RAMCO INSTITUTE OF TECHNOLOGY

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Department of Artificial Intelligence and Data science

Academic Year 2025 – 2026 (Odd Semester)

Degree, Semester & Branch: B.Tech/I AD-B

Course Code & Title:CS25C03-Essentials of Computing

Name of the Faculty member (s): Dr.R.M.Rajeshwari

Assessment Methodology: Flipped Class Room- 5%

Date:10/11/25

- **Unit / Topic: Module 5/ Decision Structures**
- **Course Outcome:** CO5
- **Topic Learning Outcome:** TLO
- **Activity Chosen: Flipped Class room**
- **Justification:**

The flipped classroom approach improves students' understanding of **decision structures** by allowing them to learn the basic syntax and logic of conditional statements at their own pace before class. When theoretical learning is shifted outside the classroom, in-class time can be used for **logical reasoning, flowchart tracing, debugging, and real-time coding practice**. This method strengthens students' ability to analyze conditions, make logical decisions in programs, and apply appropriate control statements to solve problems

Time Allotted for the Activity: 45 minutes

- **Details of the Implementation:**

The flipped classroom approach enhances students' understanding of decision structures by allowing them to learn the basic concepts and syntax of conditional statements such as if, if–else, else–if ladder, nested if, and switch at their own pace before class. Pre-class materials including video lectures, flowcharts, examples, and C programs are shared through an LMS, along with short quizzes to check comprehension. During the 45-minute in-class session, a brief recap and doubt-clearing discussion is followed by hands-on activities where students trace program flow, predict outputs, debug errors, and write simple programs using decision statements. Students work collaboratively to solve real-world problems like grading systems and eligibility checks, compare approaches such as if–else and switch, and discuss their logic to strengthen analytical thinking. Post-class assignments, practice problems, and additional quizzes reinforce learning, while continuous feedback supports the development of logical reasoning and effective decision-making skills in programming.

CO – PO / PSO mapping:

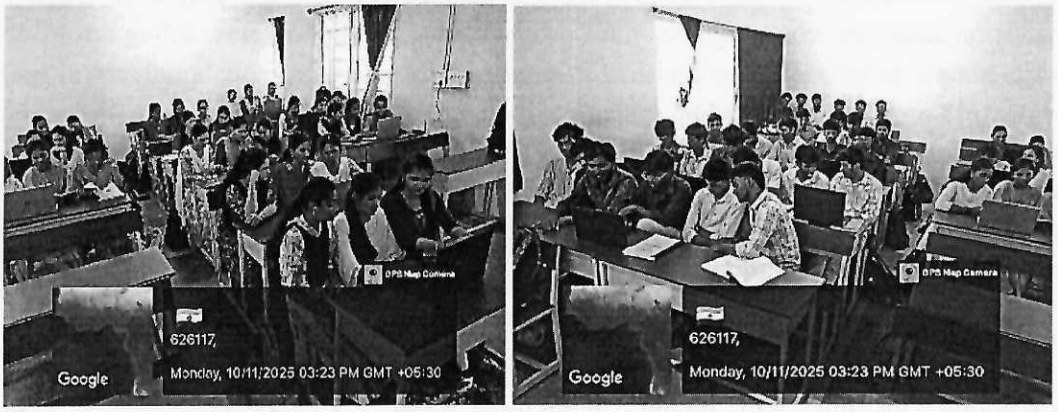
CO	PO2,3	PSO3
CO5	3	3

(1 – Low 2 – Moderate 3 – High)

PO / PSO mapped:

Justification for correlation	
PO2	The given topic aligns with PO2 as it develops students' ability to identify conditions, formulate logical expressions, and systematically analyze problems to arrive at correct decisions in programming. By using decision structures,. students learn to break down problems into smaller logical parts, evaluate different conditions, and derive substantiated conclusions, thereby strengthening their analytical and problem-solving skills.
PO3	The given topic aligns with PO3 as it enables students to design and develop effective program solutions using appropriate decision-making constructs. By selecting suitable conditional statements such as if–else or switch based on problem requirements, students learn to create logical, efficient, and structured programs that meet specified needs, enhancing their capability to design reliable computing solutions.
PSO3	The given topic aligns with PSO3 as learning decision structures builds a strong foundation for advanced programming, enabling students to adapt these logical concepts in emerging technologies, software development practices, and higher-level computing applications.

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



Reflective Critique – Decision Structures

Feedback of practice from students and other stakeholders:

- Concepts such as if, if–else, nested if, and switch were understood more clearly when students learned the syntax and logic before class and applied them through coding and flowchart tracing during class hours.
- The learning process became more engaging and practical when students worked on real-life problems like grading systems, eligibility checks, and menu-driven programs using decision statements.
- Students gained confidence in writing and debugging conditional programs by utilizing class time for dry runs, error identification, and logical discussion instead of passive listening.

Benefit of the Practice (Outcome attainment increased due to innovative practice over conventional teaching):

- Students gained hands-on experience in writing, testing, and debugging programs based on decision-making logic.
- Improved understanding of logical condition formation, program flow, and selection of appropriate decision structures.
- Enhanced logical thinking, problem-solving ability, collaboration, and critical thinking skills, supporting higher PO and PSO attainment.

Challenges Faced in Implementation:

Implementing a flipped or active learning approach for teaching decision structures presents certain challenges. A key challenge is ensuring that all students review the pre-class materials covering syntax and examples, as lack of preparation reduces effective participation in coding activities. Preparing quality resources such as example programs, flowcharts, and practice problems requires significant effort from instructors. Managing classroom activities can also be difficult due to different levels of programming knowledge among students, which demands additional time for individual support during coding and debugging sessions. Addressing these challenges is important for the successful implementation of innovative teaching practices in learning decision structures.

References:

- Marji, M. (2014). Learn to Program with Scratch: A Visual Introduction to Programming with Games, Art, Science, and Math. *No Starch Press*.
- **Berry, M.** (2013). *Computing in the National Curriculum: A Guide for Primary Teachers* — includes Scratch-based decision making activities.

Feedback Questions

1. How clear was the explanation of if–else and nested decision structures in the pre-class material?

☐ Very Clear ☐ Clear ☐ Neutral ☐ Unclear ☐ Very Unclear

2.Which topic was most difficult to understand before class?

☐ Simple if
☐ if–else
☐ Nested if
☐ Switch-case
☐ Logical conditions (AND, OR, NOT)

3.Did the in-class problem-solving activities help improve your understanding?

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree

4. Can you explain the difference between nested if and switch-case?

☐ Yes ☐ Partially ☐ No

5.Do you prefer this flipped classroom method over traditional lectures?

☐ Yes ☐ No ☐ No Preference

Signature of Faculty Member

HOD