

SVKM's Institute of Technology, Dhule
Department of Computer Engineering
Academic Year :2022-23
Pedagogy : Innovative Practices

Sr. No	Name of faculty	Innovative Practice	Subject	Topic
1	Dr Makarand Shahade	Lecture Capture	Computer Architecture & Organization	
2	Ashish Awate	Crossword Puzzle	Machine Learning	Machine Learning Jargons
3	Dr. Makarand Shahade	Role Play	Operating System	CPU Scheduling Algorithms
4	Umakant Mandawkar	Crossword Puzzle	Big Data Analytics	Big Data Analytics Jargons
5	Dr. Makarand Shahade	Role Play	Distributed System	IPC using Message Passing
6	Mayuri Kulkarni	Animation	Blockchain Technology	Broadcasting Data in P2P Network(Ethereum)
7	Mayuri Kulkarni	Simulation	Blockchain Technology	Basics of Blockchain
8	Ashish Awate	Virtual Lab	Natural Language Processing	POS Tagging - Hidden Markov Model
9	Umakant Mandawkar	Mind-games	Discrete Mathematics	The Bridges of Königsberg
10	Bhushan Nandwalkar	Virtual Lab	Database Systems	ER modeling from problem statement
11	Dr. Rajiv Junne	Brainstorming Session	Business Communication	Role of Intercultural Communication at Workplace
12	Rinku Sharma	Mind games	Human Computer Interaction	Mind games: a mental workout to keep the brain sharp
13	Kiran Somwanshi	Online Platforms demonstration	Cloud Computing	Amazon Web Services
14	Kiran Somwanshi	Crossword Puzzle (Mind Game)	Compiler Design	Top Down Parser /Preductive Parser
15	Mayuri Kulkarni	Simulation	IoT	Circuit Design
16	Mayuri Kulkarni	Animation	Internet of Things	MQTT
17	Dr. Makarand Shahade	Flip Class Room	Operating System	CPU Scheduling Algorithms
18	Rinku Sharma	Online Compiler	OOP in C++	
19	Vijaylaxmi Bittal	Simulation	Computer Network	Simulation of DNS, FTP, Web and E-mail server configuration
20	Bhushan Nandwalkar	Virtual Lab	Design and Analysis of Algorithm	Minimum Spanning Tree (Kruskals and Prims Algorithm)



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 A.Y 2022-23



Name of Event	: Lecture Capture
Venue of Event	: Class room : 210
Recourse person	: Dr. Makarand Shahade, Associate Professor and HOD, Department of Computer Engineering, SVKM's Institute of Technology, Dhule .

❖ **Objective:**

The objective of this Event is to

- Students will be able to watch video of Computer Architecture at YouTube.

❖ **Activity Details:**

1. Capture lecture at Classroom
2. Upload video on YouTube channel.

❖ **Committee Members:**

Dr. Makarand Shahade, Course In-charge

❖ **Total No. of Student Turned up:**

56 students out of 61 participated from S.Y. Computer Engineering Department.

❖ **Outcome of Activity:**

- Students will watch lecture capture video at any time on YouTube.
- YouTube Link: <https://youtu.be/erN97ssjr-s>

POs Mapped: PO10

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO10	Student will able to learn topic from You-tube video

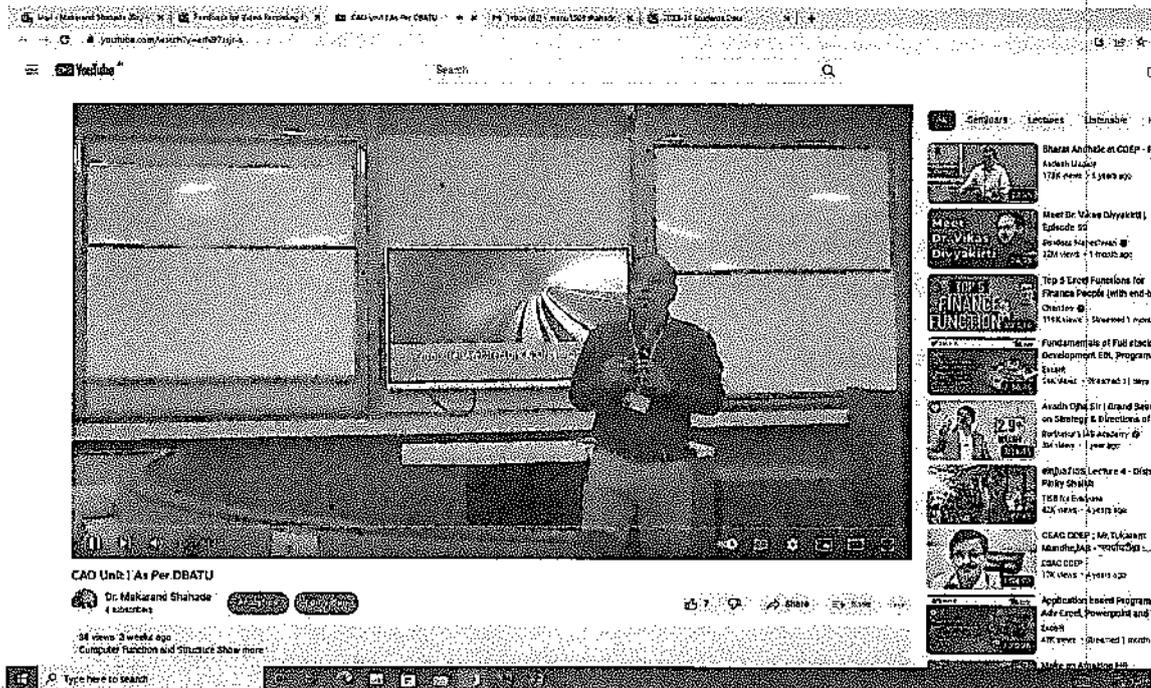
PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the feedback
Level 2 : Medium	70% of students scoring more than set attainment level in the feedback
Level 3 : High	80% of students scoring more than set attainment level in the feedback

Overall Attainment: Level 3(high)

❖ Photographs of Event:



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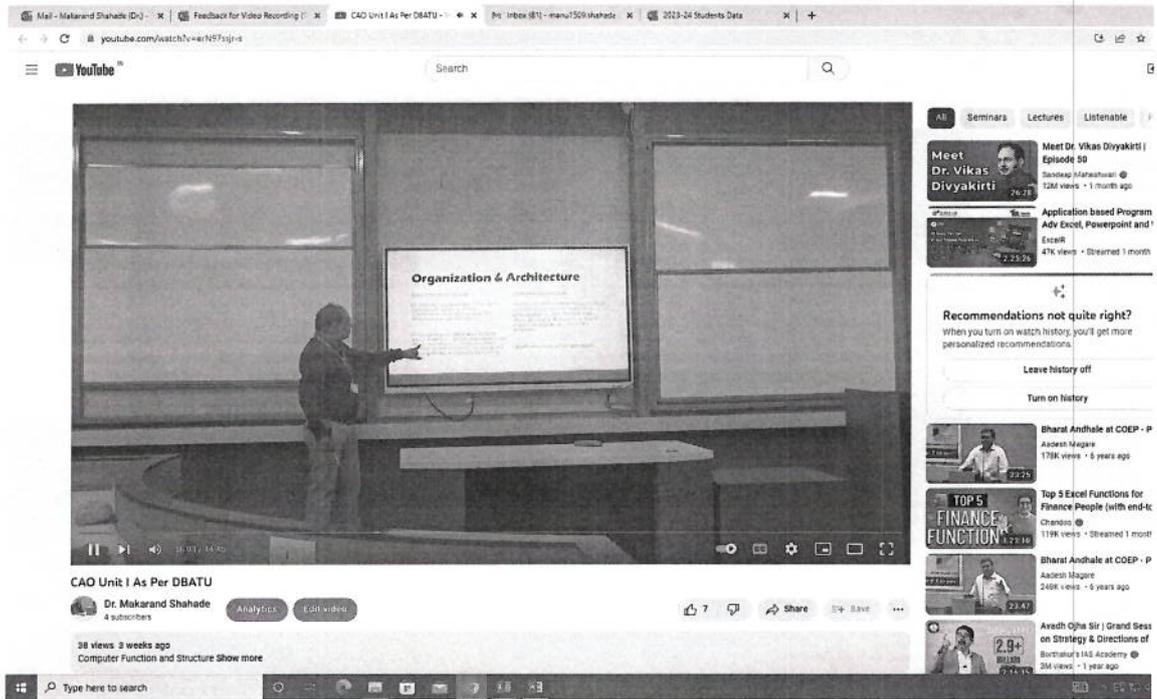
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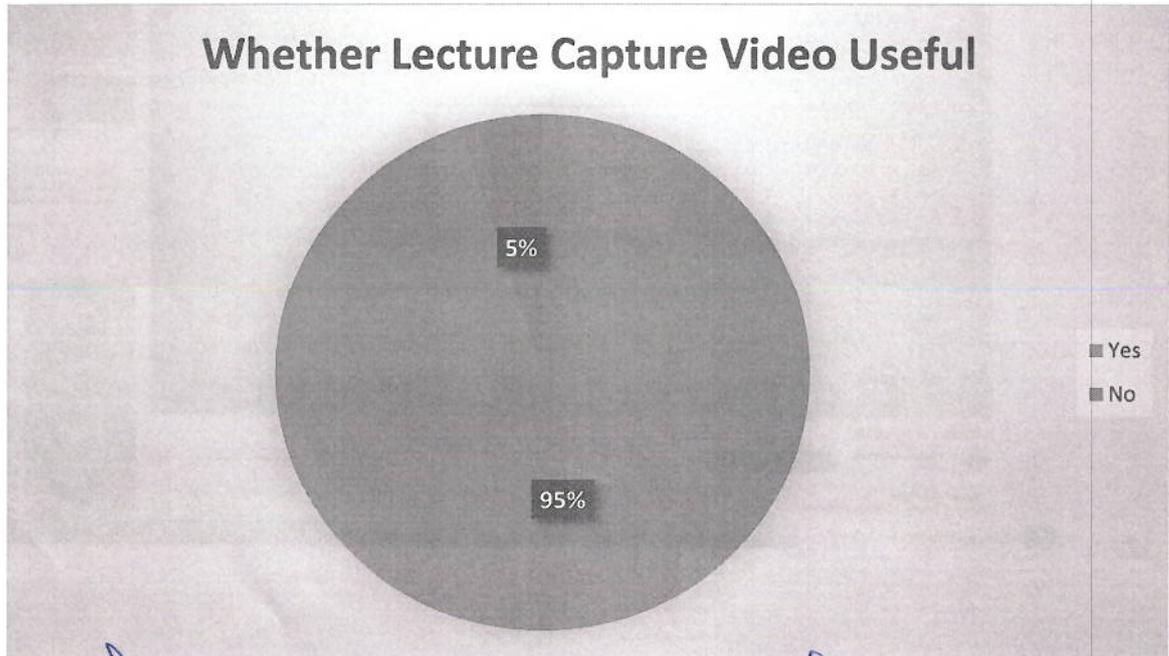
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❖ Students Feedback:



(Signature)
Dr. Makarand Shahade
Course Coordinator



(Signature)
Dr. Makarand Shahade
HOD



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- Name of Event** : **INNOVATIVE PRACTICES**
- Dates** : **16th March 2022**
- Time** : **05:00 pm**
- Venue** : **Classroom: 209**
- Course Code & Title** : **BTCOC603 Machine Learning**
- Learning Strategy** : **Crossword Puzzle**
- Topic** : **Machine Learning Jargons**

Crossword Puzzle:

Crossword puzzle is a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

The benefit of the Crossword Puzzle:

- The crossword puzzle is a kind of word game that can help students to extend their vocabulary knowledge.
- From an exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- Crosswords for students can improve their vocabulary, analytical skills, and memory.

Course Outcome:

CO2: *To recognize the characteristics of machine learning that make it useful to real-world problems and Use different linear methods for regression and classification with their optimization through different regularization techniques.*

Goal:

The students will be able to improve their machine-learning vocabulary

Reason for choosing the particular topic (Method):

First, crossword puzzles motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a crossword puzzle is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

How we implemented Brainstorming:

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A crossword puzzle of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the puzzle.
- After completion of the puzzle activity, the faculty member discussed the answer to make the students aware of the correct answer.

Committee Members: Prof. Ashish Awate Coordinator
Dr. Makarand Shahade, Convener

Total No. of Student Benefited:

36 students participated from the third Year B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to improve their machine-learning concepts, vocabulary, analytical skills, and memory.

Pre-implementation Reflection:

- Few students found it difficult to complete the puzzle
- Students just might not have the necessary knowledge to complete crossword puzzles.

Post Implementation reflection:

- The crossword puzzle activity was very interesting and students were able to identify the appropriate jargon in machine learning.
- Vocabulary of the terms related to machine learning is improved.
- Student's understanding of basic machine learning concepts is improved.
- This activity helps to test the level of understanding of the students.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO9	PO10	PO12
<i>LO1:</i> To Recognize the characteristics of machine learning that make it useful to real-world problems.	2	2	2	2	1	2

POs Mapped: PO1, PO2, PO3, PO10, PO12

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Students will be able to understand the concept of characteristics of machine learning
PO2	Students will be able to choose the appropriate machine learning type while approaching the problem.
PO3	Students will be able to apply machine learning concept while building model.
PO10	Students communication skills will be improved as they discuss the answers with peers
PO12	The problem-solving skill earned through this activity helps the students in motivating life long learning.

