Government of Western Australia
North Metropolitan TAFE

Learning and Assessment Plan

This learning and assessment plan outlines how this unit or cluster of units will be delivered and assessed. The schedule of learning topics, assessments and the due date for assessments is included.

Qualification national code and title:	ICT50220 Diploma of Information Technology
Delivery Period:	2021 Semester 2
Cluster Name (if applicable)	Intermediate IoT

National ID	**Name of unit**
ICTIOT502	Program IoT devices
ICTIOT503	Design and test IoT devices and networks
ICTPRG537	Implement security for applications
You can access the full unit/s of competency here **https://training.gov.au/Training/Details/ICTIOT502,** **https://training.gov.au/Training/Details/ICTIOT503,** **https://training.gov.au/Training/Details/ICTPRG537**	
Delivery Location/s (Campus/Room/Online):	Northbridge Campus, 30 Aberdeen St., Library building, room L3-06

Student Learning Resources, text, equipment (Required/Optional)
Student to supply: • USB thumb drive • SD Card (min. 16GB) for use in Raspberry Pi (class 10 or better)
College to supply: • PC with Python IDE (PyCharm) • Raspberry Pi 3/4

Lecturer Name:	**Phone:**	**Email:**	**Contact times**	**Campus / Room**
Adrian Gould		Adrian.Gould@nmtafe.wa.edu.au		Northbridge

Assessment Summary (max. 3 attempts per assessment)

Assessment	**Title and brief description**	**Due Date**
Assessment 1	Portfolio Assessment: parts 1 – 4 (POR)	Various
Assessment 2	Project Assessment: T.B.D. (PRJ)	Week 18
Assessment 3	Knowledge-Based Assessment: parts 1 – 4 (KBA)	Various

You will receive more detailed instructions on each assessment from your lecturer.

The regular learning requirements to develop the skills and knowledge for this unit are outlined below.

Learning and Assessment Plan

Please refer to your timetable for session times.

Please note: This plan is to be used as a guide and may be adapted to meet the needs of students. You will be notified of changes as they occur.

Your training will include **structured in and out of class activities*** to be completed for this unit.

**Out of class activities* may include(☑):*

- ☐ lectures or tutorials, online tasks and forums
- ☐ assessments (when integrated with learning)
- ☐ workplace experience
- ☐ prescribed reading and research
- ☐ workshop activities
- ☐ projects, assignments
- ☐ prescribed follow-up activities
- ☐ other (please specify)

Sessions (Hours)		Element number	Topic	Learning Resources*	Structured out of class activities*	
Session	Hrs				Activity	Hrs
1	6		Introduction to electricity, electrical power, elementary electronic components, and creating simple electronic circuits (TinkerCAD, AutoCAD Eagle – free version).	Blackboard Session 1		
2	6		A gentle Python refresher: the Python programming language and IoT devices. SenseHat simulator.	Blackboard Session 2		
3	6		IoT devices and networks. Programming IoT devices: Raspberry Pi (Python), other devices like Arduino, ESP32 (node.js, C/C++). IoT device capabilities (I/O, communication, power usage).	Blackboard Session 3		
4	6		**Work on Portfolio Assessment 1 and Knowledge-Based Assessment 1.**			
5	6		IoT communication techniques: Ethernet, WiFi, Bluetooth, Zigbee, LoRa(WAN), 3G/4G/5G cellular, Mesh, etc. Network topologies: LAN/WAN. IoT communication protocols: AMQP, MQTT. **Portfolio Assessment 1 due.** **Knowledge-based Assessment 1 due.**	Blackboard Session 5		
6	6		**Work on Portfolio Assessment 2 and Knowledge-Based Assessment 2.**			
7	6		Interfacing electronics with IoT devices. GPIO, serial ports, I2C, SPI, ADC/DAC. Sensors, actuators, and displays. Battery power and charging. **Portfolio Assessment 2 due.** **Knowledge-based Assessment 2 due.**	Blackboard Session 7		
8	6		**Work on Portfolio Assessment 3 and Knowledge-Based Assessment 3.**			

9	6		Security relating to IoT devices and networks (SSH/HTTPS). Authentication and authorisation. Roles and permissions. **Portfolio Assessment 3 due.** **Knowledge-Based Assessment 3 due.**	Blackboard Session 9		
10	6		Encryption and decryption of data: at rest (files, databases) and in transit (network). Symmetric and asymmetric cryptography. Envelope encryption. **Work on Portfolio Assessment 4.**	Blackboard Session 10		
Term Break – There are no classes this week!						
11	6		Preventing security attacks by applying common industry practices. CORS, SQL injection, etc. **Work on Knowledge-Based Assessment 4.** **Portfolio Assessment 4 due.** **Knowledge-Based Assessment 4 due.**	Blackboard Session 10		
11	6		**T.B.D.**			
12	6		**T.B.D.**			
13	6		**T.B.D.**			
14	6		**Work on Project Assessment.**			
15	6		**Work on Project Assessment.**			
16	6		**Work on Project Assessment.**			
17	6		**Work on Project Assessment.**			
18	6		**All Assessments Due.**			
19	6		Resubmissions (if needed) due.			
20	6		No classes in week 20.			
Total Hours	**120**				**Total hours out of class activities**	
Total amount of training for this unit: 100						

*Learning Resources - to enable learners to meet the requirements of this unit of competency or cluster.

Learning and Assessment Plan

Recognition of Prior Learning (RPL) / Credit

You may be eligible for Recognition of Prior Learning (RPL) / Credit towards your studies If you have relevant existing skills, knowledge, or formal qualifications. Please discuss available options with your lecturer.

Reasonable Adjustment

We recognise that every student has different learning styles and needs. Please let your lecturer know if there is anything that may have an effect on your learning so they may be able to adjust your plan.

Results and Appeals

Students may lodge an appeal against an academic result. Appeals must be lodged within four weeks from notification of the assessment result. Please see details under Academic Appeals on the NMT website.

Absences

If you are unable to attend any class or assessment session you must inform your lecturer as soon as possible.

If you miss an assessment due to illness, please provide your lecturer with a medical certificate in order to negotiate an alternate time for the assessment.

Plagiarism

Plagiarism is using another person's ideas and words without clearly acknowledging the source of the information. It is not acceptable to submit an assessment that is based on another person's work and claim it as your own. If you submit an assessment that is significantly or recognizably the same or similar in content as submitted by another student (current or past) you may have to submit another assessment.

Assessment Resit/Resubmission

You shall be permitted to have at least two attempts to demonstrate competency against a unit of competency or cluster of units of competency.

To qualify for re-assessment:

- you must have made a reasonable attempt to complete the assessment satisfactorily

  AND

- you must have submitted the original assessment by the due date

  OR

- you must have attended and participated in the original assessment event

In the case of a re-assessment opportunity, your lecturer will give you a due date for your second attempt. Should you not achieve a Satisfactory result on the second attempt, you will need to re-enrol (R) in the unit.

In certain situations, a re-assessment is not possible; please refer to your assessment instructions.