Informatics and Computer Science	**21CSCI07I** **Assignment 2: Multicast Handler** **2021-2022**
Module Title **Distributed Systems**	
Module Leader **Professor Gerard McKee**	Semester **Two**
Assessment Weight **20% of the total course mark**	Due Date **Week 11** **Fri 28 April 2022 (report)** **Sat 29 April 2022 (coding & upload)**

Instructions to students:

1. This is an Individual assignment.

2. Submission: The submission and discussion will be implemented as a 2-hour invigilated in-lab coding session in which students will code and upload their solution to E-Learning.

3. Assessment: Assessment will be based on the code and a report submitted to E-Learning.

4. Feedback: Feedback will be provided on the E-Learning module site two weeks after the submission.

5. Along with the submitted assignment, you need to submit: a fully completed and signed *Coursework submission form* *and* a *Statement of Academic Honesty Form*. You can only submit your own work. Any student suspected of plagiarism will be subject to the procedures set out in the GAR.

The Assignment: Multicast Handler

The aim of this assignment to gain insight into multicast communication in distributed systems. The objective is to design and implement a simple multicast handling system.

You are required to submit your system as source code and to provide a written report.

The requirements are as follows:

- The system you are to develop will comprise a **Multicast Handler** application and a number of Subscriber applications. **Subscriber** applications send messages to each other by way of the Multicast Handler application. You are required to demonstrate the operation of a Multicast Handler application supporting messages communicated between at least FIVE Subscribers.
- A Subscriber can send a message to multiple destination subscribers – i.e. a group.
- The Multicast Handler needs to maintain information about Subscriber groups.
- And, of course, subscribers must subscribe to groups. You need to provide a mechanism for handling this.
- The Subscribers send messages to each other via the Multicast Handler. What will the message be about? That is for you to decide.
- The Multicast Handler and the Subscriber applications must have Graphical User Interfaces. The Subscriber GUIs should have 'Subscribe' and 'Unsubscribe buttons, to subscribe and to unsubscribe from the system.
- You should also consider other design features that will enhance the performance of the system.
- You are to provide a report which describes design decisions you have made, how they are mapped to code, and any other choices you have made relevant to the application.

The marks for assignment 1 are distributed as follows:

a) Multicast Handler application **[5 marks]**
b) Subscriber application **[5 marks]**
c) Demonstration of the system **[5 marks]**
d) Report – key design choices and mapping to code **[5 marks]**

[Assignment Total: 20 marks]