5CM510 Network System Development - 2024/2025 Assessment Brief

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Assessment 1: Client-Server Network Development

Key Details:

- Assessment Type: Individual Code Artefact
- Weighting: 70%
- Submission Deadline: 12:00 UK time, 24/01/2025
- Submission Method: Blackboard Assignment
- Provisional Feedback Release: 10/02/2025

Assessment Description:

In this assessment, you are required to develop a small client-server network system that demonstrates the following:

- Implementation of the client-server (or peer-to-peer) networking model.
- Ability to structure and comment code appropriately.
- Demonstration of secure information exchange using encryption or authentication mechanisms.
- The project should be selected in consultation with your tutor, focusing on a real-world application, such as Simple File Transfer Protocol (SFTP) or a smart home scenario involving IoT devices communicating securely.

Deliverables:

You must submit the following components in ONE zip file:

- The full source code for both the client and server applications, including any necessary build files.

- A document detailing the testing of the application and any instructions for running the program.
- A checklist detailing the features implemented.

An implementation log describing the development process.

Marking Criteria:

This assessment will be graded based on the following criteria:

- Networking Requirements (30%): Proper handling of client-server communication, multiple clients, error handling, and message verification.
- Application Requirements (25%): Inclusion of multiple application states and persistent data handling.
- Security Requirements (25%): Use of encryption and authentication techniques.
- Submission Requirements (20%): Adherence to submission format, proper code structure, and completeness of documentation.

Assessment 2: Technical Report on emerging networking paradigms

Key Details:

- Assessment Type: Individual Presentation
- Weighting: 30%
- Submission Deadline: 12:00 UK time, 13/05/2025
- Submission Method: Blackboard Assignment
- Provisional Feedback Release: 05/06/2025

Assessment Description:

This task requires you to prepare a technical report of at most 2500 words, discussing an emerging topic in the field of network systems. Your report should introduce the topic, explain its core concepts, and provide a short summary, suitable for a first-year undergraduate audience. You should support your report with enough references.

Suggested Topics:

- Virtualisation of Network functions e.g. Firewalls and Intrusion Detection Systems (IDS)
- Data Encryption in Quantum networking
- Secure Communication Protocols
- Incident Response and Handling
- Peer-to-peer (P2P) Systems
- Internet of Things (IoT) Networks
- 5G, 6G, and Network Slicing

Deliverables:

Your presentation should include:

- A clear introduction, body, and conclusion.
- Proper writing structure and references.

Submission as one word or pdf file (.doc,.docx. .pdf).

Marking Criteria:

The presentation will be assessed on the following:

- Technical Content (60%): Depth of research and accuracy of information.
- Presentation Quality (20%): Clarity, organization, and formatting of document.
- Referencing (20%): Correct use of academic references.

Anonymous Marking policy:

All submissions must adhere to the university's anonymous marking policy. Use your student number instead of your name in all documents and submissions.

Assessment Regulations:

Ensure familiarity with the university's policies and procedures regarding academic conduct, submission, and grading.

Good luck with your assessments!