Diploma of Information Technology (LDIT)

Course Outline

Version: 1

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Diploma of Information Technology (LDIT)

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: Bachelor of Information Technology 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.

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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	TCSE1PE	Programming Environment	Core	15
2	TCSE2NEF	Network Engineering Fundamentals	Core	15
1 or 2	BBUS1001	Data Analytics Concepts	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

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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 (Diploma)	LTM1AIM Academic Integrity Module Compulsory online module that must be completed in the first trimester.			
	First Trimester	**SSTA1DCT** Data Based Critical Thinking	**TCSE1ICB** Introduction to Cybersecurity	**ELECTIVE**
	Second Trimester	**TCSE1IIT** Inside Information Technology	**TCSE2NEF** Network Engineering Fundamentals	**ELECTIVE**
	Third Trimester	**TCSE1PE** Programming Environment	**ELECTIVE**	

Recommended study plan to complete your diploma in two trimesters:

Year 1 (Diploma)	LTM1AIM Academic Integrity Module Compulsory online module that must be completed in the first trimester.				
	First Trimester	**SSTA1DCT** Data Based Critical Thinking	**TCSE1ICB** Introduction to Cybersecurity	**TCSE1IIT** Inside Information Technology	**ELECTIVE**
	Second Trimester	**TCSE2NEF** Network Engineering Fundamentals	**TCSE1PE** Programming Environment	**ELECTIVE**	**ELECTIVE**

Recommended electives for IT diploma:

BBUS1001 – Data Analytics Concepts	BBUS1SBY – Sustainability
BBUS1IEI - Investigating Economic Issues	BMGT1OBE - Organisational Behaviour

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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
Introductory Quiz	3%	
4 Tests	21%	1-6
Assignment	6%	5, 6
Numeracy Quizzes	10%	6
Examination	60%	1-4, 6

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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

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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

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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
Online Tests	30%	1-5
Lab Exam	20%	6
Final Examinations	50%	1-5

TCSE1PE Programming Environment

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

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Suggested Electives

BBUS1001 Data Analytics Concepts

Any modern business today will utilise some form of spreadsheet tool to review, manipulate and visualise data (in the form of charts for reporting). A spreadsheet tool also enables one to undertake advanced tasks on business data, such as performing scenario analyses and undertaking complex data analytics, for example creating a forecasting model. In this subject, you will learn how to use two technological tools to undertake data analysis. The first tool is Structure Query Language (SQL), which we will use to pull relevant data into Excel and facilitate further analysis. Next, various advanced Excel analyses including pivot tables, statistical analysis, and creation of basic forecasting models will be covered. Upon successful completion of this subject, you will be proficient in basic data analysis using Excel and SQL, setting you up to become an analytical and data driven problem solver. With these skills, you will also be ready to identify insights allowing you to disrupt typical business operations systematically and with a higher chance of success.

Subject Learning Outcomes

1. Use SQL proficiently to retrieve data from a database.
2. Apply common statistical functions and hypothesis testing techniques to business data.
3. Solve forecasting problems through the model building using a spreadsheet tool.
4. Explain data trends using appropriate data visualisations created from a spreadsheet tool.
5. Use a spreadsheet tool to solve complex business problems using data analytics.

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
Weekly Tutorial/Exercises	4%	1-5
Test 1- Online Quiz (Early Assessment)	4%	2
Assignment 1	22%	2,3,4
Assignment 2	20%	2,3,4,5
Final Examination	50%	1-5

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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

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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

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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

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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	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. **Seminar rooms:** 5 capacity 50 7 capacity 40 3 capacity 30 21 capacity 20
Computer Laboratory	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. **Computer labs:** 2 capacity 20 2 capacity 30
Library	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.

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Type of facilities and resources required	Explanation
Learning Management System	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: • Virtual classrooms • Synchronous and Asynchronous sessions • Interactive whiteboards • Discussion forums • Podcasts and screencasts • Embeddable external platforms (Kahoot, Socrative, Quizlet, H5P etc.)

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).