

# Diploma of Information Technology (LDIT)

## Course Outline

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Version: 1

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# Diploma of Information Technology (LDIT)

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## 1. Summary Information

| Program Title                      | Diploma of Information Technology (LDIT)  |
|------------------------------------|---|
| Home campus:                       | Bundoora  |
| Award “ownership”                  | La Trobe College Australia  |
| Year and trimester of introduction | Trimester 1 2010  |
| Total Credit Points                | 120 Credit points   |
| Mode of Delivery                   | Face to Face on Campus  |
| Intake Trimesters                  | Trimester 1 and 2 and 3   |
| Duration                           | 28 weeks (Full time) or equivalent  |
| Articulation options               | La Trobe University:<br>Bachelor of Information Technology<br>Bachelor of Cybersecurity |

## 2. Course Overview

The Diploma of Information Technology provides a broad introduction to computing, after which you will progress to a more specialised area during your degree such as artificial intelligence, cloud analytics, data analytics, information systems, network engineering and software engineering.

## 3. Course learning outcomes

- Use IT knowledge and skills, along with critical thinking, to come up with practical and creative solutions for real-world industry problems.
- Evaluate how IT can be used to develop and deploy appropriate solutions.
- Work well independently and with others to finish IT projects on time and required quality.
- Consider ethical and cultural values when dealing with complex IT tasks.
- Apply IT skills to find sustainable solutions in different business situations.
- Talk to different kinds of people about your ideas and build important relationships.
- Use appropriate standards, methods, tools, and applications to make informed decisions.

## 4. Level of Award

This is a Higher Education, Australian Qualifications Framework Level AQF 5.

## 5. Program Duration

The program can be completed in two or three trimesters.

## 6. Entry requirements

### *(a) Academic Entry Requirements:*

- Completion of Year 12 with satisfactory ATAR score or completion of Foundation Studies program.

### *(b) Minimum age requirement:*

- 17 years

### *(c) English language requirement:*

- IELTS Academic overall score of 5.5 (no band less than 5.5)

### *(d) Pre-requisite / assumed knowledge:*

- Units 3 and 4: satisfactory completion of any English.

## 7. Program approval

La Trobe College Australia Academic Board and TEQSA.

## 8. Program Structure

| Trimester | Unit Code | Name of Unit                             | Core / Elective | Credit points |
|-----------|-----------|--|-----------------|---------------|
| 1         | LTM1AIM   | Academic Integrity Module                | Required        | 0             |
| 1         | SSTA1DCT  | Data-based Critical Thinking             | Core            | 15            |
| 1         | TCSE1ICB  | Introduction to Cybersecurity            | Core            | 15            |
| 1         | TCSE1IIT  | Inside Information Technology            | Core            | 15            |
| 2         | TCSE1PEXS | Programming for Engineers and Scientists | Core            | 15            |
| 2         | TCSE2NEF  | Network Engineering Fundamentals         | Core            | 15            |
| 1 or 2    | HSTM1001  | MAKING SENSE OF DATA                     | Elective        | 15            |
| 1 or 2    | BBUS1IEI  | Economic Issues and Public Policy        | Elective        | 15            |
| 1 or 2    | BBUS1SBY  | Sustainability                           | Elective        | 15            |
| 1 or 2    | BMGT1OBE  | Organisational Behaviour                 | Elective        | 15            |

*a) Recommended Study Plans:*

All diploma students enrol into an online, zero credit point module, LTM1AIM Academic Integrity Module. This module is compulsory, and in addition to your eight required subjects. All students must complete this module in their first trimester.

An elective is a subject from any other diploma course.

