L6 Assignment Brief: Comp3402 Nature of Computing 2020-21

Assignment 3 (Part 1)	Position Paper 3 (Part 1)
Word Limit or equivalent (e.g. time)	No word limit. Indicative time 14 hours
Weighting	1 / 6 of total module marks
Learning Outcomes Assessed	5. Critically reflect on the design of digital and analogue computers.
Submission date	'Early-Bird' 21st March 2022 'Official' 25th April 2022
Feedback date	One week following submission
Module Leader	Dr Colin Price c.price@worc.ac.uk
Verified by	Dr Pete Moody

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

How can I obtain guidance on my assignment?	You can submit an assessment plan of your work in progress or a short piece of text (no longer than two sides of A4, incorporating images, diagrams, tables) to enable you to obtain guidance on the overall structure and direction of your assignment. You should submit this no later than one week before the submission deadline to enable you to review and address feedback provided to develop your work. This will be in a Blackbeard drop-box, alternatively you may choose to demonstrate your work in class. You will receive an assignment briefing during the session w/c 14th February 2022.

How and when do I hand my assignment in?	Your work must be word-processed/typed and should clearly show your student number. There are two possible submission dates. The 'official' date as required by the Module Specification is 25th April 2022. All students must submit their Position Paper 3 (both Parts 1 & 2) by this date. However, I run an 'early-bird' submission date allowing you to submit each part separately. So, for Paper 3, Part 1 (this assignment) you could choose to submit on the 21st March 2022. You should submit your work by the 3pm deadline on your chosen date. You should submit your work to the Blackboard drop-box which is available via MyDay. **You are required to keep a copy of work handed in**. See the University's guide to uploading and submitting assessment items via Blackboard: https://help.blackboard.com/Learn/Student If you have issues with Blackboard, Turnitin or PebblePad you will need to contact tel@worc.ac.uk

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. **Please consult the document on the module website which provides a glossary of terms used in this assignment and the grading matrix.** 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	

Student Number/Name:	Academic Year and Semester: *2021-22 AS*	Learning Outcomes: 5. Critically reflect on the design of digital and analogue computers.
Module Code / Title: *Comp3402* *Nature of Computing*	Assignment No/Weighting: *Ass 3 (par 1t). Weighting 1/6*	
	Assessment Title: *Position Paper 3 (Part 1)*	

The sections "What do I need to do to make a success of this assignment", "How should I present my work" and the grading matrix are presented separately below for each mini-project option. Please read the sheet appropriate for your chosen project.

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

What do I need to do to make a success of this assignment?	**WeeBee Engine (Story-Writing-Coding)**
	You need to code a short story. You could either take a story you know and use the engine to realize this. Or else you could play with the code and let a story emerge. Or you could take another approach! Perhaps you will have a clear target audience in mind (primary school children, adult readers).

How should I present my work?	**WeeBee Engine (Story-Writing-Coding)**
	Please do not give me a huge number of pages. It's *quality* that counts here, not quantity A good way of organizing your paper would be in the following sections - Introduction, perhaps one page. Tell me how you created your story and perhaps source of inspiration, or what message your story was intended to communicate - A short synopsis of your story plot or structure, perhaps two pages. - An example of how you used code to create a part of your story. For example, you could *map* some lines of code onto your story clauses. Perhaps one or two pages. - Your code as an appendix. You could indicate which lines of code are related to which story parts. In addition, you should give me - Zipped code and any new assets you introduced - Your learning conversation (possible approaches will be discussed in class)

WeeBee Engine Story-Writing-Coding			
	Investigation (80%)		**Learning Conversation (20%)**
Grade	**Creativity - Story**	**Creativity - Code**	
A	Story Quality shows many elements of the guidance rubric, **AND/OR** show a high degree of novelty, inspiration or creativity.	Code snippets clearly linked to the story presented with **DETAILED** commentary or explanation	The conversation shows shared thinking **AND** exploratory talk
B		Code snippets linked to the story presented with commentary or explanation	The conversation shows shared thinking **OR** exploratory talk
C	Recognizable story with beginning, middle and end	Code snippet supports story provided	A Learning Conversation is presented
D	Story may lack clear beginning-middle-end structure	Attempt to relate code to story.	Attempt to present a conversation
Fails	Little or no story presented	Little or no attempt to relate code to story	Little or no attempt.