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO3, PO10, PO12

References: <https://puzzlemaker.discovereducation.com/criss-cross>

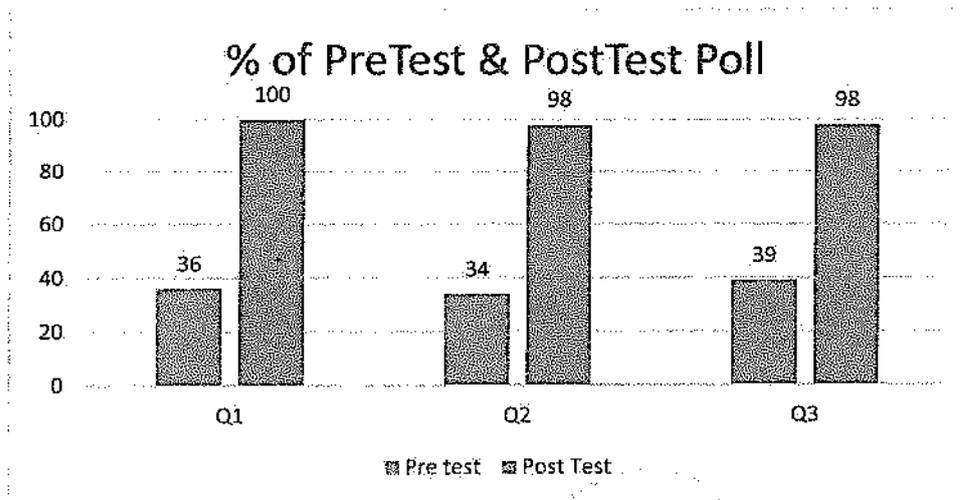
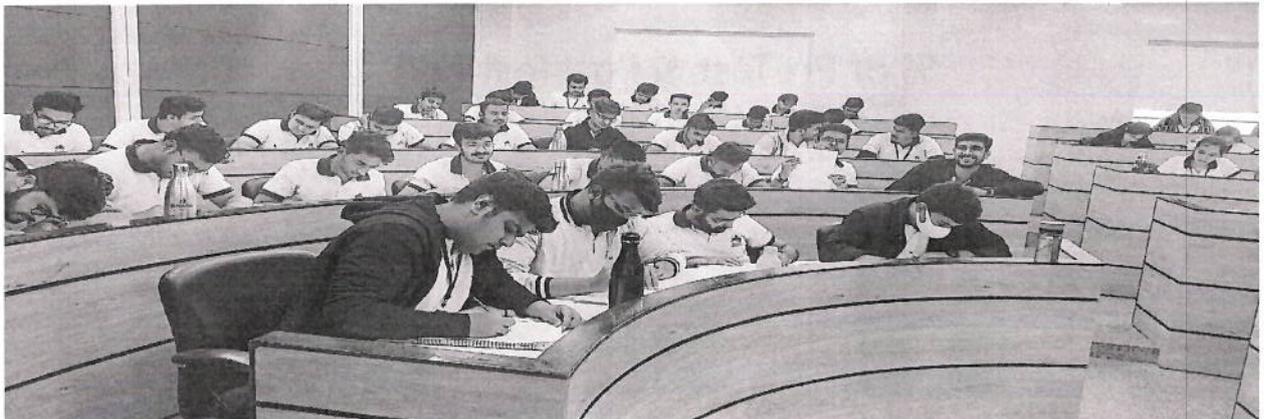
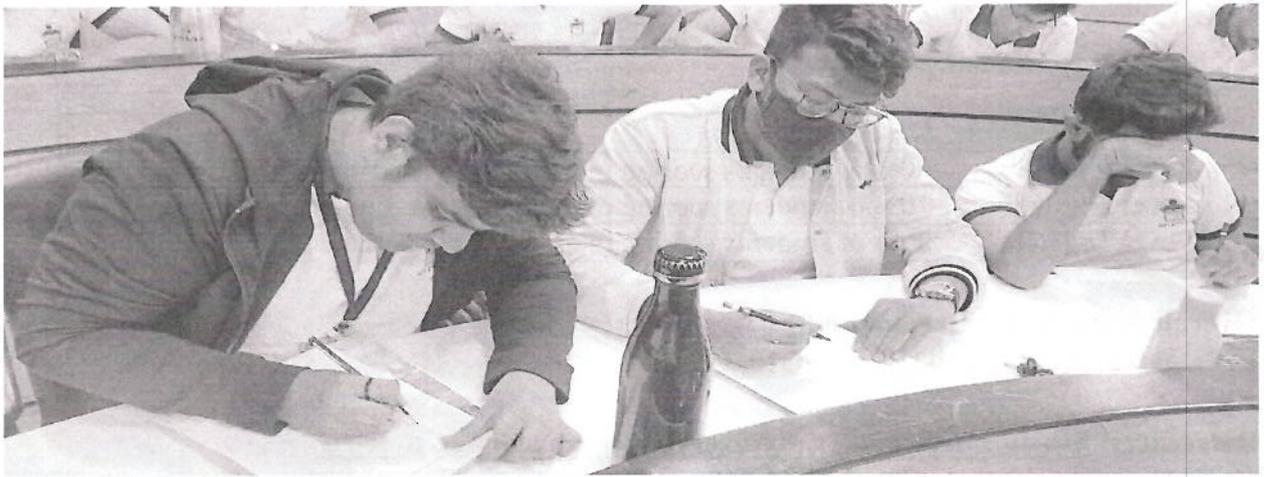
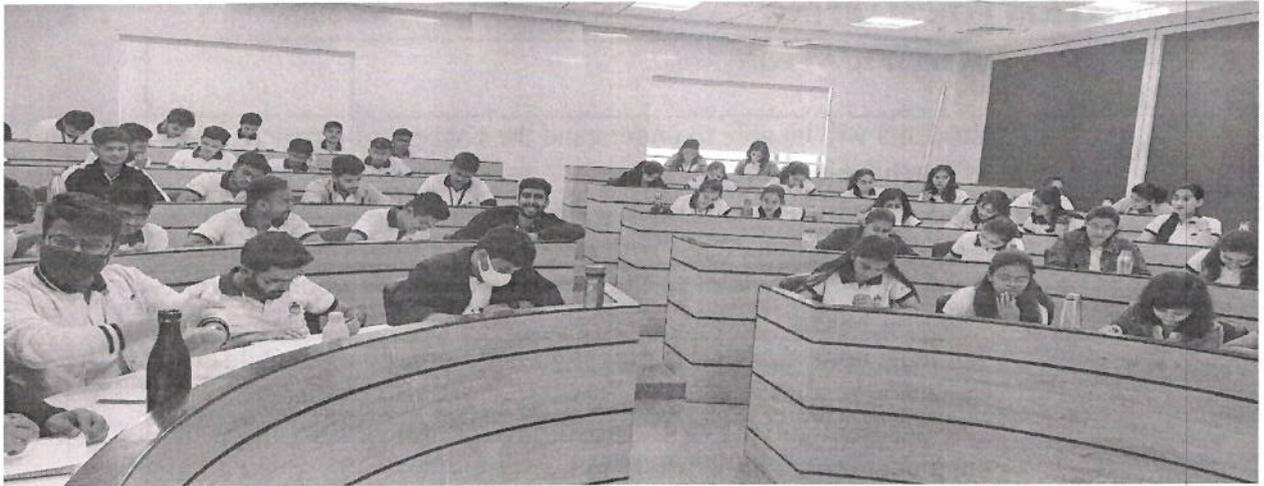


Fig. PreTest and PostTest Poll Before & After of Event

Photos of Activity




Prof. Ashish Awate
Event Coordinator




Dr. Makarand Shahade
HOD, Computer Engineering



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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 24th May 2023
Time	: 05:00 pm
Venue	: Class room : 208
Course Code & Title	: BTCOC402 Operating System
Learning Strategy	: Role Play
Topic	: CPU Scheduling Algorithms

Role play:

Role play encourages participation among passive learners, adds dynamism to the classroom and promotes the retention of material.

Benefit of the Role play:

- Students immediately apply content in a relevant, real world context.
- Students can transcend and think beyond the confines of the classroom setting.
- Students see the relevance of the content for handling real world situations.
- The instructor and students receive immediate feedback with regard to student understanding of the content.
- Students engage in higher order thinking and learn content in a deeper way.
- Instructors can create useful scenarios when setting the parameters of the role play when real scenarios or contexts might not be readily available.

Course Outcome:

CO2: To Illustrate concepts of Process as well as Thread Management along with Implement concepts of CPU Scheduling algorithms.

Goal:

The students will be able to apply various scheduling algorithms.

Reason for choosing the particular topic (Method):

Students are asked to "act out" so they get a better idea of the concepts and theories being

discussed. Role play helps the students to visualize the functioning of CPU scheduling algorithms. In addition, role play is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

How we implemented Role play:

- The faculty has discussed the concept of FCFS and SJF on the previous day and asked willingness from the students to role play the concepts on the next day.
- The students formed groups and prepared for the role play.
- The students enacted CPU scheduling algorithms like FCFS and SJF.
- Three processes with different burst time and arrival time are to be executed by the processor using FCFS and SJF.
- Students have taken the role of processes and processor.

Committee Members: Dr. Makarand Shahade, Coordinator and Convener

Total No. of Student Benefited:

45 students participated from S.Y. B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to demonstrate various scheduling algorithms.

Pre-implementation Reflection:

- Some students were not willing to participate which necessary for the execution of the role playing activity.
- Less number of students was involved in the activity.

Post Implementation reflection:

- Students were able to identify and apply the working of scheduling algorithm
- All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concept.
- A scheduler can be added in the next role play in addition to the processor and processes to depict closer to the real scenario in CPU scheduling algorithms.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO5	PO9	PO10	PO12	PSO1	PSO2
LO4: The students will be able to Implement and Examine concepts of CPU Scheduling algorithms.	2	2	1	2	1	2	2	2

POs Mapped: PO1, PO2, PO5, PO9, PO10, PO12, PSO1, PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Student will Apply the knowledge of mathematics to solve the CPU Scheduling algorithms
PO2	Student will analysis the CPU Scheduling Problem
PO3	Student will Draw Grant Chart for CPU Scheduling Problem
PO5	Students will use modern IDE tools like NetBeans, Code Blocks, Notebook to solve CPU Scheduling problems
PO9	Students teams demonstrate how to solve the CPU Scheduling algorithms using role play
PO10	Students Can Communicate working of CPU Scheduling algorithms using role play
PO12	Student can solve the CPU Scheduling Problem using various algorithms and Examine the best algorithms for given set of data
PSO1	Student ability to analyze and implement the CPU Scheduling algorithms
PSO2	Students will provide the solution to CPU Scheduling problems by applying standard CPU Scheduling algorithms

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll..
Level 3 : High	80% of students scoring more than set attainment level in the Poll..

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO5, PO9, PO10, PO12, PSO1, PSO2

References:

<https://serc.carleton.edu/introgeo/roleplaying/whatis.html>



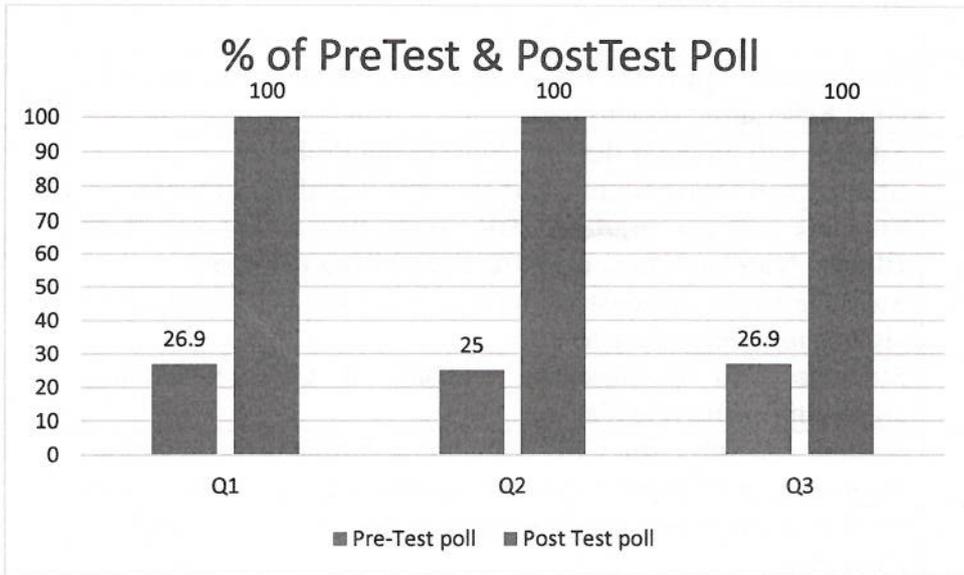


Fig. PreTest and PostTest Poll Before & After of Event

Photographs of Event:



(Signature)
Dr. Makarand Shahade
 Event Coordinator



(Signature)
Dr. Makarand Shahade
 HOD, Computer Engineering



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- Name of Event** : **INNOVATIVE PRACTICES**
- Dates** : **14 September 2022**
- Time** : **5.00pm**
- Venue** : **Classroom: 210**
- Course Code & Title** : **BTCOC702/ Big Data Analytics**
- Learning Strategy** : **Crossword Puzzle**
- Topic** : **Big Data Analytics Jargons**

Crossword Puzzle:

Crossword puzzle is a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

The benefit of the Crossword Puzzle:

- The crossword puzzle is a kind of word game that can help students to extend their vocabulary knowledge.
- From an exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- Crosswords for students can improve their vocabulary, analytical skills, and memory.

Course Outcome:

CO2: To Analyze the various big data platform like Hadoop, Map Reduce.

CO3: To Illustrate the use of various Big Data Streaming Platforms.

CO4: To Perform big data application using machine learning and deep learning

Goal:

The students will be able to improve their *Big Data Analytics* vocabulary

Reason for choosing the particular topic (Method):

First, crossword puzzles motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a crossword puzzle is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

How we implemented Brainstorming:

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A crossword puzzle of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the puzzle.
- After completion of the puzzle activity, the faculty member discussed the answer to make the students aware of the correct answer.

Committee Members: Prof. Umakant Mandawkar, Coordinator

Dr. Makarand Shahade, Convener

Total No. of Student Benefited:

67 students participated from the Final Year B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

Completing crossword puzzles can reinforce understanding of fundamental concepts and terminology related to big data analytics, such as data mining, machine learning, Hadoop, MapReduce, etc. By encountering these terms in a puzzle format, learners engage in active recall, which enhances comprehension and retention.

Pre-implementation Reflection:

- Few students found it difficult to complete the puzzle
- Students just might not have the necessary knowledge to complete crossword puzzles.

Post Implementation reflection:

- The crossword puzzle activity was very interesting and students were able to identify the appropriate jargon in *Big Data Analytics*.
- Vocabulary of the terms related to *Big Data Analytics* is improved.
- Student's understanding of basic *Big Data Analytics* concepts is improved.
- This activity helps to test the level of understanding of the students.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO4	PO10	PO12	PSO1	PSO2
LO1: To apply deductive reasoning and critical thinking skills to solve clues and fill in the grid. In the context of big data analytics, this translates to developing problem-solving abilities necessary for analyzing large datasets, identifying patterns, and deriving insights.	2	2	2	2	1	2	2	2

POs Mapped: PO1, PO2, PO3, PO4, PO10, PO12. PSO Mapped :PSO1, PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Crossword puzzles can reinforce understanding of key concepts and terminology in big data analytics, such as data mining algorithms, machine learning techniques, and database management systems.
PO2	Crossword puzzles can challenge learners to analyze clues and formulate solutions using logical reasoning and problem-solving skills, similar to the process of identifying and analyzing complex engineering problems in big data analytics.
PO3	Crossword puzzles can encourage learners to design creative solutions to complex clues, mirroring the process of designing system components or processes in big data analytics while considering various constraints and requirements.
PO4	Crossword puzzles require learners to conduct research and analyze information to arrive at valid conclusions, akin to the research-based approach used in analyzing data and synthesizing information in big data analytics.
PO10	Crossword puzzles can reinforce communication skills by requiring learners to interpret clues, write effective responses, and present their solutions clearly, reflecting the need for effective communication in conveying complex engineering activities in big data analytics.
PO12	Crossword puzzles can serve as a tool for promoting lifelong learning by encouraging learners to engage in independent problem-solving and exploration of new concepts and terms in the evolving field of big data analytics.
PSO1	By emphasizing the development of problem-solving abilities, which are crucial for understanding, analyzing, and implementing computer programs in various fields such as Data Science. The ability to analyze large datasets and identify

	patterns requires deductive reasoning and critical thinking skills, which are essential professional skills in the field of big data analytics.
PSO2	focuses on problem-solving skills applied in the context of big data analytics. Students are expected to provide computer-based solutions for real-world problems by analyzing data, identifying patterns, and deriving insights, which are essential components of problem-solving in the field.

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO3, PO4, PO10, PO12

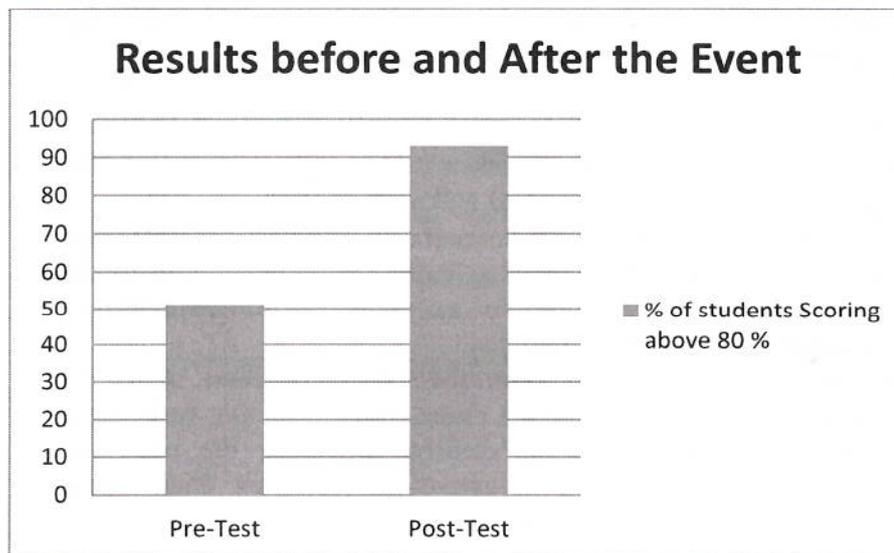


Fig. PreTest and PostTest Poll Before & After of Event


Prof. Umakant Mandawkar
 Event Coordinator




Dr. Makarand Shahade
 HOD, Computer Engineering



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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 16th Sept. 2023
Time	: 05:00 pm
Venue	: Class room : 208
Course Code & Title	: BTCOE703B Distributed System
Learning Strategy	: Role Play
Topic	: IPC using Message Passing

Role play:

Role play encourages participation among passive learners, adds dynamism to the classroom and promotes the retention of material.

