

ASSIGNMENT BRIEF

HTU Course No: 40303122
BTEC UNIT No: F/618/7429/ Unit 18

HTU Course Name: Discrete Maths
BTEC UNIT Name: Discrete Maths

Assignment Brief Number: 1

Version 1



Assignment Brief

Student Name/ID Number/Section	
BTEC Unit Number and Title	F/618/7429/ Unit 18 : Discrete Maths
HTU Course Number and Title	40303121: Discrete Maths
Academic Year	Fall 2022/2023
Assignment Author	Dr. Aladeen Al Basheer & Dr. Rola Musleh & Ms.Bayan shabanh
Course Tutor	Dr. Aladeen Al Basheer & Dr. Rola Musleh & Ms.Bayan shabanh
Assignment Title	CoreDesign
Assignment Ref No	Assignment 1- take-home part
Issue Date	May 25, 2023
Formative Assessment dates	From 12.03.2023 to 01.06.2023
Submission Date	January 29, 2023
IV Name & Date	Dr. Nayef Abuageel, May 25, 2023

Submission Format
<p>· The submission of the assignment should be:</p> <p>For part 1:</p> <p>Softcopy of your solutions for the questions provided submitted on https://www.elearning.htu.edu.jo</p> <p>· The softcopy submission for part 1 should:</p> <ul style="list-style-type: none"> - be written in a concise, formal business style using single spacing and font size 12. - make use of headings, paragraphs, and subsections as appropriate. - be referenced using the Harvard referencing system as needed. Provide a bibliography using the Harvard referencing system. - Be word processed document, no handwriting will be accepted. <p>For part 2:</p> <ul style="list-style-type: none"> o Online time-constrained, closed book, closed notes assignment. <p>. You must complete both parts and submit them according to the following guidelines:</p> <p>Take-home activities</p> <p>You are required to provide complete answers to all tasks. Use tables or diagrams to support your answers when necessary.</p> <p>Answers need to be provided following clear and coherent steps, using the correct formulas and equations. Final answers without detailed steps are not accepted.</p> <p>If a schematic, diagram, or photo is copied, the source must be referenced properly. Quotations are not allowed by any means. Only re-wording with proper referencing is accepted.</p> <p>This is a strictly individual assignment and no collaboration amongst students is allowed, where working with your colleagues is not teamwork, it is plagiarism. Also, if there was any suspicion then a selective oral will be done.</p> <p>The student declaration form attached to this assignment brief must be signed and sent with your work</p>

(use electronic signature).

You are required to upload your submission files (source files and MS word file (converted to PDF)) to the university's eLearning system through (<https://elearning.htu.edu.jo/>) within the submission date and time stated above. NO SUBMISSION by EMAIL and NO LATE SUBMISSIONS WILL BE ACCEPTED.

The in-class part will be held on June 19, 2023

Unit Learning Outcomes

LO2 Analyse mathematical structures of objects using graph theory

LO4 Explore applicable concepts within abstract algebra.

Assignment Brief and Guidance

Since 2021, you have been working as a junior software engineer for Core Design, a leading corporation that develops technical solutions for industrial applications. After spending a few months learning the technology used at Core Design, you were invited to perform work involving the development of solutions for problems in subject matter fields related to computing. To enable a team of computer engineers to design new technical solutions, your supervisor assigned you the role of solving the following questions.

Part 1:

Task 1:

Construct a proof of the Five Color Theorem

Task 2:

Prepare a power point presentation that explores an application of group theory in computer sciences. Provide 10-15 slides, you will not be penalized if you go beyond slide limit.

Part 2:

will be an on-campus examination on Monday, June 19, 2022 at 11:00 AM-1:00 PM.

Pass	Merit	Distinction
LO1 Examine set theory and functions applicable to software engineering		D1 Formulate corresponding proof principles to prove properties about defined sets.
P1 Perform algebraic set operations in a formulated mathematical problem. P2 Determine the cardinality of a given bag (multiset).	M1 Determine the inverse of a function using appropriate mathematical techniques.	
LO2 Analyse mathematical structures of objects using graph theory		D2 Construct a proof of the Five Color Theorem.
P3 Model contextualised problems using trees, both quantitatively and qualitatively. P4 Use Dijkstra's algorithm to find a shortest path spanning tree in a graph.	M2 Assess whether a Eulerian and Hamiltonian circuit exists in an undirected graph.	

Pass	Merit	Distinction
L03 Investigate solutions to problem situations using the application of Boolean algebra		D3 Design a complex system using logic gates.
<p>P5 Diagram a binary problem in the application of Boolean algebra.</p> <p>P6 Produce a truth table and its corresponding Boolean equation from an applicable scenario.</p>	M3 Simplify a Boolean equation using algebraic methods.	
L04 Explore applicable concepts within abstract algebra		D4 Explore, with the aid of a prepared presentation, the application of group theory relevant to your given example.
<p>P7 Describe the distinguishing characteristics of different binary operations that are performed on the same set.</p> <p>P8 Determine the order of a group and the order of a subgroup in given examples.</p>	M4 Validate whether a given set with a binary operation is indeed a group.	

STUDENT ASSESSMENT SUBMISSION AND DECLARATION

When submitting evidence for assessment, each student must sign a declaration confirming that the work is their own.

Student name:		Assessor name:	
Student ID:		Dr.Aladeen Al Basheer	
		Dr. Rola Musleh	
		Ms.Bayan shabanh	
Issue date:	Submission date:	Submitted on:	
May 25, 2023	June 19, 2023		
Program: Computing			
HTU Course Name: Discrete Maths		BTEC UNIT Title *: Discrete Maths	
HTU Course Code: 40303122		BTEC UNIT Code: F/618/7429/ Unit 18	
I AM REPEATING THIS UNIT*:		(YES) (NO)	

Plagiarism

Plagiarism is a particular form of cheating. Plagiarism must be avoided at all costs and students who break the rules, however innocently, may be penalised. It is your responsibility to ensure that you understand **correct referencing practices**. As a university level student, you are expected to use appropriate references throughout and keep carefully detailed notes of all your sources of materials for material you have used in your work, including any material downloaded from the Internet. Please consult the relevant unit lecturer or your course tutor if you need any further advice.

Student declaration

I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.

Student signature:

Date: