Assignment Brief: Comp3402 Nature of Computing 2022-23

Assignment 2 (Part2)	Position Paper 2 (Part 2)
Word Limit or equivalent (e.g. time)	No word limit. Indicative time 14 hours
Weighting	15%
Learning Outcomes Assessed	(5) Critically reflect on the design of digital and analogue computers
Submission date	13th February 2023 15:00
Feedback date	20 days following the respective submission date
Module Leader	Dr. Colin Price c.price@worc.ac.uk
Verified by	Dr. Marc Price

If anything about this assignment is not clear to you, please contact your module leader.

What do I need to do to make a success of this assignment?	You should write a position paper stating your position on the following statement **"There are clear design principles for both analogue and digital computers"** You draw on your worksheet material and focus on explaining how both digital and analogue computers are designed, supported by material not seen in class.

How should I present my work?

Your paper should contain three sections: (1) A short **introduction / abstract** where you tell the reader what to expect reading your paper, (2) The **main body** of your paper, (3) A conclusion where you **state your position**.

The main body of your paper should contain two sections. The first section is based on synthesis of digital computer components using VHDL, **or** synthesis of a simulated analogue computer using e.g., Octave. The second section records either your advanced work **or** your 'research' approach. The latter must include citations of journal articles.

Section 1	Section 2	
	Option 1	**Option 2**
You will investigate some digital building blocks for CPUs such as the full adder, using VHDL. **OR** You will investigate the design of an analogue computer to solve a straightforward problem, e.g., car suspension.	You will apply your understanding of VHDL to a challenging problem, such as the synthesis of an entire CPU. **OR** You will apply your understanding of analogue computers to a challenging control problem, such as the Segway	Review the literature related to digital CPU architectures and provide a critical comparison. **OR** Present a historical development of analogue computer applications.

How can I obtain guidance on my assignment?	You can show your tutor your work in progress at any time no later than one week before the submission deadline to enable you to review and address feedback provided to develop your work. The assignment briefing will be given on 16th January 2023. You may ask for any additional support or guidance in class or via email c.price@worc.ac.uk

How and when do I hand my assignment in?	Your work must be word-processed/typed and should clearly show your student number. You should submit your work by the 3pm deadlines indicated above. You should submit your work to Blackboard which is available via MyDay. **You are required to keep a copy of work handed in**. See the separate **Assignment Support Information** document on Blackboard for help on how to submit or what to do if you are having trouble submitting your assignment.

How will my assignment be marked?	Specific marking criteria for your assignment is provided in the Grading Matrix within this document. You are strongly advised to check your completed work against the Grading Matrix to ensure have completed all areas required before you submit it. You should also ensure you adhere to the word limit / word count stated in your assessment brief document, details of which can be found in the University's Assessment Policy http://www.worc.ac.uk/aqu/documents/AssessmentPolicy.pdf

L6 Grading Matrix for Comp3402 Position Paper 2 (Part 2)

This matrix captures the assessment criteria for this part of the coursework.

Student Number/Name:	**Academic Year and Semester:** *2022-23 AS*	*(5) Critically reflect on the design of digital and analogue computers*
Module Code / Title: *Comp3402 Nature of Computing*	**Assignment No/Weighting:** *Ass 2 (part 2). Weighting 15%*	
	Assessment Title: *Position Paper 2 (Part 2)*	

To best understand this matrix, start by reading the 'baseline' grade C

	Knowledge and understanding	**Autonomy in Learning**		**Communication**
		Option 1	**Option 2**	
	Investigation of Digital Building Blocks OR analogue computer design	**Application of VHDL OR analogue computer design to a challenging problem**	**Critical comparison of digital CPU architectures OR Historical development of analogue computer applications**	**Well-written Paper**
	60	**30**		**10**
A	Explanation of the synthesis of both a combinatorial and sequential block **OR** a non-linear analogue computer problem	Solution is explained in detail **WITH** critical analysis.	Detailed material **ABD** critical evaluation.	Position is coherent and persuasive.
B	Detailed explanation of the synthesis of a single digital block **OR** a linear analogue computer problem.	Solution is explained in detail.	Material is detailed	Position is coherent.
C	Synthesis and explanation of either a single digital block e.g., full adder **OR** an analogue computer solution to a linear problem.	Correct solution is presented and explained.	Material presented has been carefully selected,	Statement of position in clear language.
D	Synthesis may contain un-corrected errors. Explanation lacking in depth.	Solution may contain errors. Explanation lacking in depth.	Some material presented though is not particularly relevant	Statement of position is too short or unclear.
F	Little or no attempt at synthesis or completely erroneous synthesis.	Little or no attempt at presenting a solution.	Little or no attempt to present material.	Little or no statement of position.

My approach to supporting and assessing SPaG on this assignment will appear on the Module Webpage and will be explained during the introductory session 19th September 2022.

Feedback on your assignment.

Please review this feedback and use it to develop your work in your next assignment in this and your other modules. If anything is unclear, please ask the marker.

Aspects done well and why:			
Aspects for improvement and why:			
How successful completion of this assignment helps your employability and achievement of graduate attributes:			
See module outline for details of: (i) Reflective and resilient lifelong learning, (ii) Problem solving, (iii) Teamwork and effective communication, (iv) Digital citizenship.			
Grade awarded:		**Marker: Colin Price**	**Moderator*: Marc Price**

** This person is responsible for moderating a sample of student work for this module. Your work may, or may not, have been included in this sample.*

□ I do not want my work to be used anonymously to help future students

RESULTS ARE PROVISIONAL UNTIL AGREED BY THE BOARD OF EXAMINERS