

Module Title: Software Design			
Module Code: CMP5354			
<b>Assessment Type</b> (delete as appropriate) Coursework	<b>Level</b> 5	<b>Weighting</b> 100%	<b>Word Count</b> N/A
<b>Submission Date</b> Details below	<b>Submission Time</b> Details below	<b>Module Leader</b> Dr. Sara Hassan	<b>Time Limit (for in person or oral assessments)</b> 10 minutes for D3

## Assessment Brief

Assessment Information								
Assessment Task (with genre/type)	D1 [Individual]: Quiz (25%), D2 [Group]: Coursework (40%), D3 [Group]: In-person Presentation (25%) D4 [Individual]: Final Year Project Choice Documentation (10%)							
Assessment Title	Software Project Design + Final Year Project Documentation							
Things to include:	<p>Deliverable 1 will test your understanding of software design concepts by applying them to questions about X problems given by X companies in the first week of the module. Deliverables 2, and 3 will involve working with your group to design and present a solution to a single problem of your choice out of the X problems mentioned above. Deliverable 4 will test your application of software design concepts to final year project inception.</p> <p><b>D1: Individual Moodle Quiz – w/c 16<sup>th</sup> Feb 2026 (25%):</b> Answer a timed multiple-choice Moodle quiz <u>that will be done in the lab sessions in-person (password protected) , open-book..</u></p> <p><b>D2: Group Coursework – 13<sup>th</sup> April 2026 (40%):</b> <u>One group member should submit a single <b>WORD/PDF</b> file with:</u></p> <table><tr><td>Functional Requirements (FRs)</td><td>A table containing IDs (FR1, FR2...) 2 to 3 FRs <b>NOT</b> listed in the quiz’s model answers, and up to 2 sub-FRs under each FR.</td></tr><tr><td>Non-functional Requirements (NFRs)</td><td>A table separate from the above containing IDs (NFR1, NFR2...) 2 to 3 NFRs <b>NOT</b> mentioned in the quiz’s model answers, and up to 2 sub-NFRs under each NFR.</td></tr><tr><td>Ethical (E) &amp; Legal (L) Issues</td><td>A table containing IDs (E1/L1...), a total of 3 ethical and legal issues (e.g. 1 ethical issue and 2 legal issues), and a justification next to each issue explaining why this issue is a</td></tr></table>		Functional Requirements (FRs)	A table containing IDs (FR1, FR2...) 2 to 3 FRs <b>NOT</b> listed in the quiz’s model answers, and up to 2 sub-FRs under each FR.	Non-functional Requirements (NFRs)	A table separate from the above containing IDs (NFR1, NFR2...) 2 to 3 NFRs <b>NOT</b> mentioned in the quiz’s model answers, and up to 2 sub-NFRs under each NFR.	Ethical (E) & Legal (L) Issues	A table containing IDs (E1/L1...), a total of 3 ethical and legal issues (e.g. 1 ethical issue and 2 legal issues), and a justification next to each issue explaining why this issue is a
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Ethical (E) & Legal (L) Issues	A table containing IDs (E1/L1...), a total of 3 ethical and legal issues (e.g. 1 ethical issue and 2 legal issues), and a justification next to each issue explaining why this issue is a							

