



RAMCO INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University

NAAC Accredited with 'A+' Grade & An ISO 9001: 2015 Certified Institution

NBA Accredited UG Programs: CSE, EEE, ECE and MECH

Department of Artificial Intelligence and Data Science

Academic Year: 2025- 2026 (Even Semester)

Degree, Semester & Branch : B.Tech,IV & AI & DS
Course Code & Title : CS3591 & Computer Networks
Name of the Faculty member : Mrs. C.Usharani, AP/AD

Active learning practices: JIGSAW Cooperative Learning Technique

Theme of Discussion: TCP Control Flow

Date & Time: 05.02.2026 & 10.30 am to 11.15 am.

➤ **Justification:**

- TCP is a reliable, connection-oriented, byte-stream protocol. It is a full-duplex protocol, meaning that each TCP connection supports a pair of byte streams, one flowing in each direction. TCP includes a flow-control mechanism for each of these byte streams that allow the receiver to limit how much data the sender can transmit at a given time. TCP supports a demultiplexing mechanism TCP also implements congestion-control mechanism. Flow control explains **how transfer speed of data is adjusted in between two computers during data transmission in TCP**, flow control is maintained by using following key tools, window scaling, Advertisement window size, Persistent timers

➤ **Time Allotted for the Activity:** 45 Minutes

➤ **Details of the Implementation:**

The students are given a group activity to discuss about the services or functions provided by TCP The students are made to work into groups to discuss and clearly understand the Flow control of TCP.

➤ **Learning Outcomes:**

The students are able to Understand the Fundamentals of TCP, and TCP segments and Analyze the Packet format of TCP and how the Flow control can be carried out in TCP.

To improve listening, communication, and presentation skills.

Procedure:

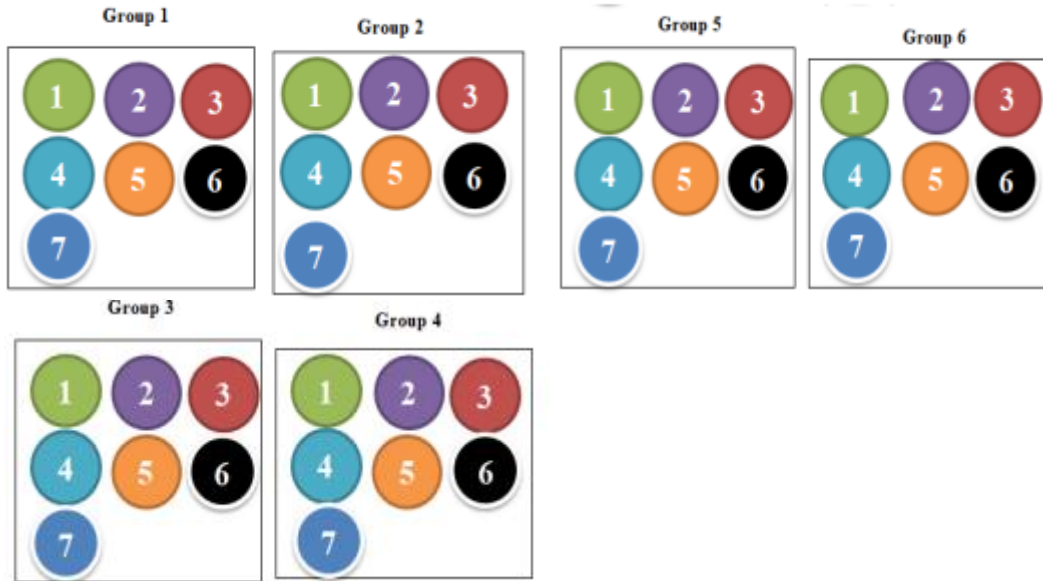
Step 1 (2 minutes)

- Students were divided into 6 groups with 7 members in each group based on the student's academic performance

Step 2 (2 minutes)

- Appoint one student from each group as the **leader**.
- Each student in a group is given a number from 1 to 7.

