

Discrete Mathematics ICT101 Assessment 3 (50%)

Instructions

Assessment Type: Individual Assignment

Purpose of the assessment: To develop a plan for a real-world example of an application in information technology from the **one of the topics given below**. This assessment contributes to the various learning outcomes of your Bachelor of IT degree.

Assessment Task: In the initial part of assignment, the student will be tested on their skills on writing literature review of a topic student have learnt in the Discrete Mathematics (ICT101) course in the week 1 to 6. Students need to read at least 3 articles or books on this topic especially **with application to Information Technology** and give detail review of those. Student will also identify one application of information Technology related to the topic in which he/she is interested and write a complete account of that interest.

Student can use the following database to find article or books.

- o EBSCO Databases
- o Emerald Insight
- o IBISWorld
- o IGI Global
- o ProQuest eBooks
- o O'Reilly Learning

Student will be exploring and analysis the application of information technology related to the topic which are identified by him/her, and he/she must recognise an application that can be programmed into computer. Each group must sketch a plane to draw a flow-chart and algorithm. Use some inputs to test the algorithm (Give different trace table for each input) and identify any problem in the algorithm. Suggest a plane to rectify or explain why it can't be rectified. Each student must write one report on its findings.

Student can choose one from the following Topic. However, after deciding on the topic to work on, consult with your tutor.

The topic student group can choose from are:

- **Number system used in Computing**
- **Logic in computing**
- **Inverse Function in Computing**
- **Induction Proof and its computing application**
- **16-bit representation**
- **Cryptography**

The written report must have the following sections:

1. Introduction
2. Proper reference of at least three articles or books
3. Write detail review of those articles or books related to the topic student chooses
4. Identify one application in Information Technology in which student is interested.
Write a complete account of that interest
5. Description of why students choose this application
6. Give a complete plane to implement the application into a computer program with use of flow-chart
7. Write an appropriate algorithm
8. Use at least two inputs to test the algorithm. Group need to give a trace table for each input.
9. Conclusion
10. Short statement about contributions/Reflections from each group member
11. References

Deadline to submit written report: On or before Sunday 18th May 2024, 11.59pm via Moodle.

The report must be:

1. Word or pdf document (3 to 4 pages long)
2. Size: A4
3. Use Assignment Cover Page (download from Moodle) with your details and signature
4. Single space
5. Font: Calibri, 11pt

Deduction, Late Submission and Extension

Late submission penalty: - 5% of the total available marks per calendar day unless an extension is approved. For extension application procedure, please refer to Section 3.3 of the Subject Outline.

Plagiarism

Please read Section 3.4 Plagiarism and Referencing, from the Subject Outline. Below is part of the statement:

“Students plagiarising run the risk of severe penalties ranging from a reduction through to 0 marks for a first offence for a single assessment task, to exclusion from KOI in the most serious repeat cases.

Exclusion has serious visa implications.”

“Authorship is also an issue under Plagiarism – KOI expects students to submit their own original work in both assessment and exams, or the original work of their group in the case of a group project. All students agree to a statement of authorship when submitting assessments online via Moodle, stating that the work submitted is their own original work. The following are examples of academic misconduct and can attract severe penalties:

- ***Handing in work created by someone else (without acknowledgement), whether copied from another student, written by someone else, or from any published or electronic source, is fraud, and falls under the general Plagiarism guidelines.***
- ***Students who willingly allow another student to copy their work in any assessment may be considered to assisting in copying/cheating, and similar penalties may be applied. ”***
- ***Any form of AI usage such as ChatGPT in your assessment is considered as plagiarism.***

Marking Rubric for Assessment N. 03 (Individual Assignment) ; Value 50%

Criteria	Fail (0 – 49%)	Pass (50 – 64%)	Credit (65 – 74%)	Distinction (75 – 84%)	High Distinction (85 – 100%)
Understanding of the Topic 4 marks	Inaccurate mathematical description of the Topic	Basic mathematical description of the Topic	Accurate mathematical description of the Topic	Accurate mathematical description of the Topic and some connections with Information Technology	Polished mathematical description of the Topic and references to Information Technology



Evidence of depth of research with reference 6 marks	Little or no relevant reading and references	Some relevant reading and references	Some relevant reading and references with explanations of connections to the Topic	Relevant reading and references and clear connections illuminating the Topic	Relevant reading and references and polished connections illuminating the Topic
Identifying an application of Information Technology relevant to the topic 2 mark	Little or no connection between the topic and the application	Basic connection between the topic and the application	Accurate application of the topic to the information technology	Accurate and comprehensive application of the topic to the information technology	Detail and complete account of application of the topic to the information technology
Understanding of the Information technology application(s) 6 marks	Inaccurate description of application of information Technology	Basic description of application of information Technology	Accurate description of application of information Technology	Accurate description of application of information Technology and some connections with relevant topics	Polished description of application of information Technology and references to relevant theories
Detail description of the choice of the application 7 marks	Little or no evidence is given for the choice and omit.	Basic evidence is given for the choice.	Accurate evidence is given for the choice.	Accurate evidence is given for the choice and omit with relevant analysis	Accurate evidence is given for the choice and omit with relevant analysis and complete detail



Design a plane for computer implementation 7 marks	Plane is not designed in a proper manner	Plane is designed in a proper manner and no flow-chart is given	Plane is designed in a proper manner and flow-chart is also given	Accurate and comprehensive plane is given with a correct flow-chart	Appropriate plane with correct flow-chart and complete detail is given.
Writing an algorithm 7 marks	Inaccurate algorithm or algorithm is given in an inappropriate manner	Correct algorithm but written in an inappropriate manner	Correct algorithm which is written in an appropriate manner	Correct algorithm which is written in an inappropriate manner with little discussion	Correct algorithm which is written in an inappropriate manner with complete discussion
Conclusions 7 marks	Little or no evidence of accuracy of the algorithm	Basic evidence of accuracy of the algorithm	Accurate evidence of accuracy of the algorithm	Accurate evidence of accuracy of the algorithm	Complete analysis and justification of accuracy of the algorithm
Presentation 1 mark	Poorly organised report with unclear structure	Well organised report but with some errors	Clearly organised report with few errors	Clearly organised report and good use of tables and graphs	Polished report and creative use of tables and graphs
Presentation 5 marks	Poor quality of slides or poor performance of presentation	Well prepared presentation but some error	Well prepared presentation but one or two error	Well prepared presentation without an error and explain everything correctly	Well prepared presentation without an error and explain everything explicitly with quality.

Total Mark: / 25 25%	COMMENTS:
------------------------------------	------------------