		problem not how to solve the issue, the IDs of FRs and/or NFRs relevant to these issues. <b>These issues should be different from the correct answers of the quiz.</b>
	Risk (Ri) Assessment	A table containing IDs (Ri1, Ri2...) 3 risks covering at least 2 severity levels, 1 mitigation for each risk, and the IDs of FRs and/or NFRs relevant to these risks. <b>These risks should be different from the correct answers of the quiz.</b>
	Use Case Diagram (UCD)	A UCD covering your FRs <b>from the correct quiz answers + the ones you included in your FR table.</b>
	Use Case Specification (UCS)	A UCS for <b>any ONE</b> FR from the UCD. There is a UCS template under the relevant Resources section on Moodle.
	Class Diagram (CD)	A clear image of 1 CD covering all the classes, methods, variables, data types, associations of your solution.
	Sequence Diagram (SD)	A clear image of one SD <b>for the UCS you described.</b>
<p><b>D3: Group In-person Presentation – w/c 27<sup>th</sup> April 2026 (25%):</b> <u>One group member should submit a slide pitch-deck.</u> The group will pitch the software solution to the company beneficiaries. Sections to include in the pitch:</p>		
	Problem	What is the relevance and impact of the problem?
	Solution	Is the proposed solution creative, feasible, and will it address the problem?
	Value Proposition	What is the unique selling point of your solution <b>including design patterns you have used?</b>
	Market	Who is the target user for your solution?
	Traction	How will you attract target users to your solution?
	Competition	What existing solutions can solve the problem and why is yours unique?
	Cost and Revenue	What is the cost structure and revenue potential for your solution?
	[For higher marks] All of the above + Minimum Viable Product (MVP) Demo	What does an MVP of your solution look like?
	<p>The Group Pitch presentation will:</p> <ul style="list-style-type: none"> <li><b>strictly</b> be 10 minutes (or 13 if at least once group has a supporting statement allowance) to industrial judges likely representatives of the company.</li> </ul>	

	<ul style="list-style-type: none"> <li>Each group member <u>has to present</u> and is accountable for at least one section of the presentation.</li> <li>Top scoring teams based on the industrial judges' scoring may qualify for prizes from the industrial judges (to be confirmed).</li> </ul> <p><b>The Individual Video Pitch :</b></p> <ul style="list-style-type: none"> <li><b>For higher marks in D3, you should submit a 5-minute video pitch.</b></li> <li><b>This is an enhanced version of the group pitch including an MVP demonstration of at least one functional requirement of the solution.</b></li> <li><b>Cover all the sections of the pitch slide deck in addition to the demo.</b> Top scoring individuals on the video pitches will qualify to enter competition stages leading to project funding for their idea within Innovation Fest (details to be announced)</li> </ul> <p><b>D4: Individual Final Year Project Choice Documentation – 18th May 2025 at 3pm (10%):</b> Submit a filled in template for final year project choice following the information under the relevant Resources section on Moodle.</p>
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Completion of this assessment will address the following learning outcomes:	
1	Analyse, model and document the requirements of a system in an appropriate format to derive a clear understanding of the problem.
2	Construct design models of software-based systems covering both their static and dynamic aspects, documenting in professional manner.
3	Synthesise software implementations from software designs.
4	Explain the software engineering notion of design patterns and identify and apply relevant design patterns.

### **Use of Artificial Intelligence is PERMITTED:**

*For this assessment if you use generative Artificial Intelligence (AI) in the process of completing this assessment you MUST set out clearly the following:*

- *WHY you used generative AI*
- *WHAT it was used for*
- *WHICH AI was used; and*
- *If any generated content has been used directly in this submission, if so where.*

*Note that this declaration does NOT contribute towards the word count for the assessment.*

*You will also have to confirm in your declaration that the work remains yours and you have intellectual ownership of it. You may be invited for an informal conversation to discuss the approach to your assessment. A failure to disclose the use of AI, or the use of a misleading description of its use will be considered academic misconduct. As a result, keeping good records of your interactions is strongly advised.*

### [Student AI Guidelines](#)

### **Academic Misconduct**

Academic misconduct is conduct that has or may have the effect of providing you with an unfair advantage by relying on dishonest means to gain advantage and which therefore compromises your academic integrity.

The [Academic Misconduct Procedure](#) sets out the process we will follow, and the penalties we may apply, in cases where we believe you may have compromised your academic integrity by committing academic misconduct.

### **Late Submission**

Where you are required to submit assessment by a certain deadline (for example essays, case studies or physical artifacts) but you fail to meet the deadline, your mark will be reduced in accordance with the [Late Submissions Policy](#). This Policy does not apply where the assessment is 'in-person' such as exams and in-class tests.