What do I need to do to make a success of this assignment?	**WeeBee Engine (Turtle Graphics)** You need to code some turtle graphics activities and suggest how they could be used as instructional material for primary school children. The activities need to show some progression, i.e., the activities build on previous ones.

How should I present my work?	**WeeBee Engine (Turtle Graphics)**
	
	Please do not give me a huge number of pages. It's *quality* that counts here, not quantity
	
	A good way of organizing your paper would be in the following sections
	
	• Abstract, perhaps half a page. Tell me what to expect when reading your paper.
	• The body of your report could either
	    o be a ***journal*** of your activities as they developed, containing code snippets and images of what the turtles achieved.
	    o be **a set of learning activities**, showing learning progression and containing code snippets and images of what the turtles achieved.
	• Conclude with either
	    o a suggestion of how your work could be used by primary teachers
	    o a personal reflexion on the success of your mini-project
	
	In addition, you should give me
	
	• Zipped code and any new assets you introduced
	• Your learning conversation (possible approaches will be discussed in class)

WeeBee Engine Turtle Graphics			
	Investigation (80%)		**Learning Conversation (20%)**
Grade	**Coding**	**Creativity**	
A	Code is coherently structured at all stages of progression	Turtle activities show a coherent progression of learning objectives suitable for classroom deployment	The conversation shows shared thinking **AND** exploratory talk
B	Code is well structured at all stages of progression	Turtle activities show progression of learning objectives	The conversation shows shared thinking **OR** exploratory talk
C	Correct code for activities presented	Turtle activities created to achieve some learning objectives	A Learning Conversation is presented
D	Some code working	Turtle activities presented but no relationship to learning	Attempt to present a conversation
Fails	Non-functional code	Little or no attempt to produce activities	Little or no attempt.

What do I need to do to make a success of this assignment?	**Monster Truck, Skymaster or Hexapod Investigation** You need to plan and conduct a range of investigations on your chosen model. Data collected will be subject to analysis, and conclusions drawn.

How should I present my work?	**Monster Truck, Skymaster or Hexapod Investigation** Please do not give me a huge number of pages. It's *quality* that counts here, not quantity A good way of organizing your paper would be in the following sections - Abstract, perhaps a page. Tell me what investigations you carried out and any major findings or conclusions you made. - The body of your report should have a short section for each investigation. In each section outline - Tell me what parameter you varied and what data you collected - Tables of data and graphs of how variables changed with time - A graph summarizing each investigation with a statement of your findings or conclusions - A short concluding paragraph. In addition, you should give me - Your learning conversation (possible approaches will be discussed in class)

	Monster SkyMaster Hexapod		
	Investigation (80%)		**Learning Conversation (20%**
Grade	**Planning**	**Data Collection, Analysis and Conclusions**	
A	Plan adapts critically following results of data collection and analysis	Data collection and analysis is comprehensive **AND** conclusions used to inform the planning.	The conversation shows shared thinking **AND** exploratory talk
B	Plan adapts following results of data collection and analysis	Data collection and analysis is comprehensive **AND** individual conclusions presented	The conversation shows shared thinking **OR** exploratory talk
C	Evidence of an initial plan. May have come out of a learning conversation	Data collected and analysed. Conclusion presented.	A Learning Conversation is presented
D	Attempt at planning.	Data collected. Attempt at a conclusion.	Attempt to present a conversation
Fails	Little or no attempt at planning	Little or no data collected. No conclusion	Little or no attempt.

