



# **FUTURE INSTITUTE OF ENGINEERING & MANAGEMENT**

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**UNDER  
MAKAUT, WB**

What is Congestion Control and how is it addressed in computer networks? Explain the concept of flow control in TCP.

## **CONTINUOUS ASSESSMENT#1**

WEB AND INTERNET TECHNOLOGY  
PEC-CS801D

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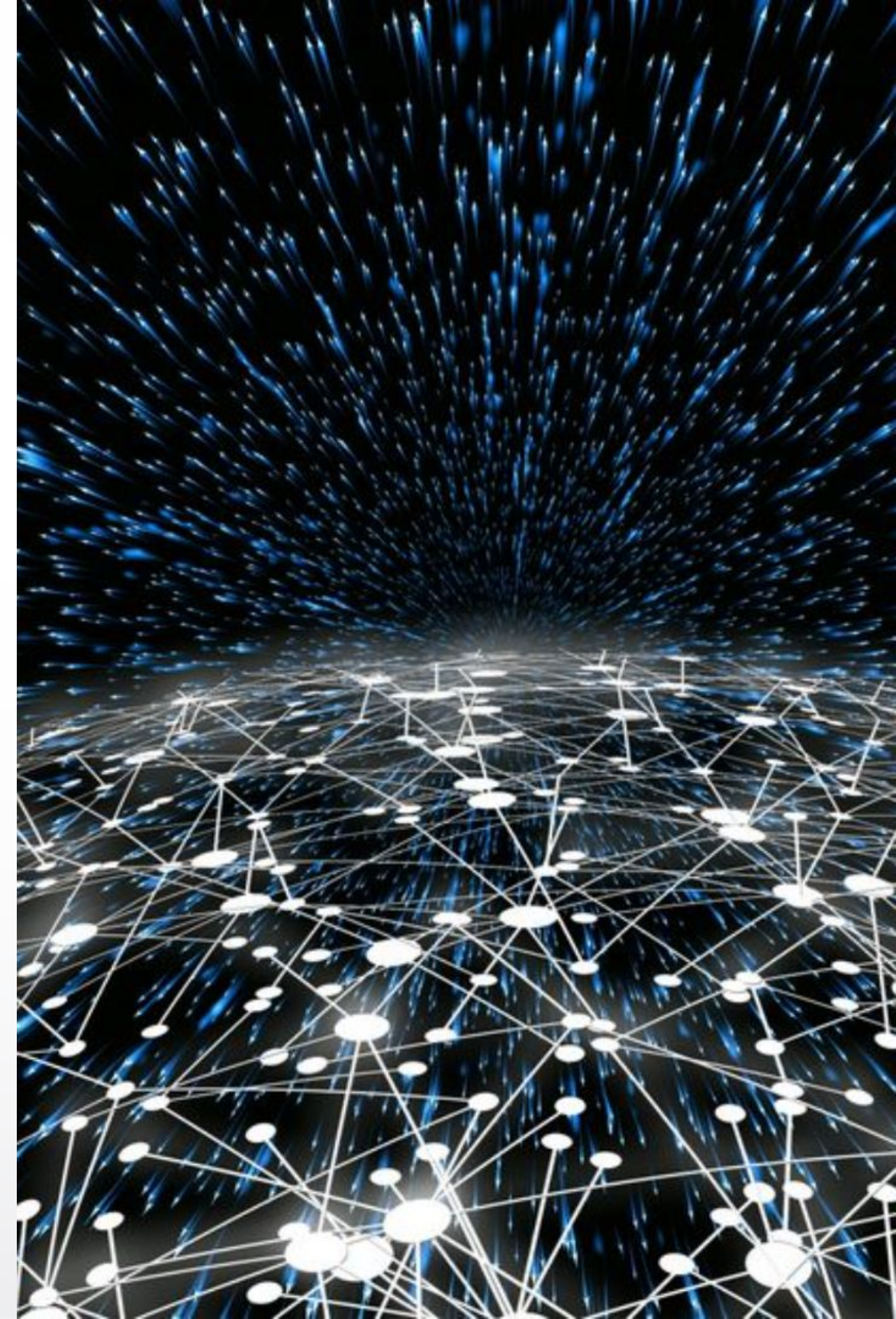
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COMPUTER SCIENCE & ENGINEERING

8TH SEMESTER

# Introduction to Congestion Control in Computer Networks

Congestion control is a critical aspect of computer networks, ensuring efficient data transfer and preventing network overload. It involves managing data traffic to avoid congestion and maintain optimal performance.



# Understanding the Concept of Flow Control in TCP

## Flow Regulation

Flow control in TCP manages the pace of data transmission between sender and receiver, preventing overflow and ensuring reliable delivery.

## Window Size Adjustment

The window size adjusts dynamically based on network conditions, optimizing data transfer while avoiding congestion.

# Techniques Used for Congestion Control

1

## Packet Dropping

Router-based technique that discards packets under congestion to regulate network traffic.

2

## Resource Reservation

Allocates bandwidth in advance, ensuring that resources are available when needed to prevent congestion.

3

## Queue Management

Prioritizes data packets in output queues to minimize congestion and promote fair resource allocation.

# Role of Window Size and Acknowledgments in Flow Control

Window Size

The amount of data a sender can transmit before receiving an acknowledgment from the receiver. It directly influences the flow control mechanism.

Acknowledgments

Receiver-derived signals confirming the successful receipt of data, allowing the sender to adjust transmission speed accordingly.



# Conclusion and Summary of Key Points

1

## Effective Data Management

Proper congestion control and flow control mechanisms are essential for efficient data handling in computer networks.

2

## Performance Optimization

Optimized flow and congestion control lead to improved network performance, reliability, and user experience.

3

## Continuous Adaptation

Networks must continuously adjust congestion and flow control strategies to accommodate changing traffic patterns and demands.