For support on submission, please review the [Submitting Your Assignment](#) e-learning resource.

----- *FOR STAFF ONLY* -----

<b><i>Staff Use Only: Retained Work Record</i></b>	
Details of Retained Work:	D1 Quiz submissions + D2 Word/PDF + D3 slide deck
Location of Retained Work:	Moodle: <a href="https://moodle.bcu.ac.uk/course/view.php?id=98029">https://moodle.bcu.ac.uk/course/view.php?id=98029</a>
Type of Work Retained ( <i>tick all that apply</i> ):	Written + Moodle quiz submissions  Other:

## D2 [Group]: Coursework -- Table of Marking Criteria (40%)

Criterion	0-20% Fail	20-39% Fail	40-49%	50-59%	60-64%	65-69%	70-79%	80-100%
<b>Ethical (E) and Legal (L) Issues</b>  (5% of overall module mark)	No E/L issues have been submitted.	Hardly any relevant E/L issues have been identified	Only a few relevant E/L issues have been identified and justified.	An acceptable number of relevant E/L issues have been identified and reasonably justified.	Most relevant E/L issues have been identified but with limited justification.	Most relevant E/L issues have been identified with adequate justification.	Almost all relevant E/L issues have been identified and well justified.	All relevant E/L issues have been identified and well justified.
<b>Functional Requirements (FRs)</b>  (5% of overall module mark)	No functional requirements are submitted.	Incomplete statements are used for most of the functional requirements.	A partial set of functional requirements is provided which does not follow a requirements table structure (i.e. they do not include IDs).	The FRs provided follow a table structure including IDs. Some of the requirements indicate clearly what the system is intended to do, and some do not.	The FRs provided follow a table structure including IDs. All the requirements indicate clearly what the system is intended to do, but they are overloaded and can be broken down using sub-requirements.	The FRs provided follow a table structure including IDs. All the requirements indicate clearly what the system is intended to do, but some of them are overloaded and can be broken down using sub-requirements.	The FRs provided follow a table structure including IDs. All the requirements indicate clearly what the system is intended to do, including sub-requirements which are related to each other.	The FRs provided follow a table structure including IDs. All the requirements indicate clearly what the system is intended to do, including sub-requirements which are related to each other. Overall, the statements are concise throughout.
<b>Non-functional requirements (NFRs)</b>  (5% of overall module mark)	No non-functional requirements are submitted.	Incomplete statements are used for most of the non-functional requirements.	A partial set of requirements is provided which does not follow a requirements table structure (i.e. they do not include IDs).	The NFRs provided follow a table structure including IDs. They are not referring to qualities of the system; however.	The NFRs provided follow a table structure including IDs and they are referring to qualities of the system but without any measurable thresholds.	The NFRs provided follow a table structure including IDs and they are referring to qualities of the system but with some having measurable thresholds and some do not.	The NFRs provided follow a table structure including IDs. All the requirements are referring to qualities of the system and they are all measurable.	The NFRs provided follow a table structure including IDs. All the requirements indicate the quality attribute measured, the threshold on it, and all the NFRs are relevant to the system rather than being generic NFRs.
<b>Risk Assessment</b>  (5% of overall module mark)	No risk assessment has been submitted.	A partial risk assessment has been submitted which is not	A full risk table has been identified in the correct format but they are generic and not	A full risk table has been identified in the correct format, some of them are	A full risk table has been identified in the correct format, some of them are	A full risk table has been identified in the correct format, some of them are	A full risk table has been identified in the correct format, some of them are	A full risk table has been identified in the correct format, some of them are