**Recommended study plan to complete your diploma in three trimesters:**

|                     |   |   |  |                 |
|---------------------|---|---|--|-----------------|
| Year 1<br>(Diploma) | <b>LTM1AIM Academic Integrity Module</b><br>Compulsory online module that must be completed in the first trimester. |   |  |                 |
|                     | <b>First Trimester</b>  | <b>SSTA1DCT</b><br>Data Based Critical Thinking     | <b>TCSE1ICB</b><br>Introduction to Cybersecurity             | <b>ELECTIVE</b> |
|                     | <b>Second Trimester 2</b>   | <b>TCSE1IIT</b><br>Inside Information Technology    | <b>TCSE1PEXS</b><br>Programming for Engineers and Scientists | <b>ELECTIVE</b> |
|                     | <b>Third Trimester</b>  | <b>TCSE2NEF</b><br>Network Engineering Fundamentals | <b>ELECTIVE</b>  |                 |

**Recommended study plan to complete your diploma in two trimesters:**

|                     |   |  |   |  |                 |
|---------------------|---|--|---|--|-----------------|
| Year 1<br>(Diploma) | <b>LTM1AIM Academic Integrity Module</b><br>Compulsory online module that must be completed in the first trimester. |  |   |  |                 |
|                     | <b>First Trimester</b>  | <b>SSTA1DCT</b><br>Data Based Critical Thinking              | <b>TCSE1ICB</b><br>Introduction to Cybersecurity    | <b>TCSE1IIT</b><br>Inside Information Technology | <b>ELECTIVE</b> |
|                     | <b>Second Trimester</b>   | <b>TCSE1PEXS</b><br>Programming for Engineers and Scientists | <b>TCSE2NEF</b><br>Network Engineering Fundamentals | <b>ELECTIVE</b>                                  | <b>ELECTIVE</b> |

Recommended electives for IT diploma:

|  |                                     |
|--|-------------------------------------|
| HSTM1001- Making Sense of Data           | BBUS1SBY – Sustainability           |
| BBUS1IEI - Investigating Economic Issues | BMGT1OBE - Organisational Behaviour |

## *b) Overview of Subjects:*

### **SSTA1DCT Data-based Critical Thinking**

This subject helps the student evaluate data-based evidence encountered in everyday life. It provides the fundamental numeracy skills required by business people, lawyers, nurses, journalists, social scientists, teachers and other professionals who need to evaluate data-based arguments, whether found in newspapers, television or on-line websites. This is achieved by a combination of studying newsworthy topics introduced in lectures, computer laboratory classes which encourage engagement with others and on-line quizzes that assess numeracy skills. The four themes covered in this subject are gathering useful data, turning data into information, probability and from data to decision making. These themes are designed for students who do not have any background in mathematics, statistics or probability.

### **Subject Learning Outcomes**

1. Critically analyse the results from statistical-based research studies in regards to sampling and study design.
2. Convert data into information by using appropriate numerical and graphical summaries.
3. Calculate probabilities by applying the basic rules of probability and recognise some of the misperceptions of probability.
4. Identify and apply basic statistical inference methods for unbiased decision making.
5. Compute, display and interpret numerical and graphical summaries and basic statistical inference procedures using the Excel software package.
6. Apply basic numeracy skills to the calculation of various quantities in statistics.

### **Class requirements**

Timetabled hours per week (4 hours)

- One 2-hour lecture/tutorial per week
- One 2-hour lab/workshop per week

### **Assessments**

| Assessment piece | Weighting | Subject Learning Outcomes |
|------------------|-----------|---------------------------|
| Numeracy Quizzes | 10%       | 6                         |
| 5 Assignments    | 30%       | 1-6                       |
| Examination      | 60%       | 1-4, 6                    |

Your final mark and grade for this subject is determined as follows:

- Internal assessment during teaching weeks: 40%
- Final Subject Assessment (Week 13) 60%
- 

To pass this subject, you are required to achieve:

- at least 50% overall

## • TCSE1ICB Introduction to Cybersecurity

In the modern Internet era, industries and organizations need to be prepared to defend against cyber threats and attacks. Stakeholders should be familiar with basic principles and best practices of cybersecurity to protect their businesses and personal information. In this subject, these principles and strategies for future cyber security are explored. Key topics include information security, ethical and legal practices, mitigating cyber vulnerabilities, and the process of incident response and analysis. The subject introduces broad discipline of cybersecurity and outlines how to ensure the privacy, reliability, confidentiality and integrity of information systems and fight against cyber threats and risks.