Benefit of the Role play:

- Students immediately apply content in a relevant, real world context.
- Students can transcend and think beyond the confines of the classroom setting.
- Students see the relevance of the content for handling real world situations.
- The instructor and students receive immediate feedback with regard to student understanding of the content.
- Students engage in higher order thinking and learn content in a deeper way.
- Instructors can create useful scenarios when setting the parameters of the role play when real scenarios or contexts might not be readily available.

Course Outcome:

CO1: *Understand the concept of architecture and communication systems in Distributed Systems.*

Goal:

The students will be able to apply various scheduling algorithms.

Reason for choosing the particular topic (Method):

Students are asked to "act out" so they get a better idea of the concepts and theories being

discussed. Role play helps the students to visualize the functioning of **IPC using Message Passing**. In addition, role play is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

How we implemented Role play:

- The faculty has discussed the concept of IPC using Message Passing on the previous day and asked willingness from the students to role play the concepts on the next day.
- The students formed groups and prepared for the role play.
- The students enacted **IPC using Message Passing**.
- Three processes, one sender and two receivers to be executed by Message passing
- Students have taken the role of sender and receiver.

Committee Members: Dr. Makarand Shahade, Coordinator and Convener

Total No. of Student Benefited:

22 students participated from B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to demonstrate **IPC using Message Passing**.

Pre-implementation Reflection:

- Some students were not willing to participate which necessary for the execution of the role playing activity.
- Less number of students was involved in the activity.

Post Implementation reflection:

- Students were able to identify and apply the working of Inter process communication.
- All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concept.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO9	PO10	PO12	PSO1
<i>LO2: Understand the Inter process communication in system and encoding and decoding of message data, group communication.</i>	1	2	2	1	2	2

POs Mapped: PO1, PO2, PO9, PO10, PO12, PSO1

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Student will Apply the knowledge of Message passing system to solve issue in IPC.
PO2	Student will Analysis the Inter process communication working using Message passing
PO9	Students teams demonstrate how to solve issue in IPC by message passing using role play
PO10	Students Can Communicate working of Inter process communication
PO12	Student can Apply the concept of Inter process communication in Distributed Systems .
PSO1	Student ability to Learn and Analyze Inter process communication by Message Passing

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll..
Level 3 : High	80% of students scoring more than set attainment level in the Poll..

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO9, PO10, PO12, PSO1

References:

<https://serc.carleton.edu/introgeo/roleplaying/whatis.html>

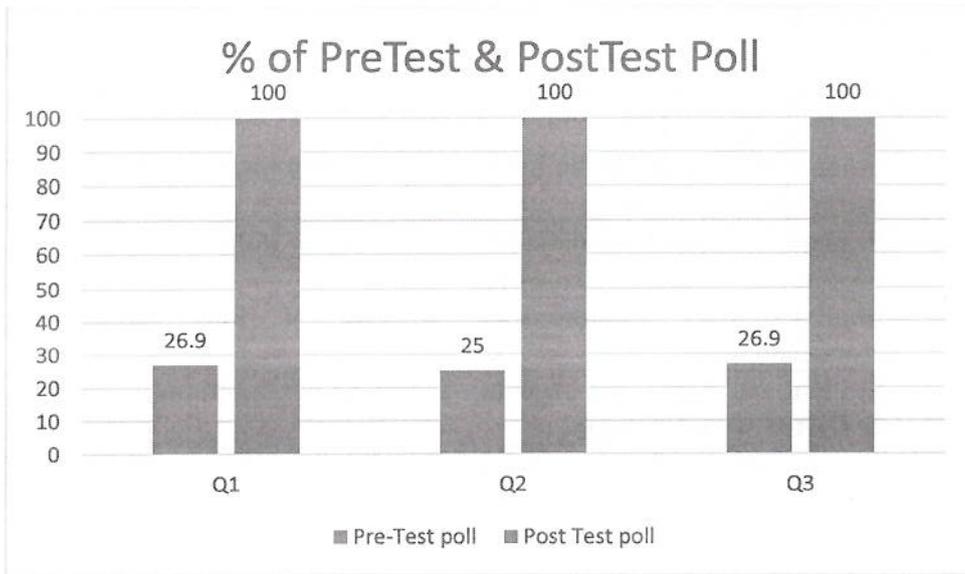


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Event Coordinator




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HOD, Computer Engineering



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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 04 October 2022
Time	: 1.45-2.45 pm
Venue	: Classroom: 209
Course Code & Title	: BTCOE 704 Blockchain Technology
Learning Strategy	: Animation
Topic	: Bradcasting data in P2P network (Ethereum)

Animation:

Animation has emerged as a powerful tool for enhancing the learning experience across various the learners. Animation benefits the learner to visualize the abstract concepts, to demonstrate execution, simulating real-word applications and enhance motivation for learning more complex subjects

The benefit of the Animation:

- Animated videos are an effective way to communicate information.
- Animating your infographics invites audiences to have a deeper understanding.
- A lot of information can be communicated visually in an animation.
- Animation deepens visual understanding much more than traditional diagrams.

Goal:

The goal of introducing innovative practice animation can be multifaceted, depending on the specific context.

Reason for choosing the particular topic (Method):

The sample topics selected under the animation among the one of the topic is Broadcasting data in P2P network.

How we implemented Animation as instructional material :

- The concept delivered to the students through animation.
- Due to animation easily understood the concept of P2P network.

Committee Members: Prof. Mayuri Kulkarni, Coordinator
Dr. Makarand Shahade, Convener

Total No. of Student Benefited:

60 students participated from the Third Year B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to improve their concepts on P2P Network.

Pre-implementation Reflection:

- Students just might not have the necessary knowledge about P2P network.

Post Implementation reflection:

- Students found that animation on topic enhance their learning skills.
- Students understood the concepts as P2P network.
- This activity helps to test the level of understanding of the students.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO12	PSO1
TLO5 : To discuss different protocols in IoT	1	1	1	1

POs Mapped: PO1,PO2,PO12,PSO1.

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	
PO2	
PO12	
PSO1	

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll..

Overall Attainment: Level 3(high)

PO's Attained: PO1,PO2,PO12,PSO1.

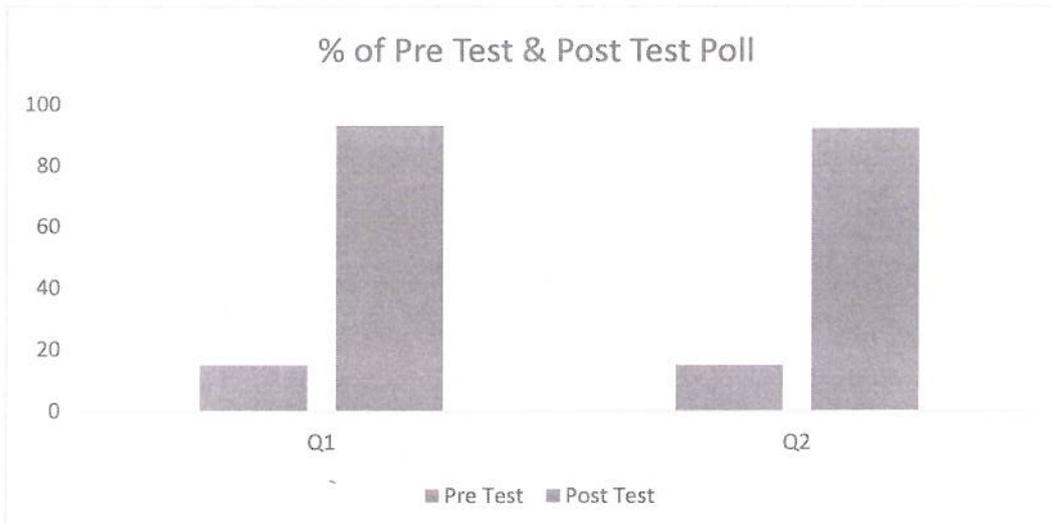


Fig. PreTest and PostTest Poll Before & After showing Animation

Prof. Mayuri Kulkarni
Course Coordinator



Dr. Makarand Shahade
HOD, Computer Engineering



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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 14th NOV 2022
Time	: 05:00 pm
Venue	: Class room : 209
Course Code & Title	: BTCOC504(A) & Blockchain Technology
Learning Strategy	: Simulator
Recourse person	: Prof. Mayuri Kulkarni

Blockchain Simulation Tools:

Simulation is a decision analysis and support tool. Simulation software allows students to understand the various concepts of block chains as Block, Nonce, hashing address and mining procedure.

Objectives:

- The objective is to present the design and implementation of a simulator where Block chain can be implemented in a simple.
- Simulation modeling shows the role of previous address and nonce importance for generating the new hash address by considering data contents.
- It provides an important method of which reflects for the same data block chain fundamentals are responsible to generate new addresses.
- A key goal is to encourage the free flow of ideas.

• **Activity Details:**

1. The working of simulation is explained in the class.
2. Later the Blockchain Demo link is provided to students and asked them to check the values of nonce, hash for same data and for different data.
3. Later explain the concept of Peer and performed the same operations on the peers.
4. Analyzed the results with and without peer.
5. It indirectly helps the students to gain insight about block, mining, hashing and nonce.

Total No. of Student Benefited:

69 students participated from B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to understand the concept of block, miner, nonce, pervious address and hash function.

Pre-implementation Reflection:

- Some students were unable to understand the importance of previous hash function for generating new hash address.

Post Implementation reflection:

- Students were able to do the simulation as explained.
- All the students actively participated and enjoyed the conversation.
- Students' feedback reflected that they have understood the concepts.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO5	PO12	PSO 1
TLO1 To recognize various concepts in blockchain technology such as Ledger, Public Ledger, block and blockchain, hashing function, hashing properties.	3	2	1	1	1

POs Mapped: PO1,PO2,PO5,PO12,PSO1

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	To gain and apply Knowledge of Engineering fundamentals such as Ledger, Block in a block chain, Hashing function, Markel Tree and Security Aspects of Blockchain
PO2	To Identify the role of different properties associated with blocks to make system more efficient using mathematical and engineering sciences.
PO5	The students can learn and use of different modern tools.

PO12	To apply basics of block, ledger and blockchain are required throughout the application designing in application development domain
PSO1	Ability to understand Ledger concepts and operation on public ledgers. To analyze different properties associated with hash functions and compare different hashing functions.

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1,PO2,PO5,PO12,PSO1

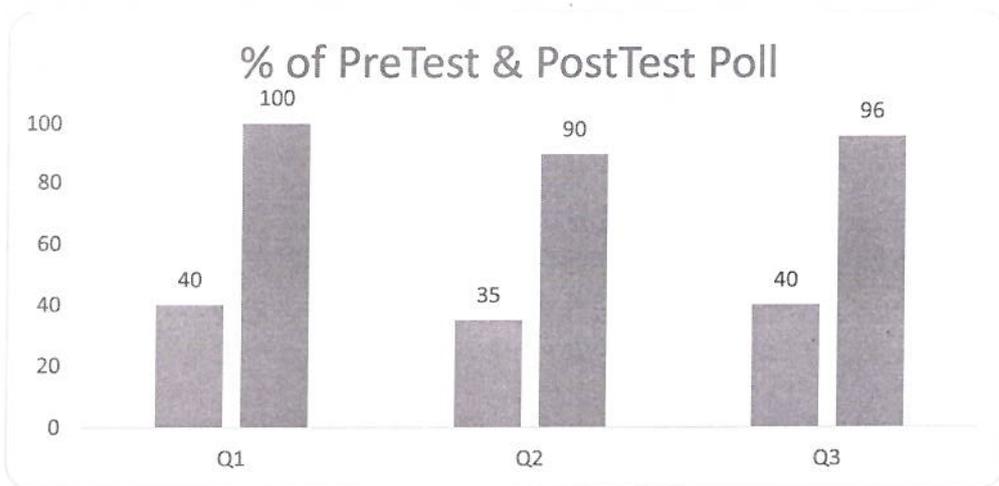


Fig. PreTest and PostTest Poll Before & After of Event

Prof. Mayuri Kulkarni
Event Coordinator



Dr. Makarand Shahade
HOD, Computer Engineering

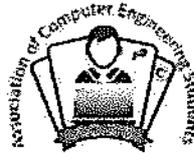


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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 17th Nov 2022
Time	: 05:00 pm
Venue	: Computer Center
Course Code & Title	: BTCOE703 Natural Language Processing
Learning Strategy	: Virtual Lab
Topic	: POS Tagging - Hidden Markov Model

Virtual Labs:

Virtual labs are interactive, digital simulations of activities that typically take place in physical laboratory settings.

The benefit of the Crossword Puzzle:

- Virtual labs offer a personalized and interactive learning environment. Students can experiment with various software configurations.
- Intriguing the students' curiosity with an interactive environment of a virtual lab may increase the confidence level of students and further pique their interest in scientific and engineering endeavors.
- Students can experience the advantages of fast feedback. Thereby, the potential benefits such as a faster learning process can be unraveled.
- Some topics cannot be grasped completely solely on an experimental level. Visual cues and simulation techniques could facilitate learning in the virtual environment.
- It helps students to Improve Cognitive Abilities.

Course Outcome:

CO3: *To Describe and apply the need to use Formal grammar of English, Syntactic Parsing and Statistical Parsing to perform syntactical tasks to solve problems in NLP*

Goal:

The students will be able to understand Hidden Markov Method. Also able to simulate and

find the Part of Speech.

Reason for choosing the particular topic (Method):

To introduce the students to the basics of NLP which will empower them to develop advanced NLP tools and solve practical problems in the field.

How we implemented Brainstorming:

- The faculty discussed the concept of Part of Speech on the previous day.
- Faculty ask students in the lab and explain the virtual lab portal and give an overview of POS.
- Students go to Virtual Lab Portal : <https://nlp-iiith.vlabs.ac.in/>.
- Select the topic as part of the speech.
- Read the theory related to the experiment.
- Learn the procedure to experiment.
- Perform the simulation.
- Solve the assignment and discuss the difficulties with the course coordinator.

Committee Members: Prof. Ashish Awate Coordinator
Dr. Makarand Shahade, Convener

Total No. of Student Benefited:

27 students participated from the Final Year B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to improve their machine-learning concepts, vocabulary, analytical skills, and memory.

Pre-implementation Reflection:

- Few students found it difficult to access the Virtual lab and faced difficulty in simulating the Lab Experiment virtually.
- Students just might not have the necessary knowledge of Part of Speech and HMM.

