

DELHI TECHNICAL CAMPUS, Greater Noida

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Group Assignment: Exploring Data Communication Technologies and Models

Objective: The objective of this group assignment is to deepen your understanding of data communication components, network models, switching techniques, and related topics covered in the syllabus. Through research, analysis, and collaboration, you will explore the practical applications and implications of these concepts in real-world scenarios.

Instructions:

- Group Formation:** Form groups of 3-4 students. You are encouraged to collaborate with peers from diverse backgrounds to enhance your learning experience.
- Topic Selection:** Each group should select one topic from the syllabus listed below as the focus of your assignment. Choose a topic that you find particularly interesting or relevant to your future career aspirations.

- Data Communications Components
- The Internet: Evolution and Impact
- Protocols and Standards in Data Communications
- Network Models: The OSI Model
- TCP/IP Protocol Suite
- A Comparison of the OSI and TCP/IP Reference Models
- Addressing in Data Communications
- Physical Layer: Analog and Digital Signals
- Transmission Modes: Simplex, Half-Duplex, and Full-Duplex
- Transmission Media: Guided Media (e.g., twisted-pair, fiber optics)
- Transmission Media: Unguided Media (e.g., wireless)
- Error Detection and Correction Codes in Data Communications
- Circuit Switching: Space-Division, Time-Division, and Space-Time Division
- Packet Switching: Virtual Circuit and Datagram Approaches
- Message Switching: An Overview

- Research and Analysis:** Once your group has selected a topic, conduct thorough research on the chosen subject. Explore its historical context, current applications, and future trends. Consider the practical implications and real-world examples related to your chosen topic.

- Presentation Preparation:** Prepare a comprehensive presentation that covers the following aspects:

- Explanation of the chosen topic and its significance in data communications.
- Historical development and evolution (if applicable).
- Practical applications and examples.
- Comparison or contrasting aspects (if relevant).
- Challenges and emerging trends.

- Presentation Delivery:** Each group will present their findings and insights to the class. Presentations should be well-organized, engaging, and informative. Visual aids such as slides, diagrams, or demonstrations are encouraged.

4. **Peer Evaluation:** After all groups have presented, each student will evaluate the presentations of other groups based on content, clarity, and delivery. Peer evaluations will be used to assess group members' contributions to the assignment.
5. **Submission:** In addition to the presentation, each group should submit a written report summarizing their research and findings. Include references and sources used for research.

Grading Criteria:

- Depth of research and analysis.
- Clarity and effectiveness of the presentation.
- Relevance of practical examples and applications.
- Peer evaluations.
- Adherence to submission deadlines.

Important Dates:

- Group formation & Topic Selection: 19 September 2023

This assignment is designed to promote collaboration, critical thinking, and a deeper understanding of data communication concepts and technologies. It also provides an opportunity to enhance your presentation skills and learn from your peers.

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