Department of Computer Science and Engineering
Academic Year 2022 – 2023 (Even Semester)
Degree, Semester & Branch: IV Semester B.E. CSE
Course Code & Title: CS3452 Theory of Computation
Name of the Faculty member (s): Mrs.S.Manjula
Innovative Practice Description

Unit / Topic: Unit II / Equivalence of Finite Automata and regular expressions
Course Outcome: CO 2

Topic Learning Outcome: TLO 5

Activity Chosen: Collaborative Learning

Justification:

- Collaborative learning is a method of teaching and learning that involves groups of students coming together to solve a problem.
- The purpose of collaborative learning is to help students learn the complexities of problem-solving and to promote learning motivation through doing
- It also helps students make concepts more interesting by involving them to work together to complete problem solution.

Time Allotted for the Activity: 40 minutes
Details of the Implementation:

- Instructor explained the particular concepts and problem solution in classroom the day before the activity was carried out.
- On the day of the activity, the teacher instructed the students to form their own groups. There were 7 groups formed from the girls' side and 4 groups formed from the boys' side. The activity is conducted in respective class rooms C2R04 and C2R06.
- Problem statements on "Equivalence of Finite Automata and Regular Expressions" were given to the student group.
- For each group, different problems were given.
- All the students actively practised and solved the problem.
- One team member explains the solutions to the other groups.
- The problem solutions were explained to the other team members by the nominated team leaders Kowsalya M, Vaishnavi J, Jayasri P, Anitharani K, Subana Devi G, Mani Mehalai L, Ashwini Bala S, Muthusamy A, Asuthosh Sakka Raja P B, Vijayasarathy R, Vignesh Mano S.
- Finally, a faculty member consolidated the information that was discussed in this activity.
- This assisted the students in recalling the topic taught on that day, generating new ideas about the topic, and answering questions about the topic with ease.

CO – PO / PSO mapping:

CO	PO1	PO2	PO3	PO4	PO9	PO10	PSO1
CO 2	2	2	2	1	1	1	1

(1 – Low 2 – Moderate 3 – High)

PO / PSO mapped:

Innovative practice	PO1	PO2	PO3	PO4	PO9	PO10	PSO1
	2	2	2	1	1	1	1
Justification for correlation	To apply basic knowledge on Finite automata in mathematical modeling.	To analyze complex engineering problems using first principles of mathematics concepts	To design Finite Auto mata (FA) and solve RE	To design the appropriate automaton machine for the given RE and RL	To work as an individual, and as a member or leader together to solve a particular problem.	To Communi cate effectively on complex engineerin g activities	To design the FA, students will be able to develop various software components

- **Images / Screenshot of the practice:**

Figure 1: Discussion with team members about the solution solved

Figure 2: Solution explanation by team leader Kowsalya M to other group members

Figure 3: Solution explanation by team leader Muthusamy A to other group members

- **Reflective Critique:**
  - ❖ *Feedback of practice from students and other stakeholders:*
    o Students said that the activity was helpful in determining how well they understood the concept.
    o Students told the teacher that the activity encouraged them to listen to lectures and ask more questions.

Benefit of the practice: (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

- Students were able to explain the concepts clearly, and the activity helped the instructor analyse, evaluate, and enhance their own learning.
- The students can gain more understanding of the specific topic from this activity.

Challenges faced in implementation:

- Most of the students actively participated except few students. They are not involved to share their understanding level and raising the doubts.
- Motivate the students those who are not involved in the activity effectively by means of addressing the benefits of collaborative learning.

References:

1. https://www.edsys.in/what-is-peer-teaching/
2. https://www.opencolleges.edu.au/informed/features/peer-teaching/
3. https://tilt.colostate.edu/TipsAndGuides/Tip/180
4. https://www.gdrc.org/kmgmt/c-learn/
5. https://www.edutopia.org/topic/collaborative-learning
6. https://www.ritrjpm.ac.in/images/computer-science/28.CS8501_ColloborativeLearning.pdf