Post Implementation reflection:

- Students were able to simulate and find POS using HMM.
- All the students enjoyed the Virtual Lab
- Students' feedback reflected that they have understood the concept.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO5	PO12	PSO1	PSO2
LO6: To interpret POS tagging for a given natural language and Select a suitable language modelling technique based on the structure of the language.	2	2	2	2	1	1	2

POs Mapped: 1, 2, 3, 5, 12

PSO Mapped : 1,2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Students will Apply the knowledge of mathematics to find POS using HMM
PO2	Students will be able to choose the appropriate Part of Speech while applying to the corpus.
PO3	Students will be able to apply POS while building NLP model.
PO5	Students use virtual lab and to solve POS in text.
PO12	The problem-solving skill earned through this activity helps the students in motivating life long learning.
PSO1	Student ability to analyze and implement the POS tagging in text.
PSO2	Students will provide the solution to POS by applying HMM

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: 1, 2, 3, 5, 12

PSO Attained : 1,2

References: <https://nlp-iiith.vlabs.ac.in/exp/markov-model/>

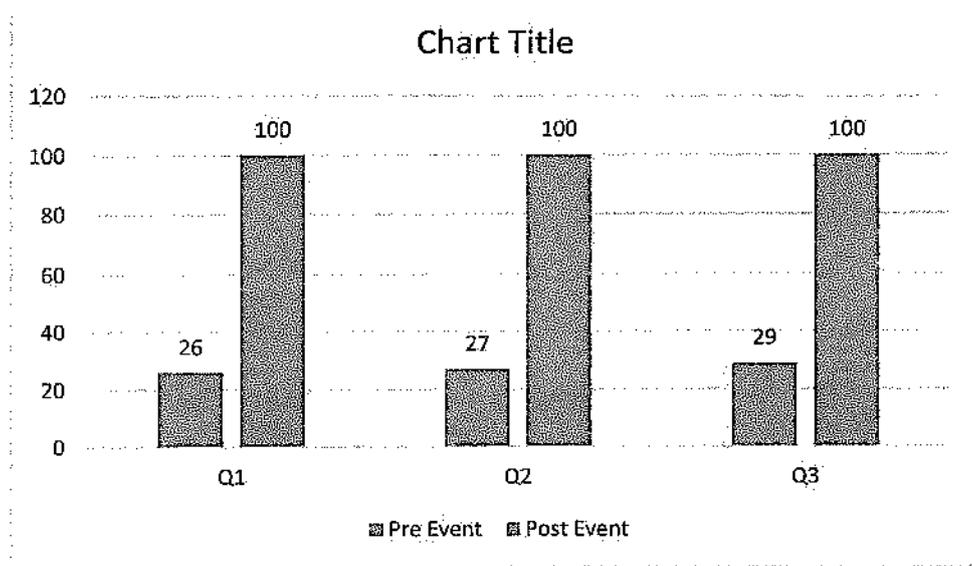


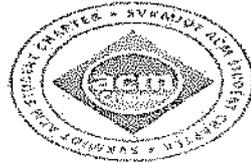
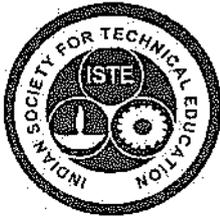
Fig. PreTest and PostTest Poll Before & After of Event

Prof. Ashish Awate
Event Coordinator

Dr. Makarand Shahade
HOD, Computer Engineering



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Name of Event : **INNOVATIVE PRACTICES**
Dates : **30th November 2022**
Time : **10:00 am**
Venue : **Computer Lab-4**
Course Code & Title : **BTCOL306 Data Structures Lab**
Learning Strategy : **Virtual Labs**
Topic : **Binary Search Tree Operations**

Virtual Labs:

Virtual Labs project is an initiative of Ministry of Education (MoE), Government of India under the aegis of National Mission on Education through Information and Communication Technology (NMEICT).

Course Outcome:

CO5: *To implement data structures as search trees.*

Committee Members: Mr. Khalid Alfatmi, Coordinator.

Total No. of Student Benefited:

Conducted for each practical batch. 69 students participated from S.Y. B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to demonstrate various operations on BST.

Pre-implementation Reflection:

- Students were not confident about insertion and deletion operation in BST.

Post Implementation reflection:

- Students demonstrated operation like Insert, Search, Delete in a BST.
- Student got clear idea how to implement the BST using C language.

Learning Outcomes/ Program Outcomes	PO1	PO3	PO5	PO12	PSO1	PSO2
ELO7: Students will be able to Implement data structures as single and double linked list.	2	2	3	2	2	2

POs Mapped: PO1, PO2, PO5, PO9, PO10, PO12, PSO1, PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Student will Apply the knowledge of engineering to implement BST
PO3	Student will design solution using BST for real world problems
PO5	Students will use modern IDE tools like Virtual labs from anywhere to learn and clear their concepts
PO12	Student can apply the concept of BST data structure to real world problems.
PSO1	Student ability to analyze and implement the operations of BST
PSO2	Students will provide the solution to real world problem with BST

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO3, PO5, PO12, PSO1, PSO2

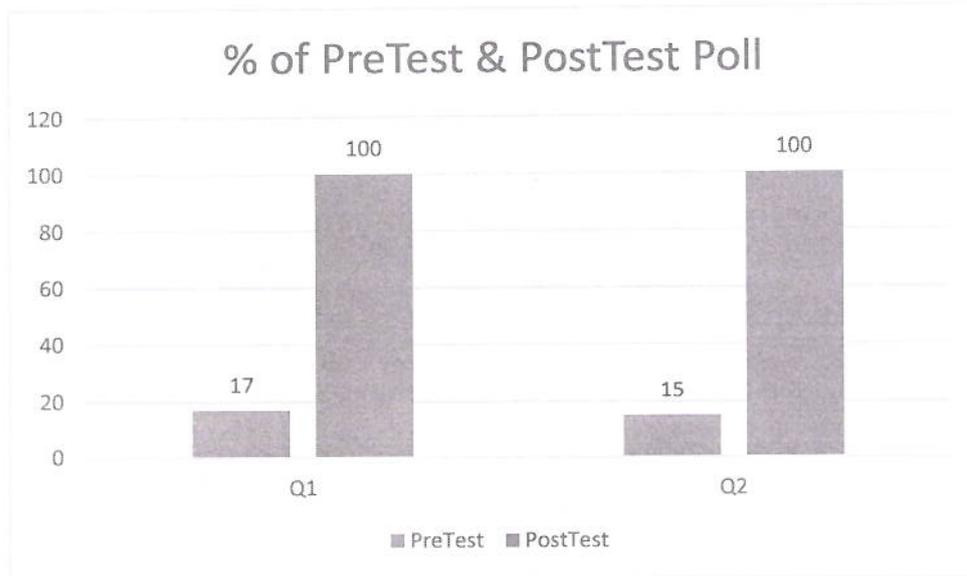


Fig. PreTest and PostTest Poll Before & After of Event

Khalid Alfatmi
Event Coordinator

Dr. Makarand Shahade
HOD, Computer Engineering



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- Name of Event** : **INNOVATIVE PRACTICES**
- Dates** : **22 November 2022**
- Time** : **05:00 pm**
- Venue** : **Classroom: 208**
- Course Code & Title** : **BTCOC305 Discrete Mathematics**
- Learning Strategy** : **Mind-games**
- Topic** : **The Bridges of Königsberg**

The Bridges of Königsberg:

This is a historical puzzle involving a river and a series of islands connected by bridges. The challenge is to determine whether it's possible to walk through the city, crossing each bridge exactly once and returning to the starting point. This problem led to the development of graph theory, which has applications in computer science, transportation planning, and more. It's a fascinating exploration of network connectivity and traversal.

- **Objective:**

The objective of the mind game associated with "The Bridges of Königsberg" problem is to explore the concept of graph theory and develop problem-solving skills in the context of network connectivity. The problem involves a historical scenario where the challenge is to determine whether it's possible to walk through the city of Königsberg, crossing each of its seven bridges exactly once and returning to the starting point. Through this challenge, participants aim to:

Understand Graph Theory: The problem serves as an introduction to graph theory, a branch of discrete mathematics that studies the properties of graphs, which consist of vertices (nodes) connected by edges (lines).

Apply Graph Theory Concepts: Participants learn to represent the city of Königsberg as a graph, where the landmasses are vertices and the bridges are edges. They apply concepts such as degree (number of edges incident to a vertex) and Eulerian paths (paths that traverse each edge exactly once).

Develop Problem-Solving Skills: By attempting to solve the problem, participants exercise critical thinking, logical reasoning, and creativity. They learn to devise strategies to navigate the city while obeying the constraints of the problem.

Appreciate Real-World Applications: The problem's historical context and its relevance to graph theory highlight the practical applications of discrete mathematics in various fields, including transportation planning, computer science, and network analysis.

- **Activity Details:** following topics are covered
 1. The Bridges of Königsberg.

- **Total No. of Student Turned up:**

64 students participated from Computer Engineering Department

- **Outcome of Activity:**

The outcome of the mind game associated with "The Bridges of Königsberg" typically results in participants gaining a deeper understanding of graph theory concepts and problem-solving strategies. Here are some potential outcomes:

Solution Exploration: Participants may work individually or in groups to explore different approaches to solving the problem. They may attempt to devise strategies for traversing the city of Königsberg while crossing each bridge exactly once and returning to the starting point.

Discovery of Eulerian Paths: Through experimentation and analysis, participants may discover the concept of Eulerian paths, which are paths that traverse each edge of a graph exactly once. They may realize that the problem of traversing the bridges of Königsberg is closely related to finding Eulerian paths in a graph.

Appreciation of Graph Properties: Participants may develop an appreciation for the properties of graphs, such as degrees of vertices and connectivity. They may observe how the configuration of bridges in Königsberg forms a specific type of graph and learn how to analyze its properties.

Discussion and Collaboration: The mind game often fosters discussion and collaboration among participants as they share ideas, insights, and strategies for approaching the problem. Collaborative problem-solving encourages teamwork and communication skills.

Learning Through Failure: Participants may encounter challenges and setbacks as they attempt to solve the problem, but these experiences can be valuable learning opportunities. They may learn from their mistakes, refine their strategies, and develop resilience in problem-solving.

POs Mapped: PO1, PO2, PO3, PO12, PSO Mapped : PSO1,2,3

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO12
<i>LO1</i> : Design innovative solutions for traversing the bridges of Königsberg while meeting the specified constraints.	2	2	2	2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	While the problem doesn't directly involve applying engineering knowledge, it does require participants to apply mathematical and logical reasoning skills, which are foundational to engineering knowledge.
PO2	Participants must identify and analyze the complex problem of traversing the bridges of Königsberg, considering the constraints and possibilities involved.
PO3	The problem requires participants to design a solution for traversing the bridges of Königsberg while obeying the given constraints.
PO12	Participants engage in independent learning and problem-solving as they explore the problem and develop their understanding of graph theory and its applications.
PSO1	Comprehend, analyze, design, and implement computer programs: Participants in the mind game must comprehend the problem statement, analyze the constraints, design strategies for traversal, and potentially implement algorithms to solve it.
PSO2	The mind game challenges participants to solve the problem of traversing the bridges of Königsberg using mathematical and algorithmic approaches, demonstrating problem-solving skills.
PSO3	While the problem itself may not directly involve modern computer tools, participants may leverage computational thinking and algorithmic skills, which are essential in various modern computer-related fields. Engaging in such mind games fosters creativity and innovation, which are valuable for building a successful career in computer science and related areas.

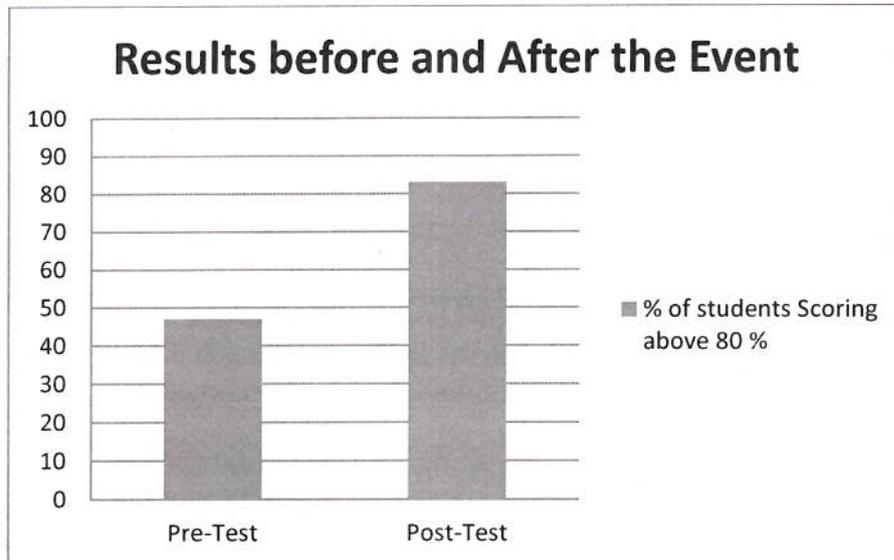
PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	50% of students scoring more than set attainment level in the Exam.
Level 2 : Medium	60% of students scoring more than set attainment level in the Exam.
Level 3 : High	70% of students scoring more than set attainment level in the Exam.

Overall Attainment : Level 3(high)

PO's Attained : PO1, PO2, PO3,PO12 PSO's Attained : PSO1,2,3




Prof. Umakant Mandawkar
Event Coordinator




Dr. Makarand Shahade
HOD, Computer Engineering



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- Name of Event** : **INNOVATIVE PRACTICES**
- Dates** : **23rd Nov 2022**
- Time** : **05:00 pm**
- Venue** : **Computer Center**
- Course Code & Title** : **BTCOC501 Database Systems**
- Learning Strategy** : **Virtual Lab (IITKGP)**
- Topic** : **ER modeling from problem statement**

Virtual Lab:

Virtual labs offers students access to a realistic lab experience that will allow them to perform experiments and practice their skills in a risk-free and interactive learning environment.

Benefit of the Virtual Lab:

- Virtual computer labs provide students with unrestricted access to resources, software, and applications round the clock.
- Virtual labs offer a personalized and interactive learning environment. Students can experiment with various software configurations.
- Virtual labs eliminate the need for redundant software installations on multiple machines. This optimizes resource allocation, ensuring that software licenses are utilized efficiently and reducing software procurement costs.
- In science, technology, engineering, and mathematics (STEM) fields, virtual labs offer realistic simulations and experiments. Students can manipulate variables, observe outcomes, and hone their analytical skills in a controlled digital environment.

Course Outcome:

CO1 : To Identify the basic database management system concepts and entity relationship model.

Goal:

The students will be able to understand ER model designing on virtual lab.

Reason for choosing the particular topic (Method):

Virtual labs helps the students to simulate the problem statement to ER model and then understand the entities and their relations between them so that students can apply constraints on tables and create these tables using SQL.

How we implemented Virtual Labs:

- The faculty has discussed the concept of ER diagram and their symbols. Also explain how to read problem statements and find the required entities as per the problem statement the previous day.
- Faculty ask students in lab and explain the virtual lab portal and give overview of ER diagram.
- After overview of ER diagram, students read the theory of ER diagram from virtual ab portal.
- Later on students read the given problem statement and start the simulation for given problem statement. (Given problem statement is based on school management system).
- Later on students solve the given "Self Evaluation" Test and posttest on Single source shortest path algorithm.

Committee Members: Prof. Bhushan Nandwalkar, Coordinator

Dr. Makarand Shahade Convener

Total No. of Student Benefited:

56 students participated from T.Y. B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to Single source shortest path algorithm.

Pre-implementation Reflection:

- Few students are get difficulties to draw ER diagram.