### Subject Learning Outcomes

1. Describe key emerging cybersecurity practices, regulations, and standards.
2. Demonstrate foundation skills in safeguarding data, systems, and networks.
3. Compare approaches for cyber risk management used to address real world problems.
4. Identify approaches to digital forensics, application security and network security in the context of cyberspace.
5. Show understanding of data security, web security and cryptography and possible solutions to cyber threat.

### Class requirements

Timetabled hours per week (4 hours)

- One 2-hour lecture per week
- One 2-hour lab/workshop per week

### Assessments

| Assessment piece   | Weighting | Subject Learning Outcomes |
|--------------------|-----------|---------------------------|
| Quiz               | 10%       | 1, 2                      |
| Theory Test        | 20%       | 1-4                       |
| Assignment         | 20%       | 1-5                       |
| Final Examinations | 50%       | 1-5                       |

Your final mark and grade for this subject is determined as follows:

- Internal assessment during teaching weeks: 50%
- Final examination in exam weeks: 50%

In order to pass this subject, you are required to achieve:

- at least 50% overall and
- at least 50% in final examination.



## TCSE1IIT Inside Information Technology

In this subject, students will be provided with a general and practical introduction to information technology for students in a range of disciplines. This subject will guide students to implement the IT skills to their field of study. It covers: fundamental principles of computer operation, the main hardware components of the computer, data storage and retrieval, introduction to system software, introduction to data communications, computer networks, the Internet; operating systems, file management systems, security, introduction to information systems; application software modules: spreadsheets, database packages, the World Wide Web.

### Subject Learning Outcomes

1. Describe the functions of the main hardware and software components of a computer.
2. Differentiate between the main types of computer networks, be able to explain the purpose of the major network components and discuss the advantages and disadvantages of different data communication media.
3. Analyse a simple problem and develop a spreadsheet to model the problem.
4. Design and construct basic web pages using HTML and style sheets to solve a practical problem in their field of study.
5. Develop and interpret simple database tables, queries and reports to solve practical problem in their field of study.
6. Solve practical problems in their field of study using knowledge gained during the lecture.

### Class requirements

Timetabled hours per week (4 hours)

- One 2-hour lecture per week
- One 2-hour lab/workshop per week

### Assessments

| Assessment piece           | Weighting | Subject Learning Outcomes |
|----------------------------|-----------|---------------------------|
| Database Lab Assessment    | 20%       | 5, 6                      |
| Web Development Assignment | 20%       | 4, 6                      |
| Theory Test (Quiz)         | 20%       | 1-6                       |
| Weekly Quizzes             | 20%       | 1-6                       |
| Weekly Lab Submissions     | 20%       | 1-6                       |

Your final mark and grade for this subject is determined as follows:

- Internal assessment during teaching weeks: 100%

In order to pass this subject, you are required to achieve:

- at least 50% overall and
- at least 50% in internal assessment

## TCSE2NEF Networking Fundamentals

In this subject we introduce the architecture, structure, functions, components, and models of the Internet and other computer networks. We also look at OSI and TCP/IP layer models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers. The fundamentals of IP addressing and basic concepts of Ethernet are also studied.

### Subject Learning Outcomes

1. Describe the overall OSI model and how layers interact with adjacent layers in the model.
2. Identify functions of each OSI layer and apply this knowledge to build a Network.
3. Describe the evolution of Local Area Network (LAN) technology with focus on Ethernet based Layer 2.
4. Describe the network physical standards for different network scenarios.
5. Describe TCP/IP based network protocol suite and compare with OSI model.
6. Design and implement LAN IP address scheme.

