.	Multiple Choice Questions	Knowledge Analysis Comprehension

Kavitha. M
Signature of Course Teacher

Signature of HOD

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Innovation Teaching – Learning Process

Faculty Name	:	Mrs. Latha B N	
Course Name	:	Technological Innovation Management and Entrepreneurship	**Date** : 03/01/2022
Course Code	:	18ES51	
Semester & Section	:	5 / B	**Academic Year:** 2021 - 2022

Name of the Activity: Collaborative Learning

Description of the activity: Students were made to work in a group of 4 members.
Each group is assigned with set of questions to present the case studies in the class and submit report.

Learning Objective of the innovative activity:

1. To understand the significance of working in a team
2. To enhance oral and written communication skills

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L3	Identify the roles of Management and Administration.
L4	Analyze the various Management functions of an Organization.
L4	Examine the skills and Social responsibilities of an Entrepreneur.
L4	Analyze the impact of Feasibility analysis and Idea generation on Family Business.
L3	Construct business model using network analysis and various funding sources.

Activity Suggested to the Students:

Q. No	Questions
1.	Design an organization/Business Model.(product/social service/corporate service) Ex: D-mart etc…
2.	Corporate social responsible activities of Business leader. (Indian/world global leaders) Ex: Tata, wipro, Reliance, Infosis, Bicon.

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Innovation inTeaching–Learning Process

FacultyName	:	Mrs. Suguna G C	
Course Name	:	Principles of Communication Systems	Date :14-01-2022
Course Code	:	C212	Time :9-10
Semester&Section	:	5hSem, 'A'	AcademicYear: 2021-2022

Name of the Activity: Collaborative Learning- Simulationbased Learning

Description of the activity: Students were made to work in a group of 5-6members. Each group was assigned with a question which was to be carried out using a simulation tool MATLAB for the simulation of modulation and demodulation techniques.Concepts like simulation of amplitude modulation technique, plotting of magnitude spectrum, generation of DSB-SC and SSB-SC modulated waves, and plot of magnitude spectrum, generation of frequency modulated wave, verification of sampling theorem, pulse modulation techniques, representation of line codes and encoding. The report of the activity has to be submitted in a group after carrying out the simulation

LearningObjectiveoftheinnovativeactivity:

1. **Tounderstandthesignificance of working in a team**
2. **To enhance oral and written communication skills**

LearningOutcomeoftheinnovativeactivity:

Learning Outcome	Statement
L1	Take part in team to design, formulate and develop codes in MATLAB for the simulation of modulation and demodulation techniques.

Activity Suggested to the Students :Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative Learning	Develop codes in MATLAB for simulation of modulation and demodulation techniques	Simulation	KnowledgeAnalysisComprehension Linguistic

IMPACT ANALYIS

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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

Innovation in Teaching – Learning Process

Faculty Name	:	**Dr. Saroja S Bhusare**	
Course Name	:	**Principles of Communication Systems**	**Date : 22-01-2022**
Course Code	:	**C212**	**Time : 31-01-22 to 4-02-2022**
Semester & Section	:	**5th Sem, 'C'**	**Academic Year: 2021-2022**

Name of the Activity: Collaborative Learning- Simulation based Learning

Description of the activity: Students were made to work in a group of 5-6 members. Each group was assigned with a question which was to be carried out using a simulation tool MATLAB for the simulation of modulation and demodulation techniques. Concepts like simulation of amplitude modulation technique, plotting of magnitude spectrum, generation of DSB-SC and SSB-SC modulated waves, and plot of magnitude spectrum, generation of frequency modulated wave, verification of sampling theorem, pulse modulation techniques, representation of line codes and encoding. The report of the activity has to be submitted in a group after carrying out the simulation

Learning Objective of the innovative activity:

1. **To understand the significance of working in a team**
2. **To enhance oral and written communication skills**

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L1	Take part in team to design, formulate and develop codes in MATLAB for the simulation of modulation and demodulation techniques.

Activity Suggested to the Students : Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative Learning	Develop codes in MATLAB for simulation of modulation and demodulation techniques	Simulation	Knowledge Analysis Comprehension Linguistic

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Innovation in Teaching – Learning Process

Faculty Name	:	**Dr Thejaswini P**	
Course Name	:	Information Theory & Coding	**Date : 22-01-2022**
Course Code	:	**18EC54**	**Time : 11.00AM**
Semester & Section	:	**5th Sem, 'C'**	**Academic Year: 2021-22**

Name of the Activity: Collaborative Learning

Description of the activity: Students were made to work in a group of 6-7 members. Each group is assigned with a question which is to be carried out using a simulation tool. The report of the activity has to be submitted and each group has to present the same.

Learning Objective of the innovative activity:

1. **To understand the significance of working in a team**
2. **To enhance oral and written communication skills**

Learning Outcome of the innovative activity:

Learning Outcome	Statement
L3	Make use of MATLAB tool to simulate source and channel coding algorithms.

Activity Suggested to the Students:

Activity	Content	Methodology	Skill/Competencydeveloped
Collaborative Learning	Simulate source and channel coding algorithms using MATLAB tool.	Simulation	Knowledge Analysis Comprehension Linguistic

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