Post Implementation reflection:

- Students were able to draw ER diagram and find the proper relations and constraints.
- All the students enjoyed the Virtual Lab
- Students' feedback reflected that they have understood the concept.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO5	PO12	PSO1	PSO2
LO1: To Identify the basic database management system concepts and entity relationship model.	1	1	2	1	1	1	2

POs Mapped: PO1, PO2, PO3, PO12, PSO1, PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	The basic engineering knowledge help to classify ER diagram.
PO2	Student will identify the entities from the problem statement
PO3	Students will be able draw the ER Diagram
PO5	Using modern tool students can draw ER diaram
PO12	The problem-solving skill earned through this activity helps the students in motivating lifelong learning.
PSO1	Student ability to design the ER diagram fro given problem statement.
PSO2	Students will provide the solution to Single source shortest path algorithm problems by applying Dijkstra's algorithm

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's attained: PO1, PO2, PO3, PO5, PO12, PSO1, and PSO2

References <https://vlabs.iitkgp.ac.in/se/4/>

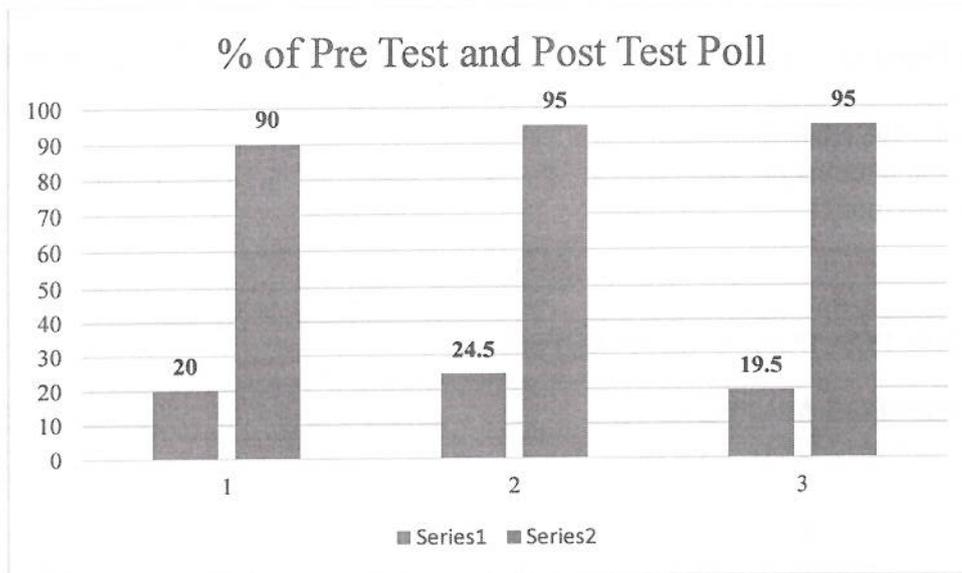


Fig. PreTest and PostTest Poll Before & After of Event

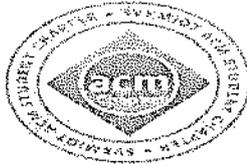
Bhushan
Prof. Bhushan Nandwalkar
Event Coordinator



Makarand
Dr. Makarand Shahade
HOD, Computer Engineering



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- Name of Event** : **INNOVATIVE PRACTICES**
- Date** : **30/11/2022**
- Time** : **3:00PM**
- Venue** : **Class room : 208**
- Course Code & Title** : **BTHM505B Business Communication**
- Learning Strategy** : **Brainstorming Session**
- Topic** : **Role of Intercultural Communication at Workplace**

Brainstorming Session:

Brainstorming Session encourages participation, it also promotes involvement and active learning.

Benefits/ Objectives of the session:

Problem Identification: To identify potential challenges, risks, or obstacles that may arise and to devise strategies to mitigate them.

Problem Solving: The objective could be to generate creative solutions to a specific problem or challenge faced by the team or organization.

Knowledge Sharing: To share expertise, experiences, and insights among team members to collectively generate ideas and solutions.

Goal Setting: To set specific, measurable, achievable, relevant, and time-bound (SMART) goals for the team or organization and brainstorm strategies for achieving them.

Team Building: To foster collaboration, communication, and teamwork among team members by engaging them in a creative and open discussion.

Innovation: To generate new ideas, concepts, or products that could lead to innovation within the company or industry.

Course Outcome:

C505.2: To identify Intercultural Communication, Non-verbal Communication to elucidate translations as problematic discourse.

Session Objective:

To explore the importance of intercultural communication in diverse workplace environment.

Reason for this topic:

- Intercultural communication seems to be challenging at workplace.
- For effective communication right understanding of Intercultural communication is required
- Team goals or Organizational Objectives can easily be achieved through right Intercultural communication
- It fosters understanding, collaboration, and productivity in diverse workplaces

Methodology/Instructions:**1. Introduction (5 minutes):**

Start the session by providing a brief overview of intercultural communication and its significance in today's globalized world. Emphasize how effective intercultural communication fosters understanding, collaboration, and productivity in diverse workplaces.

2. Brainstorming (20 minutes):

Divide participants into small groups of 3-5 individuals. Assign each group a specific aspect or scenario related to intercultural communication in the workplace. Examples could include:

- Communication barriers faced by multicultural teams
- Benefits of cultural diversity in decision-making processes
- Strategies for resolving conflicts arising from cultural differences
- Importance of non-verbal communication cues in cross-cultural interactions

Instruct each group to brainstorm ideas, solutions, and insights related to their assigned aspect. Encourage them to think creatively and draw from personal experiences or observations.

3. Group Discussion (15 minutes):

After the brainstorming session, reconvene as a whole group. Invite each group to share their ideas and insights with the rest of the participants. Use the whiteboard or flip chart to capture key points and common themes emerging from the discussions.

4. Reflection and Analysis (10 minutes):

Facilitate a reflective discussion on the importance of intercultural communication in the workplace. Prompt participants to consider:

- How does effective intercultural communication contribute to organizational success?
- What are the potential challenges or pitfalls of intercultural communication, and how can they be addressed?
- How can individuals and organizations promote a culture of inclusivity and respect for diverse perspectives?

5. Action Planning (10 minutes):

Encourage participants to identify specific actions or strategies they can implement to enhance intercultural communication within their teams or organizations. Encourage them to set SMART goals and establish accountability mechanisms to track progress.

6. Conclusion (5 minutes):

Summarize the key takeaways from the brainstorming session and emphasize the importance of ongoing efforts to improve intercultural communication skills. Thank the participants for their contributions and encourage them to apply the insights gained in their daily interactions.

Optional:

Additional elements be incorporated such as role-playing exercises, case studies, or multimedia resources to further illustrate the concepts discussed during the brainstorming session. Additionally, consider assigning a facilitator or note-taker to capture important points and action items for future reference.

Committee Members: Dr. Rajiv Junne, Course Coordinator

Total No. of Student Benefited:

68 students participated.

Learning Outcomes of Activity:

Increased Awareness: Participants develop a deeper understanding of the importance of intercultural communication in today's diverse workplace environments. They recognize how cultural differences impact communication styles, norms, and perceptions.

Identification of Challenges: Through group discussions and brainstorming, participants identify common challenges and barriers to effective intercultural communication, such as language barriers, cultural stereotypes, and misinterpretation of non-verbal cues.

Recognition of Benefits: Participants acknowledge the benefits of embracing cultural diversity in the workplace, such as enhanced creativity, innovation, and problem-solving capabilities. They understand that diverse perspectives contribute to more robust decision-making processes.

Generation of Strategies: The brainstorming session generates a variety of strategies and approaches to improve intercultural communication within teams and organizations. These may include cross-cultural training programs, mentorship initiatives, creation of inclusive communication channels, and fostering a culture of empathy and respect.

Action Planning: Through collaborative brainstorming, participants develop actionable plans and goals to implement within their teams or organizations. These may involve setting up cross-cultural communication workshops, establishing buddy systems for cultural exchange, or integrating intercultural competence into performance evaluations.

Commitment to Inclusivity: The brainstorming activity fosters a shared commitment among participants to promote inclusivity and diversity in their workplace cultures. They understand that creating an environment where everyone feels valued and respected is essential for organizational success.

Continued Learning: Participants express a desire for ongoing learning and development opportunities in intercultural communication. They recognize that building cultural competence is a lifelong journey that requires curiosity, openness, and a willingness to learn from others.

Overall, the brainstorming activity serves as a catalyst for raising awareness, fostering dialogue, and inspiring concrete actions to enhance intercultural communication within teams and organizations. It lays the groundwork for creating more inclusive, collaborative, and culturally competent work environments.

Pre-implementation Reflection:

- Hesitation to participate.
- Less confidence.

Post Implementation reflection:

- Students learned to collaborate, coordinate to be a part of team.
- They delved deeper the concept thoroughly.

□ Their feedback reflected that they have understood the concept.

Learning Outcomes/ Program Outcomes	PO8	PO9	PO10	PO12
LO: The students will be able to discuss about the Role of Intercultural Communication at Workplace	1	3	3	3

POs Mapped: PO8, PO9, PO10, PO12

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO8	Ethics: Participants apply ethical principles and remain committed to professional ethics and responsibilities and norms during the activity.
PO9	Individual and team work: Participants function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings during the activity.
PO10	Communication: Participants communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions during the activity.
PSO12	Life-long learning: Participants recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change during the activity.

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO8, PO9, PO10, PO12

References:

1. International Business Communication by Aradhana Malik, IIT Kharagpur

2. Sharma, Sangeeta and Binod Mishra, Communication Skills for Engineers and Scientists, PHI Learning Pvt. Ltd., New Delhi.

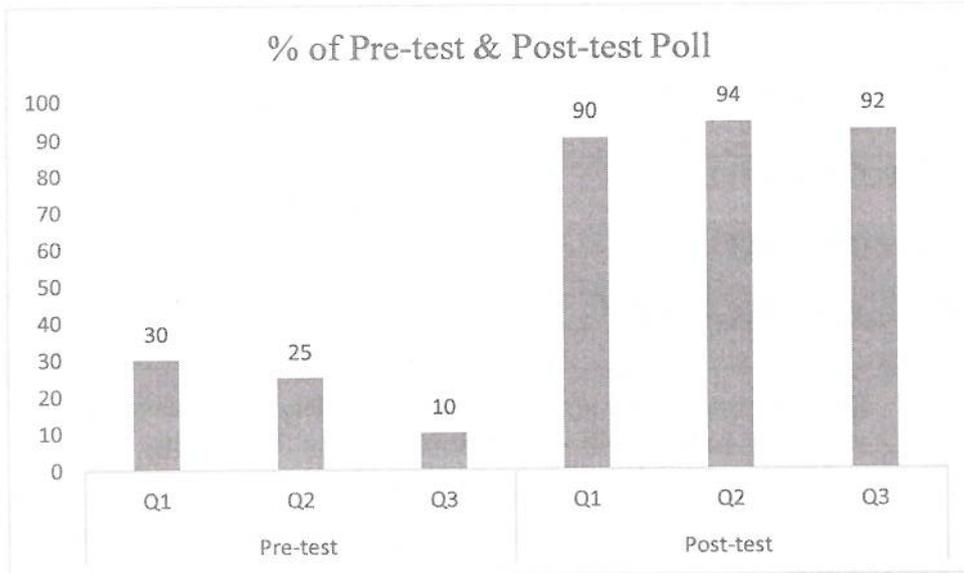


Fig. PreTest and PostTest Poll Before & After of Event

Questionnaire for Test: (On the scale of 1 – 3. 1-Low;3 High)

Q1) Do you know the concept of intercultural Communication?

Q2) Do you know the significance of intercultural Communication?

Q3) Are you aware about the role of interpersonal Communication at workplace?

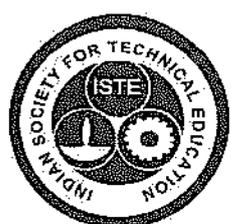

Dr. Rajiv Junne
Session Coordinator




Dr. Makarand Shahade
HOD, Computer Engineering



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Name of Event	:	<u>INNOVATIVE PRACTICES</u>
Dates	:	8th DEC 2022
Time	:	03:00pm to 05:00pm
Venue	:	Class room : 208
Course Code & Title	:	BTCOE504(A) & Human Computer Interaction
Learning Strategy	:	Mind games: a mental workout to keep the brain sharp
Recourse person	:	Prof. Rinku Sharma

Mind Games:

Lifestyle habits matter when it comes to brain health, and the rewards of increased mental stimulation can be seen in a very short space of time. Mind Maps act as visual information providers and encourage the audience to engage with the material that is being presented. Mind Maps have been embraced in the realm of education as a learning tool which help students reinforce knowledge by making connections between different areas and delving in-depth into an area.

Objectives:

- **Makes it easier to retain information:** The sequential structure of mind maps helps the brain retain information and memorize it quickly.
- **Helps people learn new concepts:** Mind maps help connect concepts and facilitate meaningful learning.
- **Makes learning more engaging:** Mind mapping created deep interactions with content, making the learning process more engaging.

- **Breaks down complex relationships:** Mind maps organize ideas into an easy-to-follow structure that allows you to simplify complex relationships.
 - **Improves creativity:** By using creative freedom to organize the mind map, one can gain a more holistic understanding of how everything connects.
 - **Increases productivity:** Mind maps aren't just pretty; they're effective too. The diagrams improve efficiency by speeding up comprehension and allowing one to jump quickly to different applications.
 - **It has many flexible applications:** Mind maps have no designated application and can be used in a ton of different ways, including brainstorming, note-taking, and diagramming.
 - **Enables more effective collaboration:** Because mind maps utilize a visual interface, they make collaboration simple and intuitive.
 - **Helps facilitate problem-solving:** Whether used in daily life or in a professional context, mind maps allow you to diagram an issue and think critically to find new solutions.
 - **Helps document patterns of thought:** Mind maps use visualization to help create strong associations between ideas, helping document patterns and thought structures.
- **Activity Details/Rules:**
 1. The class will be divided into different groups.
 2. Different levels are arranged to get qualified for next level.
 3. One member from each Group has to come forward for each level and answer the question asked.
 4. The scores are maintained by the evaluators.
 5. The students will be not allowed to use any type of electronic device such as mobile, laptop.
 6. 1 min time to see the questions on the screen and 3 minutes to write the answer.
 7. The students are free to use any language.
 8. Finally, the group which has the highest score is the winner.

Total No. of Student Benefited:

29 students participated from T. Y. B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to memorize and present effectively.

Pre-implementation Reflection:

- Some students were not willing to participate which was actual necessary for the execution of activity.

Post Implementation reflection:

- Students were able to analyze the slides and answer the effective way.
- All the students enjoyed activity.
- Students' feedback reflected that they were well aware of the fact that mind exercise is very much important.

Learning Outcomes/ Program Outcomes	PO 2	PO3	PO4	PO8	PO9	PO10	PO11	PO12
<i>LO4:</i> The students will be increase the problem-solving skills with more creativity. The patterns of thought will be increased and higher productivity in learning new concepts.	2	1	2	2	2	2	2	2

POs Mapped: PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO2	The students able to analyze complex problems to recall the slides through reaching substantiated conclusions using principles engineering sciences
PO3	The students were able to design solutions for complex engineering problems through the pattern learning and creativity.
PO4	The students able to do the analysis and interpretation of data and synthesis of the information to provide valid conclusions
PO8	The students were able to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	The students were able to function effectively as an individual and as a member in diverse teams.
PO10	The students were Communicate effectively on complex levels and were also able to give effective presentations and give and receive clear instructions.
PO11	Students were able to demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage the team work.
PO12	Students can solve and develop the ability to engage in independent and life-long learning in the broadest context of technological change.

PO Attainment:

Rubrics for Attainment:

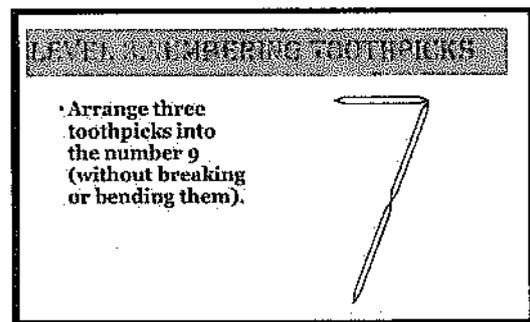
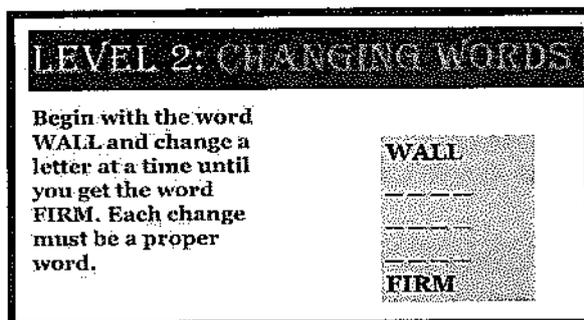
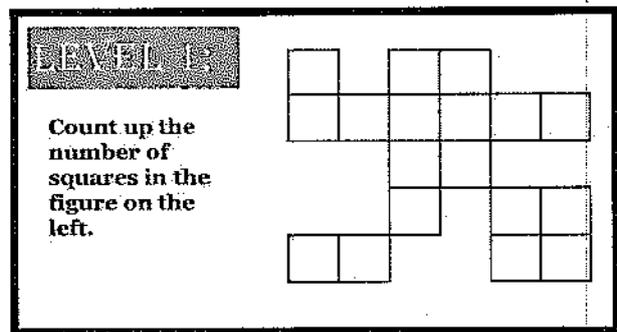
Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12

Activity Conduction photographs:

PPTS for questions:



LEVEL 5: LETTER SCRAMBLE NO 1

• Come up with as many words as you can from the following letters. Use each letter only once in each word.