### Class requirements

Timetabled hours per week (4 hours)

- One 2-hour lecture per week
- One 2-hour lab/workshop per week

### Assessments

| Assessment piece             | Weighting | Subject Learning Outcomes |  |
|------------------------------|-----------|---------------------------|--|
| Progress Test - online<br>2% | 2%        | 1-5                       |  |
| Test 1 - online              | 13%       | 1-5                       |  |
| Test 2 - online              | 15%       | 1-5                       |  |
| Practical Lab Exam           | 20%       | 6                         |  |
| Final Written Exam           | 50%       | 1-5                       |  |

Your final mark and grade for this subject is determined as follows:

- Internal assessment during teaching weeks: 50%
- Final examination in exam weeks: 50%

In order to pass this subject, you are required to achieve:

- At least 50% overall and
- At least 50% in internal assessment and
- At least 50% in final examination.

# TCSE1PEXS Programming for Engineers and Scientists

In this subject students learn and apply fundamental programming concepts. Students analyse, design, construct, and document solutions to simple programming problems. Python programs are developed using online and desktop Python IDE and other tools.

## Subject Learning Outcomes

1. Analyse a given problem and construct data structure and a logical solution.
2. Use appropriate programming tools to develop solutions in python code.
3. Accurately determine the output of a given python program.
4. Apply the 3 basic programming constructs of sequence, selection, and iteration.
5. Use basic data structures such as lists, sets and dictionaries.
6. Format and comment python code following rules and conventions.

## Class requirements

Timetabled hours per week (4 hours)

- One 1-hour lecture per week
- One 3-hour lab per week

## Assessments

| Assessment piece  | Weighting | Subject Learning Outcomes |
|-------------------|-----------|---------------------------|
| Quizzes and Tests | 25%       | 1-6                       |
| Assignment        | 5%        | 1-6                       |
| Progress Test     | 30%       | 1-6                       |
| Final Examination | 40%       | 1-6                       |

## **Suggested Electives**

### **HSTM1001 MAKING SENSE OF DATA**

This subject introduces students to modern data analytics, visualisation, and statistics. It equips students with the skills required to take advantage of powerful computing for the analysis and visualisation of complex data. These skills are used to solve problems in areas such as the biological sciences, medical sciences, agricultural sciences, nutrition, health sciences, education, and business. Students will become familiar with data visualisation and computing, descriptive statistics, statistical modelling, and data-based decision making. Using statistical computing packages is an integral part of this subject. This subject allows further study in second-year subjects in statistics and data science.

### **Subject Learning Outcomes**

- 1.Convert data into useful information by using appropriate numerical and graphical summaries.
- 2.Calculate probabilities and other quantities from discrete and continuous probability distributions.
- 3.Identify and apply appropriate statistical inference methods for decision making.
- 4.Compute, display, and interpret numerical and graphical summaries, probabilities and various statistical inference procedures using one or more statistical software package(s).
- 5.Apply data visualisation skills and/or statistical knowledge in a chosen applied field of study.

### **Class requirements**

Timetabled hours per week (6 hours)

- One 2-hour lecture per week
- One 2-hour tutorial per week
- One 2-hour lab per week

### **Assessments**

| <b>Assessment piece</b> | <b>Weighting</b> | <b>Subject Learning Outcomes</b> |
|-------------------------|------------------|----------------------------------|
| Six online quizzes      | 30%              | 1-4                              |
| Three assignments       | 45%              | 3,4,5                            |
| Final assessment        | 25%              | 1-4                              |

# BBUS1IEI Economic Issues & Public Policy

Economics is the study of human behaviour and in particular the choices that individuals, businesses, and governments make to deal with scarcity and the incentives that guide those choices. In Investigating Economic Issues, you will learn how the forces of demand and supply coordinate the behaviour of individuals and businesses in the market and how government policy affects those market outcomes. You will study the decisions that businesses make in determining how much to produce and at what cost. Further you will investigate how the market structure affects firms' choices. At the macro level, you will explain how to measure economic activity, including levels of inflation and unemployment, and you will examine some of the factors that influence these variables and the impact they have on business.