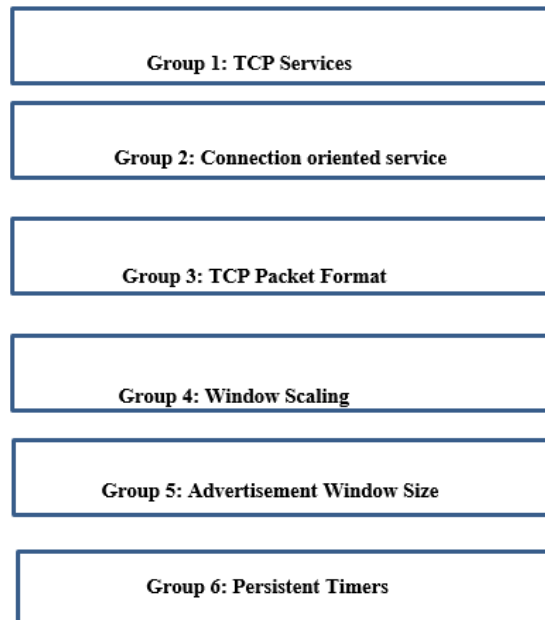
Jigsaw Groups



Step 3 (3 minutes)

- Divide students into 7-person Jigsaw groups as an expert group
- Divide the topic into 6 segments and assign it to each Expert Group.

The topics are given below:



Step 4 (15 minutes)

- Assign each student to learn one segment and time is allotted for discussion
- Give students time to read over their segment at least twice and become familiar with it.

Step 5 (2 minutes)

- Form temporary “expert groups” by having one student from each jigsaw group join other students assigned to the same segment.

Step 6 (15 minutes)

- Bring the students back into their jigsaw groups.
- Ask each student to explain her or his segment to the other team members in the group.
- Encourage others in the group to ask questions for clarification.

Step 7 (6 minutes)

- At the end of the session, the team leader summarizes the topic

Images / Screenshot of the practice:





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Department of Artificial Intelligence and Data Science
Academic Year 2025 – 2026 (Even Semester)

FEEDBACK Active Learning Best practices: JIGSAW Cooperative Learning Technique

Degree, Semester & Branch : B.Tech, IV & AI / DS
Course Code & Title : CS3591 & Computer Networks
Name of the Faculty member : Mrs.C.Usharani, AP/AD

Theme of discussion : TCP Flow Control
Date and Time : 05.02.2026 & 10.30 am to 11.15 am
Feedback collected in class and also through online

FEEDBACK QUESTIONS

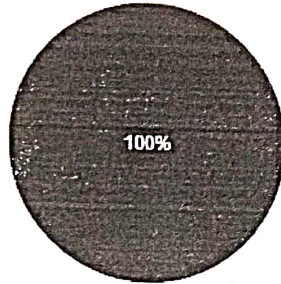
1. How useful was the JIGSAW activity that we did in class?
Very Useful/Not Useful
2. Do you have a clear understanding of TCP FLOW CONTROL?
Excellent /Good /Fair
3. Does this JIGSAW activity improve listening and grasping capability?
Excellent /Good /Fair

Google form Link: <https://forms.gle/sUsVNRD9JgNbt2SC8>

Feedback Analysis:

1. How useful was the JIGSAW activity that we did in class ?

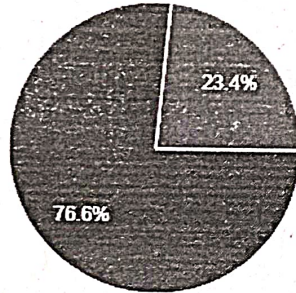
47 responses



- Very useful
- Not Useful

2. Do you have a clear understanding of TCP FLOW CONTROL?

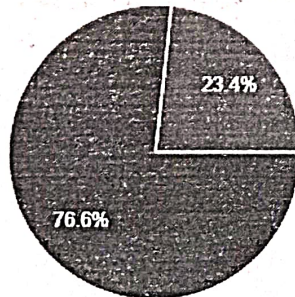
47 responses



- Excellent
- Good
- Fair

3. Does this JIGSAW activity improve listening and grasping capability?

47 responses



- Excellent
- Good
- Fair

C. Uday
Faculty-Incharge
12/2/26

HOD/AD