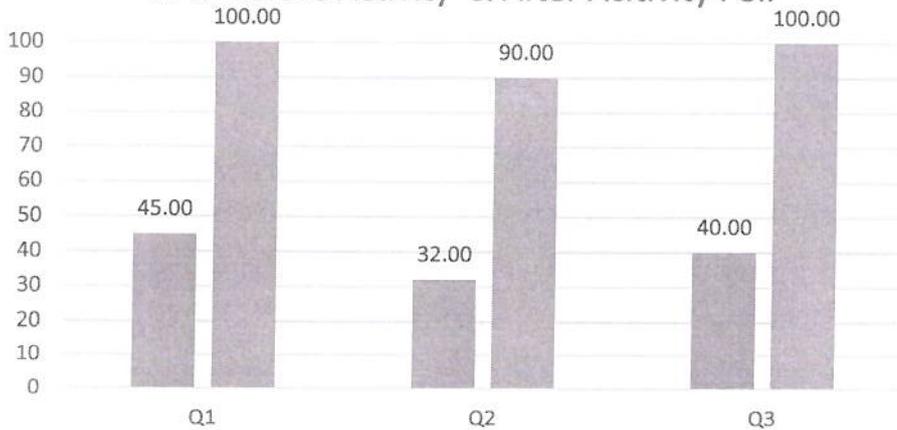
IRNAB

LEVEL 5: PROVERB

All the vowels have been removed from the following proverb, and the remaining letters have been clustered into groups of three or four letters each. Replace the vowels and reveal the proverb.

- TWH
- DSRB
- TTRT
- HNN

% of Before Activity & After Activity Poll



Prof. Rinku Sharma
Event Coordinator



Dr. Makarand Shahade
HOD, Computer Engineering

5

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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 10th December 2022
Time	: 05:00 pm
Venue	: Classroom: 208
Course Code & Title	: BTCOE703A Cloud Computing
Learning Strategy	: Online Platforms demonstration
Topic	: Amazon Web Services

Objectives of Innovative Practices:

- Students will be able to understand working of the Cloud Computing platform
- Student will be able to implement & use AWS platform
- **Activity Details:** following topics are covered
 1. What is Cloud Computing Platform?
 2. Features of Amazon Web Services
 3. Types of Services
 4. How to create virtual Image using platform

How we implemented online platform demonstration:

1. Open the Amazon Web Services (AWS) home page.
2. Choose Create an AWS Account. Note: If you signed in to AWS recently, choose Sign in to the Console.
3. In Root user email address, enter your email address, edit the AWS account name, and then choose Verify email address.
4. Enter the Username & Password for login
5. After that you can create virtual image

- **Committee Members:**

Dr. Makarand Shahade, Convener
Prof. Kiran Somwanshi, Coordinator

- **Total No. of Student Turned up:**

33 students participated from BTech. Computer Engineering Department.

Total Percentage of Students Present = 86.95%

- **Outcome of Activity:**

1. Students understood basic of AWS platform
2. Students learn & create the AWS account using AWS framework.

Goal:

The students will be able to develop Virtual Inage using AWS account

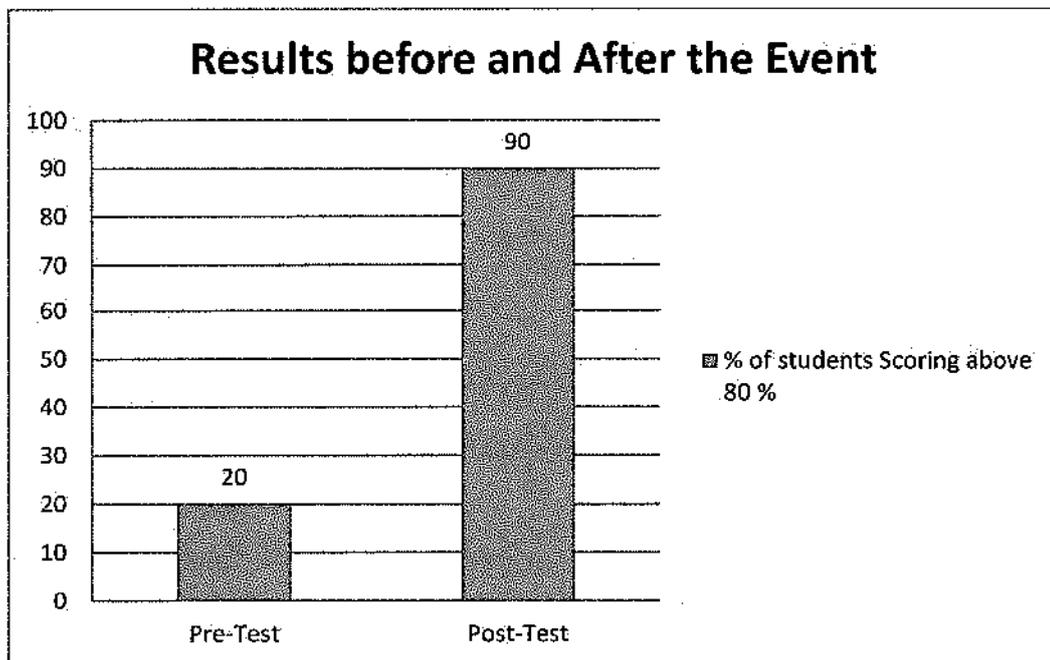


Fig. Feedback of Event After & Before Test.

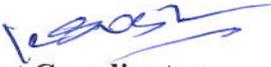
PO/PSO MAPPED	JUSTIFICATION
PO1	Students will describes basics Features of AWS
PO2	Student will analyze Storage, types of virtualization & services of Amazon Web services.
PO3	Student will design the Compute Services, Storage Services, Communication Services and Additional Services of AWS
PO5	Students will use the tools of AWS for creating applications
PSO1	Student will develop an ability to understand & analyze the concept of AWS Services
PSO2	Student will provide computer based solutions for real world problem by applying AWS Services & deployment model .
PSO3	The ability to employ modern computer tools and technologies using different features of cloud computing with AWS.

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

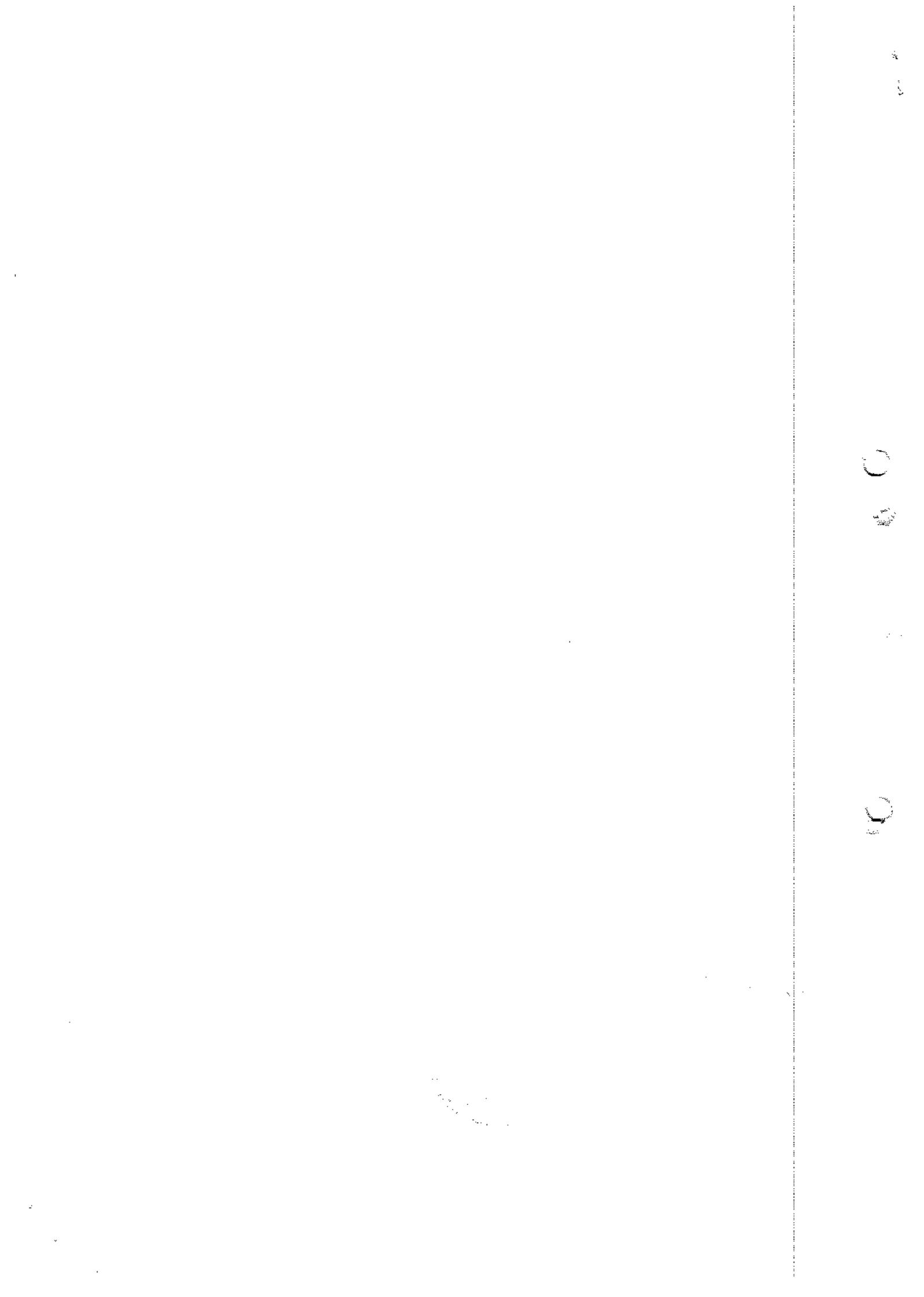
Overall Attainment: Level 3 (high)

PO's attained: PO:1,2,3,5 PSO 1,2,3


Event Coordinator
Prof. Kiran Somwanshi

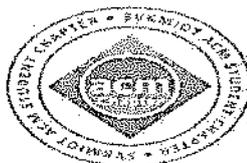



HOD
Dr. Makarand Shahade





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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 1st April 2023
Time	: 05:00 pm
Venue	: Classroom: 209
Course Code & Title	: BTCOC601 Compiler Design
Learning Strategy	: Crossword Puzzle (Mind Game)
Topic	: Top Down Parser /Preductive Parser

Crossword Puzzle:

Crossword puzzle is a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

The benefit of the Crossword Puzzle:

- The crossword puzzle is a kind of word game that can help students to extend their vocabulary knowledge.
- From exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- Crosswords for students can improve their vocabulary, analytical skills, and memory.

Course Outcome:

CO1: To understand top down parsers, and use appropriate parser to produce parse tree representation of the input.

Goal:

The students will be able to compare the level of Top Down parser.

Reason for choosing the particular topic (Method):

First, crossword puzzles motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a crossword puzzle is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

How we implemented Brainstorming:

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A crossword puzzle of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the puzzle.
- After completion of the puzzle activity, the faculty member discussed the answer to make the students aware of the correct answer.

Committee Members: Prof. Kiran Somwanshi, Coordinator

Dr. Makarand Shahade, Convener

Total No. of Student Benefited:

55 students participated from the Third Year B. Tech Computer Engineering Department.

Percentage of Students participated :81%

Learning Outcomes of Activity:

The students were able to improve their phases of compiler concepts, vocabulary, analytical skills, and memory.

Pre-implementation Reflection:

- Few students found it difficult to complete the puzzle
- Students just might not have the necessary knowledge to complete crossword puzzles.

Post Implementation reflection:

- The crossword puzzle activity was very interesting and students were able to compare the level of Top down parser .
- Vocabulary of the terms related to compiler Top down parser is improved.
- Student's understanding of basic compiler construction concepts is improved.
- This activity helps to test the level of understanding of the students.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO9	PO10	PO12
<i>LO1:</i> To Define compiler and To Understand the Language Processing System.	2	2	2	2	1	2

POs Mapped: PO1, PO2, PO3, PO10, PO12

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Students will be able to understand the concept of characteristics of compiler
PO2	Students will be able to choose the appropriate level of top down parser of compiler construction while approaching the problem.
PO3	Students will be able to level of top down parser while compiler construction.
PO10	Students communication skills will be improved as they discuss the answers with peers
PO12	The problem-solving skill earned through this activity helps the students in motivating life long learning.

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO3, PO10, PO12

References: <https://puzzlemaker.discoveryeducation.com/criss-cross>

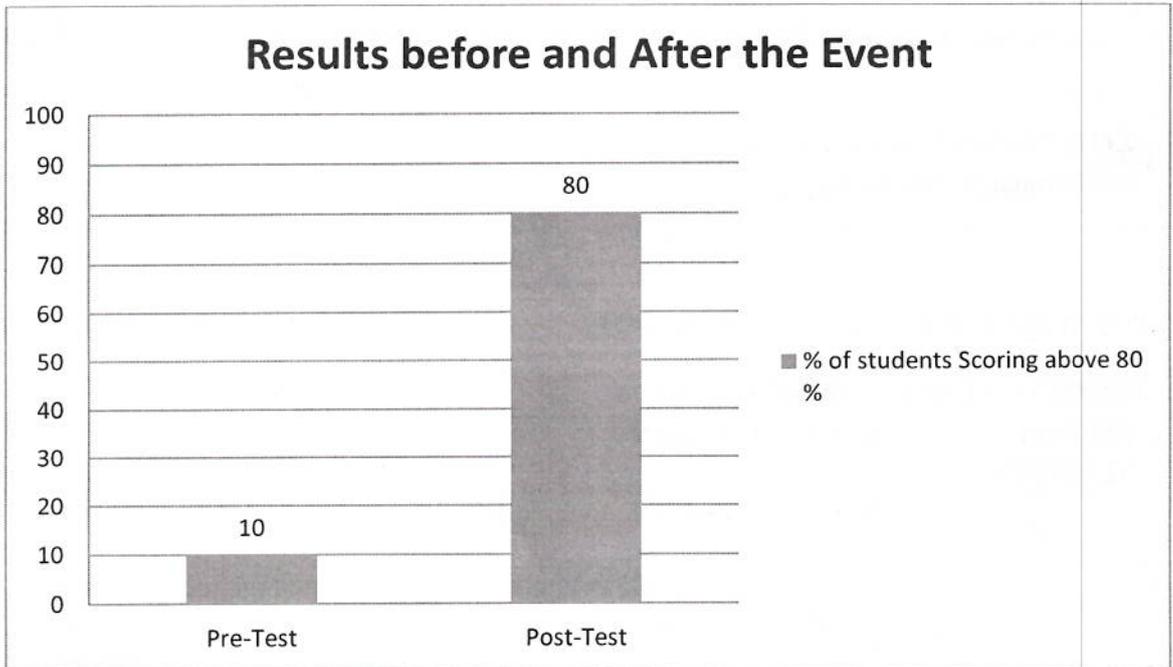


Fig. PreTest and PostTest Poll Before & After of Event


Prof. Kiran Somwanshi
Event Coordinator




Dr. Makarand Shahade
HOD, Computer Engineering



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- Name of Event** : **INNOVATIVE PRACTICES**
- Dates** : **13 April 2023**
- Time** : **05:00 pm**
- Venue** : **Classroom: 208**
- Course Code & Title** : **BTCOC604 Internet of Things**
- Learning Strategy** : **Simulator**
- Topic** : **Circuit Design**

Tinkercard Simulation

Simulation is a decision analysis and support tool. Simulation software allows students to understand the various concepts of circuit design and virtual testing of hardware before purchasing the actual devices (Hardware)

Objective:

The objective of this activity is to

- Students will be able to understand the basics of circuit design.
- Student will be able to learn & understand working mechanism of IoT application on simulation environment.

Activity Details:

1. The simulator access and available virtual arduino board explained.
2. Given the idea about basic elements of electronic devices as resistors, diodes, capacitors and gates.
3. Later explained basic principals of components interfacing.
4. After that shown the interfacing of arduino uni with LED.
5. Later at code editor written code for the LED blinking with delay.
6. Shown the result at simulation environment.