## Subject Learning Outcomes

1. Represent and explain fundamental economics concepts using text, diagrams, equations and other media.
2. Explain how prices are determined and predict the effects of changes in market conditions on prices and quantities of goods and services.
3. Distinguish between market structures and their impacts.
4. Describe macroeconomic concepts and the measurement of key economic indicators.
5. Critically analyse in writing the potential impact on business of external impacts such as government policy, using a range of scholarly and news media sources.

## Class requirements

Timetabled hours per week (4 hours)

- One 2-hour lecture per week
- One 2-hour tutorial per week

## Assessments

| Assessment piece   | Weighting | Subject Learning Outcomes |
|--------------------|-----------|---------------------------|
| In class exercises | 20%       | 1-5                       |
| Mid semester test  | 10%       | 1-5                       |
| Assignment         | 20%       | 1, 4, 5                   |
| Final Examination  | 50%       | 1-5                       |

## BBUS1SBY Sustainability

This subject introduces you to the concept of sustainability, and a systems approach to understanding the complex interactions between the environmental, economic, and social dimensions of sustainability. The subject attracts students from a range of fields, bringing a multidisciplinary team perspective to the researching, analysis, and problem-solving aspects of creating positive change for sustainability. In teams, you are required to critique, design, and present an action plan aimed at resolving a sustainability issue that impacts current and future generations. This subject provides you with the opportunity to enhance, demonstrate and document work-ready skills appropriate to your chosen career path.

### Subject Learning Outcomes

1. Identify the interplay between the social, environmental and economic pillars of sustainability, and the implications for ethically complex decision-making.
2. Evaluate innovative, systems-based solutions through the application of disciplinary knowledge and skills to researching, analysing and resolving sustainability challenges.
3. Apply the theory and frameworks developed in the subject to analyse and appraise a specific sustainability-related issue.
4. Demonstrate an ability to engage effectively in diverse teams to complete complex team tasks or structured projects in culturally diverse educational settings.

### Class requirements

Timetabled hours per week (4 hours)

- One 2-hour lecture per week
- One 2-hour tutorial per week

### Assessments

| Assessment piece                   | Weighting | Subject Learning Outcomes | Course Learning Outcome |
|------------------------------------|-----------|---------------------------|-------------------------|
| Group Assignment                   | 30%       | 1-4                       | 1,2,4,5                 |
| Individual Assessment (1500 words) | 40%       | 1-3                       | 1,2,4                   |
| Online & In Class Activities       | 30%       | 1-2                       | 1,2,4                   |

# BMGT1OBE Organisational Behaviour

Organisational Behaviour will introduce individual characteristics, interpersonal relationships, and group processes, as they relate to individual behaviour and outcomes in organisations. Organisational behaviour theory and concepts will be applied to current organisational problems relating to motivation, decision-making, teamwork, leadership, and diversity. In the workshops students will develop the capabilities to work effectively in teams and lead teams to achieve their goals.

## Subject Learning Outcomes

1. Review your own interpersonal skills and self-diagnose strategies where improvement is desired.
2. Lead a multicultural team in defining and committing to the goals, roles and norms via which it can successfully achieve its objectives.
3. Manage conflict resolution within a team through negotiation and mediation.
4. Explain the forces that affect behaviour in organisations with reference to the theory of organisational behaviour.
5. Analyse and resolve contemporary organisational challenges through the application of the theory of organisational behaviour.

