Module Specification

Computer Networks [TSI]

Version: 2023-24, v2.0, 09 Aug 2023

Contents

Part 1: Information

Module title: Computer Networks [TSI]

Module code: UFCE5G-12-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 12

ECTS credit rating: 6

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

Field:

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: The main aim of the module is to give students understanding of the network architectures, models and protocols. Teach them network terminology, provide skills for basic configuration of the network devices and using the command line interface (CLI); test a small computer network; describe the architecture;

components and operations of routers and switches in a small network; provide an understanding of switching processes; VLAN technology and routing.

Outline syllabus: Term 1

Explore the Network;

Configure a Network Operating System;

Network Protocols and Communications;

Network Access;

Ethernet;

Network Layer;

IP Addressing;

Subnetting IP Networks;

Transport Layer;

Application Layer;

Build a Small Network;

Term 2

Routing Concepts;

Static Routing;

Dynamic Routing;

Switched Networks;

Switch Configuration;

VLANs;

Access Control Lists;

DHCP;

NAT for IPv4;

Device Discovery, Management and Maintenance;

Part 3: Teaching and learning methods

Teaching and learning methods: Learning and teaching will be provided to students in forms of lectures, labs and practical classes. Lectures will be supported by presentation published and available to the students on e.tsi.lv under the module section. Also, additional materials, like, textbooks, publications on the internet,

official documentation, videos etc will be presented in TSI LMS. This module utilise intensively materials of Cisco Networking Academy.

During labs, each student receives an individual task to perform. All labs are carried out in Cisco Networking Academy lab.

Practical classes are targeted on common work of students and teaching staff to discuss, explain in details and practise on practical issues of the course.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Explain how physical and data link layer protocols support the operation of Ethernet in a switched network.

MO2 Design, implement and test a robust network infrastructure that facilitates efficient and secure communication between remote devices, improving productivity, enabling remote work scenarios, and supporting the overall functioning of the interconnected systems and services.

MO3 Explain how the upper layers of the OSI model support network applications.

MO4 Apply common industry tools and techniques to troubleshoot connectivity in a small network.

Hours to be allocated: 120

Contact hours:

Independent study/self-guided study = 96 hours

Face-to-face learning = 64 hours

Total = 160

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link

Part 4: Assessment

Assessment strategy: To assess the learning outcomes of this course, several types of activities are provided, which include
1) performing automated tests independently using Cisco Networking Academy portal (netacad.com) and e.tsi.lv (formative assessment)
2) performing practical work (summary assessment)
3) examination (summative assessment).

Practical work is carried out by students independently. The main task is the acquisition of practical skills and the application of theoretical knowledge gained during the classes.

Automated tests are used as a formative type of knowledge assessment and are designed for continuous self-assessment of the knowledge acquired by the student. This will allow students to pay attention to material that they have not mastered enough.

The course ends with an exam, which is aimed at assessing the theoretical knowledge and practical skills acquired by the student in the process of studying the course.

Resits will be like for like.

Assessment tasks:

Practical Skills Assessment (First Sit)
Description: Controlled practical assessment (2 hours)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO4

Practical Skills Assessment (First Sit)

Description: A Series of labs done in Cisco Networking Academy lab. Each lab is based on Cisco Networking Academy practical assignment and Cisco networking equipment.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Practical Skills Assessment (Resit)

Description: Controlled practical assessment (2 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO4

Practical Skills Assessment (Resit)

Description: A Series of labs done in Cisco Networking Academy lab. Each lab is based on Cisco Networking Academy practical assignment and Cisco networking equipment.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Computer Science and Software Development {Double Degree} [Feb][PT][TSI][5yrs] BSc (Hons) 2021-22

Computer Science and Software Development {Double Degree} [Oct][PT][TSI][5yrs] BSc (Hons) 2021-22

Computer Science and Software Development {Double Degree} [Feb][FT][TSI][4yrs] BSc (Hons) 2021-22

Computer Science and Software Development {Double Degree} [Oct][FT][TSI][4yrs] BSc (Hons) 2021-22