Total No. of Student Benefited:

61 students participated from the Third Year B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to understand the interfacing concepts of the electronic components with arduino and sensors/actuators.

Pre-implementation Reflection:

- Few students found it difficult to interface the componets with the arduino.

Post Implementation reflection:

- Students were able to do the simulation as explained.
- All the students actively participated and enjoyed the conversation.
- Students' feedback reflected that they have understood the concepts.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO5	PO 12	PSO2
TLO1 To discuss different Microcontroller boards such as Arduino and RaspberryPi.	1	1	1	2	1	1

POs Mapped: PO1, PO2, PO3, PO5, PO12, PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Apply the knowledge of engineering fundamentals of IoT circuit design.
PO2	Identify the various boards, sensors, actuators.
PO3	Design solution for real time applications on simulation platforms.
PO5	Use of modern tools to design the IoT application circuit and to test the output on virtual environment.
PO12	Ability to engage the life-long learning in context with technological change.
PSO2	To understand the standard practice in IoT Circuit design.

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO3, PO5, PO12, PSO2

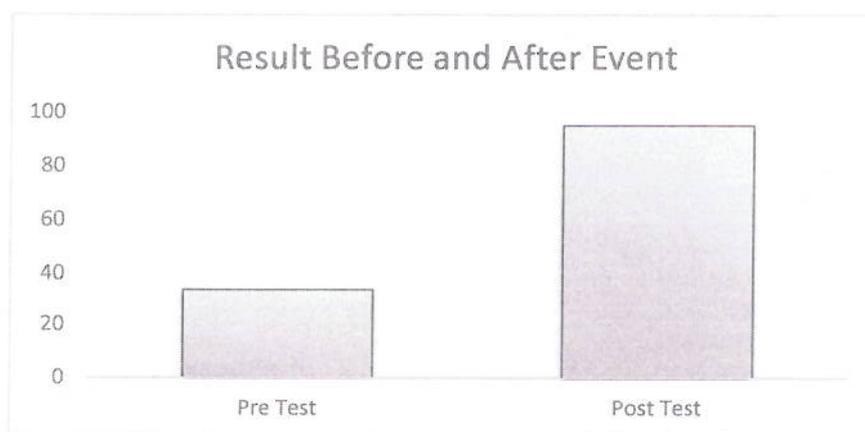


Fig. Feedback of Event After & Before Test

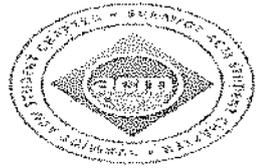
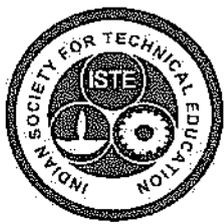

Prof. Mayuri Kulkarni
Event Coordinator




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- Name of Event : **INNOVATIVE PRACTICES**
- Dates : **20 April 2023**
- Time : **10.00 am**
- Venue : **Classroom: 209**
- Course Code & Title : **BTCOC604 Internet of Things**
- Learning Strategy : **Animation**
- Topic : **MQTT**

Animation:

Animation has emerged as a powerful tool for enhancing the learning experience across various the learners. Animation benefits the learner to visualize the abstract concepts, to demonstrate execution, simulating real-word applications and enhance motivation for learning more complex subjects

The benefit of the Animation:

- Animated videos are an effective way to communicate information.
- Animating your infographics invites audiences to have a deeper understanding.
- A lot of information can be communicated visually in an animation.
- Animation deepens visual understanding much more than traditional diagrams.

Goal:

The goal of introducing innovative practice animation can be multifaceted, depending on the specific context.

Reason for choosing the particular topic (Method):

The sample topics selected under the animation among the one of the topic is MQTT.

How we implemented Animation as instructional material :

- The concept delivered to the students through animation.

- Due to animation the Publish-Subscribe model easily understood.
- The message delivery from publisher to subscriber explained through topics through animations.

Committee Members: Prof. Mayuri Kulkarni, Coordinator
Dr. Makarand Shahade, Convener

Total No. of Student Benefited:

64 students participated from the Third Year B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to improve their concepts on message delivery using Publish-Subscribe model.

Pre-implementation Reflection:

- Students just might not have the necessary knowledge about topics and message transfer using Pub-Sub model.

Post Implementation reflection:

- Students found that animation on topic enhance their learning skills.
- Students understood the concepts as PUB,SUB and topic.
- This activity helps to test the level of understanding of the students.

Learning Outcomes/ Program Outcomes	PO1	PO12	PSO1	PSO2
TLO5 : To discuss different protocols in IoT	1	1	1	1

POs Mapped: PO1,PO12,PSO1,PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Apply the knowledge of Publish-Subscribe model to transfer message using MQTT.
PO12	Ability to recognize publish-subscribe model for real time applications.
PSO1	Student ability to analyze message transfer using MQTT.
PSO2	Students will provide the solution to real world problem using MQTT

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll..

Overall Attainment: Level 3(high)

PO's Attained: PO1,PO12,PSO1,PSO2

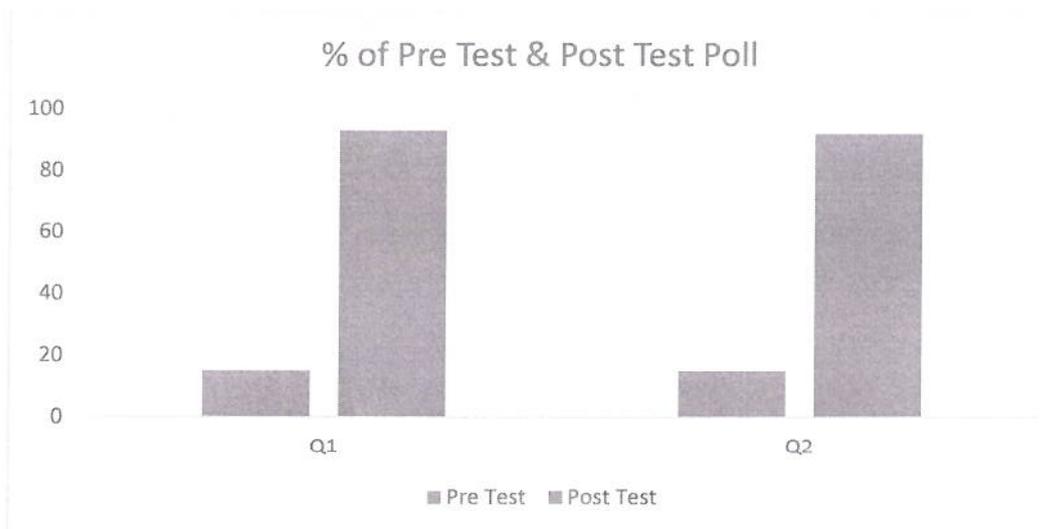
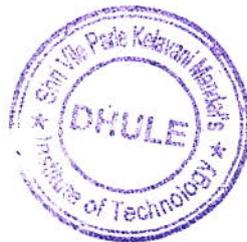
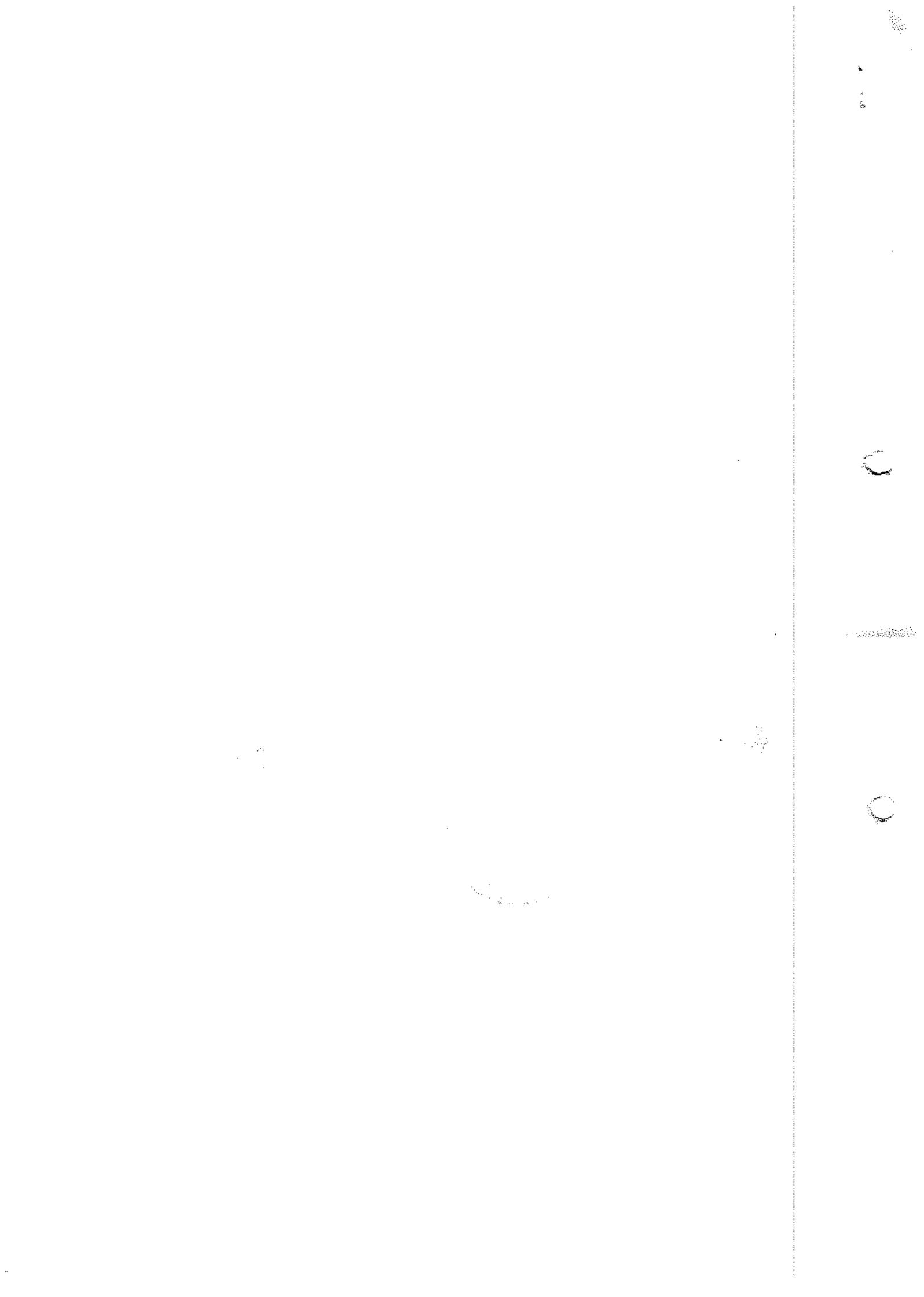


Fig. PreTest and PostTest Poll Before & After showing Animation

Prof. Mayuri Kulkarni
Course Coordinator

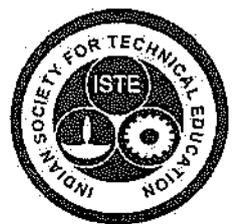


Dr. Makarand Shahade
HOD, Computer Engineering





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- Name of Event** : **INNOVATIVE PRACTICES**
- Dates** : **15th May 2023**
- Time** : **05:00 pm**
- Venue** : **Class room : 208**
- Course Code & Title** : **BTCOC402 Operating System**
- Learning Strategy** : **Flip Class Room**
- Topic** : **CPU Scheduling Algorithms**

Flip Class Room:

A flipped classroom is an instructional strategy and a type of blended learning, which aims to increase student engagement and learning by having learners complete readings or watching instructional material at home and work on live problem-solving during class time. This pedagogical style moves activities, including those that may have traditionally been considered homework, into the classroom. With a flipped classroom, students watch online lectures, collaborate in online discussions, or carry out research at home, while actively engaging concepts in the classroom, with a mentor's guidance.

The benefit of the Flip Class Room:

- Instructors spend less time on introducing new topics.
- Learners develop Independent Learning Skills.
- Instructor can create more Engaging Lessons.
- Instructors can Re-use the content they create.
- Learners are able to build a deeper understanding.
- Learners find classroom time more interesting.

Goal:

The flipped learning model deliberately shifts instruction to a learner-centered approach, where in-class time is dedicated to exploring topics in greater depth and creating rich learning opportunities

Reason for choosing the particular topic (Method):

The sample topics selected under the flip classroom as CPU Scheduling Algorithms to convey the concepts as FCFS and SJF.

How we implemented Flip Class Room:

- Shared Short video link on MS Teams Platform.
- This preclass content engages to the point ,allowing students to grasp the fundamentals of before class.
- Provided additional resource as Virtual lab instructional material for deeper understanding.
- During lecture conduction ,moved beyond as given the problem on the same topic which was unsolved in the provided video and instructional material.
- This activity focused on the application of the concept to solve the problem which enhances the skills as analysis.
- As the learners were solving the problems provided time to time instructions.

Committee Members: Dr. Makarand Shahade, Convener

Total No. of Student Benefited:

52 students participated from the Second Year B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to improve their CPU Scheduling Concepts.

Pre-implementation Reflection:

- Students just might not have the necessary knowledge to complete flip class room activity.

Post Implementation reflection:

- Students found that video lecture provided on topic enhance their learning skills.
- Students were able to identify and apply the working of scheduling algorithm
- All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concept.
- A scheduler can be added in the next role play in addition to the processor and processes to depict closer to the real scenario in CPU scheduling algorithms.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO5	PO9	PO10	PO12	PSO1	PSO2
<i>LO4:</i> The students will be able to Implement and Examine concepts	2	2	1	2	1	2	2	2

of CPU Scheduling algorithms.								
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POs Mapped: PO1, PO2, PO5, PO9, PO10, PO12, PSO1, PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Student will Apply the knowledge of mathematics to solve the CPU Scheduling algorithms
PO2	Student will analysis the CPU Scheduling Problem
PO3	Student will Draw Grant Chart for CPU Scheduling Problem
PO5	Students will use modern IDE tools like NetBeans, Code Blocks, Notebook to solve CPU Scheduling problems
PO9	Students teams demonstrate how to solve the CPU Scheduling algorithms using role play
PO10	Students Can Communicate working of CPU Scheduling algorithms using role play
PO12	Student can solve the CPU Scheduling Problem using various algorithms and Examine the best algorithms for given set of data
PSO1	Student ability to analyze and implement the CPU Scheduling algorithms
PSO2	Students will provide the solution to CPU Scheduling problems by applying standard CPU Scheduling algorithms

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO5, PO9, PO10, PO12, PSO1, PSO2

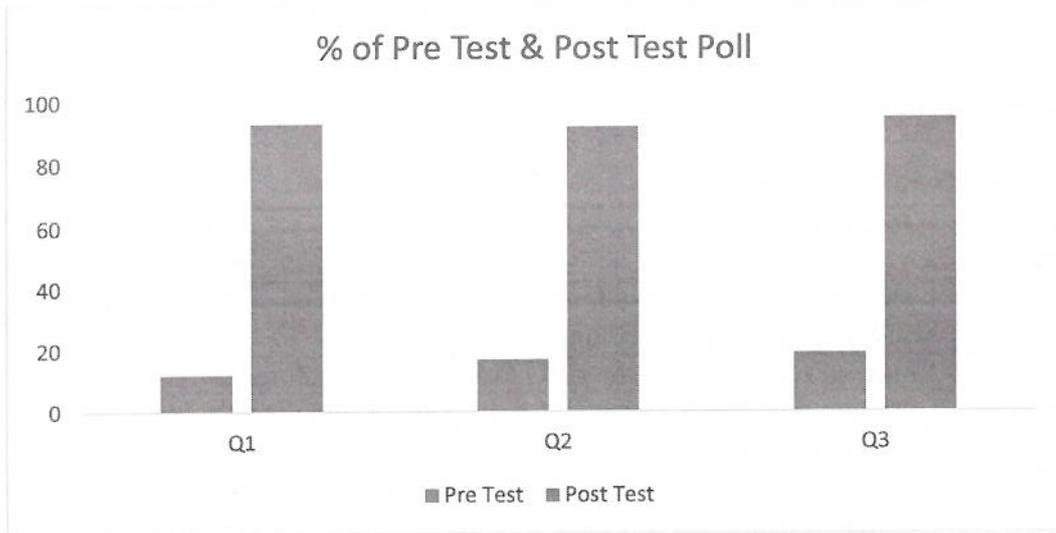


Fig. PreTest and PostTest Poll Before & After of Flip Class Room

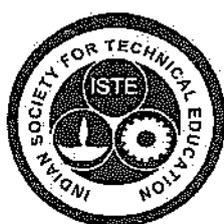
(Signature)
Dr. Makarand Shahade
Course Coordinator

(Signature)
Dr. Makarand Shahade
HOD, Computer Engineering





Shree Vile Parle Kelavani Mandal's
Institute of Technology, Dhule
 Approved by AICTE & Affiliated to DBATU
DEPARTMENT OF COMPUTER ENGINEERING
 A.Y 2022-23



Name of Event : **INNOVATIVE PRACTICES**
Dates : **29th MAY 2023**
Time : **03:00pm to 05:00pm**
Venue : **Class room : 208**
Course Code & Title : **BTCOC305 & Object Oriented Programming in C++**
Learning Strategy : **ONLINE COMPILER**

Objectives of Online Compiler:

- Online Compilers are an essential tool for software development because they allow programmers to write code in a high-level language that is easy to understand and debug.
- A key goal of using online compiler in the class is to encourage the free flow of coding among the students and make them familiar to coding.