## Class requirements

Timetabled hours per week (4 hours)

- One 2-hour lecture per week
- One 2-hour tutorial per week

## Assessments

| Assessment piece      | Weighting | Subject Learning Outcomes | Course Learning Outcome |
|-----------------------|-----------|---------------------------|-------------------------|
| In Class Quizzes (10) | 20%       | 1, 2, 4                   | 1, 2, 4, 5              |
| Individual Assignment | 20%       | 1 & 3                     | 1, 2, 4                 |
| Group Assignment      | 20%       | 2, 3, 4                   | 1, 2, 4, 5              |
| Individual Assignment | 40%       | 3 & 4                     | 1, 2, 4                 |

## 9. Rules for Program Completion

Students need to successfully complete 120 credit points comprising 5 core and 3 elective units.

## 10. Program articulations

Graduates of this program can articulate with credit for all of the 8 units into Bachelor of Information Technology and Bachelor of Cybersecurity at La Trobe University.

Students must successfully pass all subjects with an average score of 50 in their diploma course in order to be accepted into the Bachelor of Information Technology. Students must successfully pass all subjects with an average score of 60 in their diploma course in order to be accepted into the Bachelor of Cybersecurity.

## 11. Facilities and Resources

| Type of facilities and resources required | Explanation  |
|---|--|
| Teaching rooms                            | <p>There is one lecture theatre (capacity 90) and three computer labs capacity 25. The college has seminar style classrooms that are designed as team-work hubs. Each room has audio visual equipment including, data projectors with multiple screens wireless microphones, visualisers, high speed Wi-Fi and desk-based power points.</p> <p><b>Seminar rooms:</b><br/>5 capacity 50<br/>7 capacity 40<br/>3 capacity 30<br/>21 capacity 20</p>              |
| Computer Laboratory                       | <p>Students have access to three dedicated computer laboratories and access to a shared computer hub. All are equipped to a standard equivalent to those provided at the partner University. This includes wireless computer access, printers and scanners. All computers contain a range of specialist software and the MS Office Suite. All hardware is replaced on a three-year cycle.</p> <p><b>Computer labs:</b><br/>2 capacity 20<br/>2 capacity 30</p> |
| Library                                   | <p>Students have access to the LTU library which supports ELICOS and pathways programs. The library facilities include a specific lending collection aligned to programs offered, student computers, quiet study areas, access to online resources and library staff for research assistance and direction.</p>  |



| Type of facilities and resources required | Explanation  |
|---|--|
| Learning Management System                | <p>The Learning Management system (Moodle) contains all subject information for students including subject outline, assessments, tutorial activities, and collaborative learning activities. LTCA delivers all subjects using the face to face delivery mechanism, onsite for all students onshore on a student visa. For Domestic students, a blended learning model and approach is available stemming out of the transformation to online learning starting January 2020 due to the pandemic. A number of online learning tools have been added. These include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• Virtual classrooms</li> <li>• Synchronous and Asynchronous sessions</li> <li>• Interactive whiteboards</li> <li>• Discussion forums</li> <li>• Podcasts and screencasts</li> <li>• Embeddable external platforms (Kahoot, Socrative, Quizlet, H5P etc.)</li> </ul> |

## 12. Measurement of student outcomes

### (a) Grading Scale

The Grading Scale is included in every course outline. The assessment grade is a measure of the extent to which the desired learning outcomes have been achieved in the units of the program. Grades the students achieve are descriptive rather than numeric and are officially defined as:

| Grade | Percentage Range |
|-------|------------------|
| A     | 80 - 100         |
| B     | 70 - 79          |
| C     | 60 – 69          |
| D     | 50 - 59          |
| N     | 0 - 49           |

## 13. Articulation options

This diploma will provide students with the basic skills to enter the information technology and cybersecurity industries in an entry level position. With this Diploma students are eligible for entry to the second year of the Bachelor of Information Technology and Bachelor of Cybersecurity. Upon completion of the degree students are ready to register with professional bodies such as: Australian Computer Society (ACS).