5CM510 Network System Development - 2024/2025 Assessment Brief

Module Leader:

Dr. Suleiman Aliyu

Email: [s.aliyu@derby.ac.uk](mailto:s.aliyu@derby.ac.uk)

Phone: 01332 592962

**Assessment 1: Client-Server Network Development**

Key Details:

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

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, 25/04/2025
* Submission Method: Blackboard Assignment
* Provisional Feedback Release: 08/05/2025

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!