● **Activity Details:**

1. The concepts will be briefly discussed with the students.
2. The same will be explained by doing the coding using online compiler.
3. Randomly any student can be called to do the coding.
4. Finally, different program statements will be solved in the class.

Total No. of Student Benefited:

69 students participated from S.Y. B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to solve the different problem statements in C++ using online compiler.

Pre-implementation Reflection:

- Some students were not willing to participate which was actual necessary for the execution of activity.
- Less number of students was involved in the activity.

Post Implementation reflection:

- Students were able to do the coding and solve different problem statements.
- All the students enjoyed doing the coding.
- Students' feedback reflected that they have understood the concepts.

POs Mapped: PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2, PSO3

5. Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO4	PO5	PO12	PSO 1	PSO 2	PSO 3
<i>LO4:</i> The students will be able to do the coding and understand the concepts more precisely.	2	2	1	1	1	2	1	2	2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	The students were able to understand the basic fundamental of objects, classes , methods , Strings
PO2	The students can able to analyze complex problem statements with the appropriate solution .
PO3	The students can easily provide the solution for real time problems using class, object , operators with returning of objects
PO4	The students can do the analysis and interpretation of data, and synthesis of the problem statement to provide the solution through the coding.
PO5	The students can used the online compiler for the coding of the problem statements through the understanding of the concepts.
PO12	The students can have the lifelong learning with the OOP in C++ concepts.
PSO1	The students can develop an ability to understand and analyze the concept of object oriented programming and their utility in the field of Computer Algorithmic, Web Development, Data Science, Computer Network and

	Security, Software Design, System Software Cloud Computing and allied fields.
PSO2	The students can develop the ability to provide computer based solution for the real-world problems by applying standard practices, problem solving strategies and methodologies through different features of Object Oriented Methodology with templates, exception handling etc.
PSO3	The students can develop the ability to employ modern computer tools and technologies using different features of Object Oriented Methodology with templates, exception handling etc.in creating innovative career path.

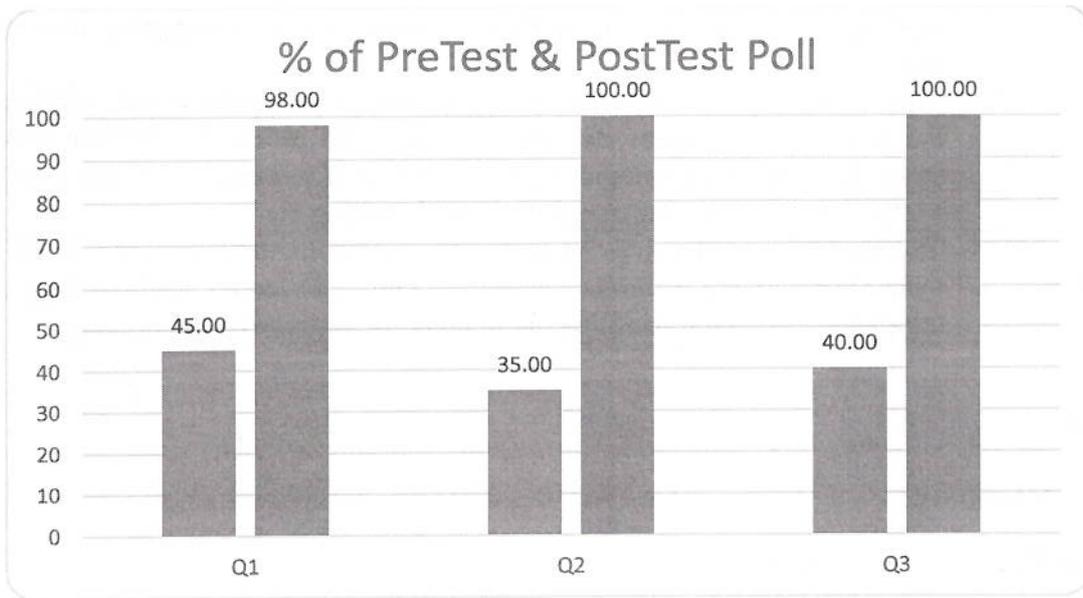
PO Attainment:

Rubrics for Attainment:

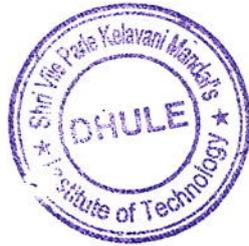
Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2,PSO3



Prof. Rinku Sharma
Event Coordinator



Dr. Makarand Shahade
HOD, Computer Engineering



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Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 26th May 2023
Time	: 05:00 pm
Venue	: Class room : 209
Course Code & Title	: BTCOC602 Computer Network
Learning Strategy	: Simulation
Topic	: Simulation of DNS, FTP, Web and E-mail server configuration

Simulation:

Simulation gives the virtual visualization of network and insights of network. A network simulator is used to model and analyze network behavior and performance. It assists students in testing and evaluating network protocols and applications without the need to build real networks.

Benefit of the simulation:

- Students can visualize network design and parameters.
- Students can know actual implementation of application layer protocols.
- Students can feel the network setup and hands on experience with networking devices.

Course Outcome:

CO5: To demonstrate working of Application Layer Protocols and describe basics of network security.

Goal:

The students will be able to work with application layer protocols.

Reason for choosing the particular topic (Method):

Demonstrating application layer protocols and configuration is very much essential through

hands on experience and this makes students learning ability stronger.

How we carried out simulation:

- Installing and set up Cisco Packet Tracer
- Demonstrating configuration of DNS, FTP, Web and E-mail server.

Committee Members: Prof. Vijaylaxmi Bittal, Coordinator

Total No. of Student Benefited:

60 students participated from T.Y. B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to demonstrate various application layer protocols

Pre-implementation Reflection:

- Many students not able to understand the practical approach of application layer protocols.

Post Implementation reflection:

- Students were able to configure DNS, FTP, Web and E-mail server
- All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concept.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO5	PO12	PSO1	PSO2	PSO3
LO4: To demonstrate various Application Layer Protocols involved in application layer.	1	1	2	2	2	2	2	2

POs and PSO's Mapped: PO1, PO2, PO3,PO5, PO12, PSO1, PSO2,PSO3

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Student will Apply the knowledge of engineering to understand network scenario.
PO2	Student will analyze essential networking parameters in a given network
PO3	Student will able to design network as per requirements

PO5	Students will use simulators like NS2,Cisco Packet Tracer.
PO12	Student will be able to understand the importance of Life-Long learning of DNS, SMTP, POP, FTP, HTTP protocol
PSO1	Student ability to analyze and implement the network setup as per requirements
PSO2	Students will provide the networking solutions to real time problems
PSO3	Students can opt network administrator as a profession.

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
Level 2 : Medium	70% of students scoring more than set attainment level in the Poll.
Level 3 : High	80% of students scoring more than set attainment level in the Poll.

Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2,PO3, PO5, PO12, PSO1, PSO2,PSO3

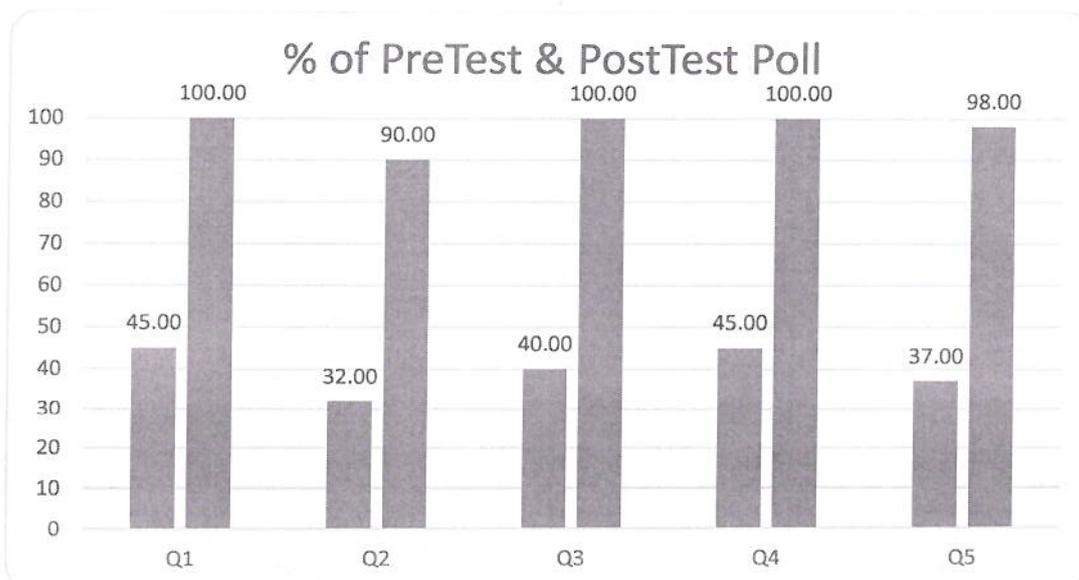


Fig. PreTest and PostTest Poll Before & After of Event

Vijaylaxmi
Prof. Vijaylaxmi Bittal
 Event Coordinator



Makarand
Dr. Makarand Shahade
 HOD, Computer Engineering



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 A.Y 2022-23



Name of Event	: <u>INNOVATIVE PRACTICES</u>
Dates	: 30th May 2023
Time	: 05:00 pm
Venue	: Class room : 208
Course Code & Title	: BTCOC401 Design and Analysis of Algorithm
Learning Strategy	: Virtual Lab
Topic	: Minimum Spanning Tree (Kruskals and Prims Algorithm)

Virtual Lab:

Virtual labs offers students access to a realistic lab experience that will allow them to perform experiments and practice their skills in a risk-free and interactive learning environment.

Benefit of the Virtual Lab:

- Virtual computer labs provide students with unrestricted access to resources, software, and applications round the clock.
- Virtual labs offer a personalized and interactive learning environment. Students can experiment with various software configurations.
- Virtual labs eliminate the need for redundant software installations on multiple machines. This optimizes resource allocation, ensuring that software licenses are utilized efficiently and reducing software procurement costs.
- In science, technology, engineering, and mathematics (STEM) fields, virtual labs offer realistic simulations and experiments. Students can manipulate variables, observe outcomes, and hone their analytical skills in a controlled digital environment.

Course Outcome:

CO4 : To Describe the Greedy paradigm and use this technique to solve different algorithms.

Goal:

The students will be able to understand the greedy methodology for minimum spanning tree.

Reason for choosing the particular topic (Method):

Virtual labs helps the students to simulate the working of Kruskals and Prims algorithm using greedy approach also they can compare working of both the algorithms.

How we implemented Virtual Labs:

- The faculty has discussed the concept of Minimum Spanning Tree application for kruskals and prims algorithm the previous day.
- Faculty ask students in lab and explain the virtual lab portal and give overview of MST.
- After overview of MST students gave pretest required for MST and most of the student's clear test.
- Later on students understand the kruskal and prims concepts given on portal and then execute the demo.
- Later on students solve the given quiz on both the algorithms

Committee Members: Prof. Bhushan Nandwalkar, Coordinator

Dr. Makarand Shahade Convener.

Total No. of Student Benefited:

52 students participated from S. Y. B. Tech Computer Engineering Department.

Learning Outcomes of Activity:

The students were able to demonstrate Kruskal and Prims algorithms.

Pre-implementation Reflection:

- Few students are get difficulties to remember the solving strategy and how greedy approach works to solve the both algorithms.

Post Implementation reflection:

- Students were able to identify and apply the working of Minimum Spanning Tree algorithms.
- All the students enjoyed the Virtual Lab
- Students' feedback reflected that they have understood the concept.

Learning Outcomes/ Program Outcomes	PO1	PO2	PO3	PO12	PSO1	PSO2
LO4: The students will be able to Implement and Examine concepts Kruskals and prims algorithms.	2	3	2	1	2	1

POs Mapped: PO1, PO2, PO3, PO12, PSO1, PSO2

JUSTIFICATION FOR MAPPING

PO/PSO MAPPED	JUSTIFICATION
PO1	Student will Apply the knowledge of mathematics to solve the Minimum Spanning Tree algorithms
PO2	Student will analysis the kruskals and prims algorithm
PO3	Students will be able to apply greedy algorithm concepts while understanding the algorithms
PO12	The problem-solving skill earned through this activity helps the students in motivating lifelong learning.
PSO1	Student ability to analyze and implement the MST algorithms
PSO2	Students will provide the solution to MST problems by applying kruskals and prims algorithms

PO Attainment:

Rubrics for Attainment:

Attainment Level	Description
Level 1 : Low	60% of students scoring more than set attainment level in the Poll.
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Overall Attainment: Level 3(high)

PO's Attained: PO1, PO2, PO3, PO12, PSO1, PSO2

References: <https://ds2-iiith.vlabs.ac.in/exp/min-spanning-trees/mst/index.html>

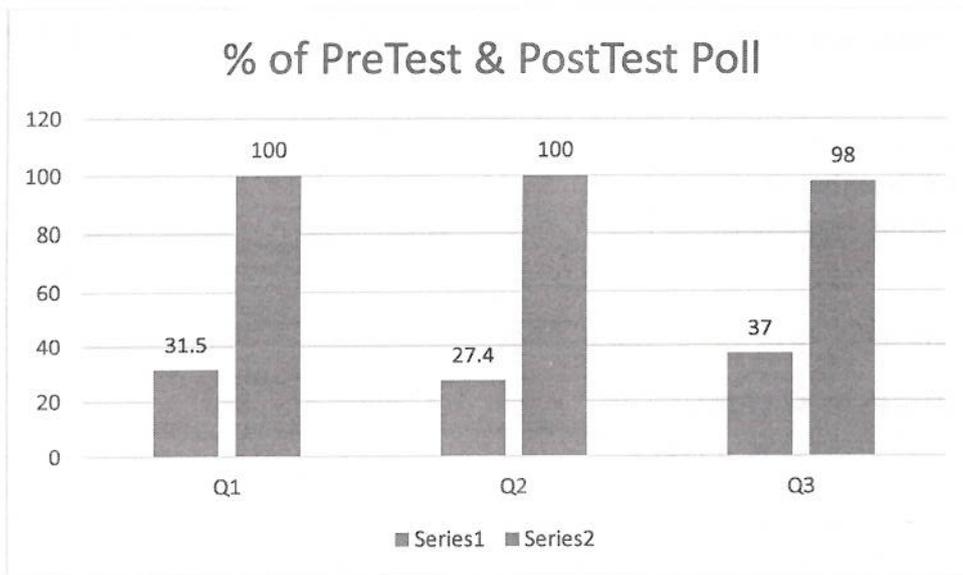


Fig. PreTest and PostTest Poll Before & After of Event


Prof. Bhushan Nandwalkar
Event Coordinator


Dr. Makarand Shahade
HOD, Computer Engineering