What do I need to do to make a success of this assignment?	**Harry the Stepper motor Robot** You need to work out how to get Harry navigate a maze of straight lines connected by junctions (left-turn, right-turn, tee-junction and cross-roads). Then you need to set yourselves a challenge, based on a 'maze' of straight lines and junctions, and attempt to solve it.

How should I present my work?	**Harry the Stepper motor Robot**
	
	Please do not give me a huge number of pages. It's *quality* that counts here, not quantity
	
	A good way of organizing your paper would be in the following sections
	
	• Abstract, no more than a page. Tell me what to expect when reading your paper, perhaps your main achievements.
	• A short section, including code snippets, photos etc., where you explain how you got the robot to do **some** (not necessarily all) of the following:
	    ○ Moving accurately in a straight line of given distance
	    ○ Moving accurately along an arc
	    ○ Following a line
	    ○ Recognizing junctions
	• The main section where you state your challenge and explain how you approached solving it. Please include code snippets, photos or anything else you want. Include discussion of failures as well as success, and problems solved
	• A short conclusion.
	
	In addition, you should give me
	
	• Your learning conversation (possible approaches will be discussed in class)

Harry the Stepper Motor Robot			
	Investigation (80%)		**Learning Conversation (20%)**
Grade	**Planning**	**Code and Experimentation**	
A	Plan adapts critically following results of data collection and analysis	Comprehensive discussion focussing on the final challenge, and how Harry's code succeeded (or did not) with clear explanations why.	The conversation shows shared thinking **AND** exploratory talk
B	Plan adapts following results of data collection and analysis	Comprehensive **OR** detailed explanation of how Harry's code meets several aspects of the planned investigation (not including the challenge)	The conversation shows shared thinking **OR** exploratory talk
C	Evidence of an initial plan. May have come out of a learning conversation	Explanation of how Harry meets two aspects of the planned investigation (not including the final problem or challenge), with reference to the code	A Learning Conversation is presented
D	Attempt at planning.	Attempt at discussing how Harry was coded	Attempt to present a conversation
Fails	Little or no attempt at planning	Little or no attempt	Little or no attempt.

What do I need to do to make a success of this assignment?	**UE4 Research** Conduct some investigations into how the Unreal 4 engine can be used in complex scenarios You may consider one or more of the following: • getting the **Particle System** to interact with the Wind Turbine, • getting the Wind Turbine system to work over a **network**. • investigating cameras and **Render Targets** to place an image on a mesh • how to deform a static mesh, e.g., to create a column which bends using **splineMeshes** • investigate fluids, to see what capabilities can be achieved such as realistic river flow • any other part of the engine you may know about

How should I present my work?	**UE4 Research** Please do not give me a huge number of pages. It's *quality* that counts here, not quantity. Blueprints are totally OK for this work. A good way of organizing your paper would be in the following sections • Abstract, no more than a page. Tell me what to expect when reading your paper, perhaps your main achievements. • The main body of your paper should contain either a **journal** where you record your activities in such a way that I can replicate your results or a **user manual** where you give me explicit instructions on how to replicate your findings. In addition, you should give me • Your learning conversation (possible approaches will be discussed in class)

	UE4 Research		
	Investigation (80%)		**Learning Conversation (20%)**
Grade	**Planning and Execution**	**Journal or User Manual**	
A	Each activity is clearly planned by the outcomes of previous activities.	Journal or User Manual allows reader to fully replicate the presented solution.	The conversation shows shared thinking **AND** exploratory talk
B	Activities informed by planning	Journal or User Manual provides strong guidance on how to replicate the solution presented	The conversation shows shared thinking **OR** exploratory talk
C	Record of planned activities	Journal or User Manual presented	A Learning Conversation is presented
D	Attempt at planning.	Attempt at producing documentation	Attempt to present a conversation
Fails	Little or no attempt at planning	Little or no evidence of documentation	Little or no attempt.

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:
Development for future assignments:
How successful completion of this assignment helps your employability and achievement of graduate attributes:

Grade awarded:		Marker:	Moderator*:

* 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