



Module Specification

Computer Networks [TSI]

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Part 1: Information

Module title: Computer Networks [TSI]

Module code: UFCFAX-24-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 24

ECTS credit rating: 12

Faculty: Faculty of Environment & Technology

Department: FET Dept of Computer Sci & Creative Tech

Partner institutions: Transport and Telecommunication Institute

Delivery locations: Not in use for Modules

Field: Computer Science and Creative Technologies

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 Understand and know network devices and services for data transfer; Protocols roles on various layers of computer networks; hierarchical schemas of network names and addresses allocation on the different layers of IPv4 and IPv6 networks

MO2 Understand and know the basic principles of switching; purposes and tasks of router; logical segmentation of networks using VLANs and inter-VLAN routing

MO3 Understand routing protocols (classification, functionalities); concept of Access Control Lists (ACL); Network Address Translating (NAT) technologies; Dynamic Host Configuration Protocol (DHCP) to IPv4 and IPv6

MO4 Configuring and testing of: VLANs and inter-VLAN routing; static and default routing; dynamic routing in small routed networks using dynamic routing protocols; access-control lists to IPv4 and IPv6; Dynamic Host Configuration Protocol (DHCP), Network Address Translation (NAT)

MO5 Implement small network on the base of Ethernet using routers and switches

MO6 Use CLI for the basic configuring of the different network devices

MO7 Apply widely used commands and utilities for small networks testing and network traffic analysing

MO8 Configure and test of the basic operations of small switched network

Hours to be allocated: 240

Contact hours:

Independent study/self-guided study = 192 hours

Face-to-face learning = 132 hours

Total = 324

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://rl.talis.com/3/uwe/lists/121B43F1-5985-B03E-7473-C9CCA87D0171.html?lang=en-gb&login=1) via the following link <https://rl.talis.com/3/uwe/lists/121B43F1-5985-B03E-7473-C9CCA87D0171.html?lang=en-gb&login=1>

Part 4: Assessment

Assessment strategy: Examination will be completed through in Cisco Networking Academy interface

During both terms students should complete test on each topic in Cisco Networking Academy interface.

During both terms students should complete sequence of labs in Cisco Networking Academy lab.

Assessment components:**Examination** (First Sit)

Description: Examination

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

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: 30 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

In-class test (First Sit)

Description: Series of regular in-class test

Weighting: 45 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

Examination (Resit)

Description: Examination

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

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: 30 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

In-class test (Resit)

Description: Series of regular in-class test

Weighting: 45 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

Part 5: Contributes towards

This module contributes towards the following programmes of study:

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

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} [Oct][FT][TSI][4yrs]
BSc (Hons) 2021-22