		given in the table format nor using risk IDs.	applicable to the system of concern.	specific to the system.	specific to the system but the mitigation strategies are generic.	specific to the system and some of the mitigation strategies are specific to the system.	specific to the system and the mitigation strategies are specific to the system.	specific to the system, the mitigation strategies are specific to the system, and they map to the FRs/NFRs correctly.
<b>Use Case Diagram (UCD)</b> (5% of module mark)	Not submitted.	A UCD is submitted but its notation is incorrect.	A UCD is submitted with partially correct notation, and it covers only some of the FRs.	A UCD is submitted with correct system boundaries, actors, and use cases mapped to only some of the FRs.	A UCD is submitted covering all FRs and using the correct notations. The FRs are representing entities not verb phrases. The extends/uses links are incorrect.	A UCD is submitted covering all FRs and using the correct notations. The FRs represent verb phrases. The extends/uses links are partially correct.	A UCD is submitted covering all FRs and using the correct notations. The extends/uses links are all correct.	A UCD is submitted covering all FRs and using the correct notations. The FRs represent verb phrases. The extends/uses links are all correct and the actors are consistently named with the FRs.
<b>Use Case Specification (UCS)</b> (5% of the module mark)	Not submitted.	A UCS is submitted but not using the same FR description as the requirement table.	A UCS is submitted where the description is consistent with the FR but there are missing parts in from the UCS template.	A UCS is submitted where all the parts of the UCS template are covered but the main narrative is inconsistent with the FR and its sub-requirements.	A UCS is submitted where all the parts of the UCS template are covered but the alternative narratives are inconsistent with the FR and its sub-requirements.	A UCS is submitted where all the parts of the UCS template are covered but the alternative narratives are inconsistent with the FR and its sub-requirements.	A UCS is submitted where all the parts of the UCS template are covered but the alternative narratives are partially consistent with the FR and its sub-requirements.	A UCS is submitted where all the parts of the UCS template are covered but the alternative narratives are consistent with the FR and its sub-requirements.
<b>Class Diagram (CD)</b> (5% of overall module mark)	No CD is submitted.	A CD is submitted but for a different solution or the image is not clear.	A CD is submitted with partially correct notation, and it covers only some of the classes needed for the system which are derivable from the FRs in integrated D1.	A CD is submitted with correct notation for classes.	A CD is submitted with all the relevant classes. The methods, variables, datatypes, and associations are attempted but lack technical clarity.	A CD is submitted with all the relevant classes. The methods, variables, datatypes, and associations are notably attempted with minor technical errors.	A CD is submitted with all the relevant classes. The methods, variables, datatypes, and associations are mostly complete. However, incorrect annotations are used for some of the associations.	A CD is submitted with all the relevant classes. The methods, variables, datatypes, and associations are complete. Correct annotation is used for the associations.

<b>Sequence Diagram (5% of overall module mark)</b>	No sequence diagram is submitted.	A sequence diagram is submitted but for a different UCS not the one in the report or the image is not clear.	A sequence diagram is submitted with partially correct notation, and it covers only some of the objects needed for the method of concern, which is derivable from the CD submitted.	A sequence diagram is submitted with correct notation for objects needed.	A sequence diagram is submitted with correct notation for objects needed. The direction and order of the arrows between the objects' lifelines is attempted but lack technical clarity.	A sequence diagram is submitted with correct notation for objects needed. The direction and order of the arrows between the objects' lifelines is notably attempted with minor technical errors. .	A sequence diagram is submitted with correct notation for objects needed. The direction and order of the arrows between the objects' lifelines consistent with the relevant FRs. The diagram uses alt/loop envelopes partially correctly.	A sequence diagram is submitted with correct notation for objects needed. The direction and order of the arrows between the objects' lifelines consistent with the relevant FRs. The diagram uses alt/loop envelopes correctly.
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### D3 [Group/Individual]: In-person Presentation – Table of Marking Criteria (25%)

Criterion	0-20% Fail	20-39% Fail	40-49%	50-59%	60-64%	65-69%	70-79%	80-100%
<b>[Group] Pitch Slide Deck (10% of overall module mark)</b>	No slides submitted.	Slides submitted cover a solution with a very different aim from D2.	Slides covers only some of the required sections. The structure of the presentation is hard to follow (e.g., due to repetition of information or lack of clarity)	Slides cover all the required sections, but the structure of the presentation is hard to follow (e.g., due to repetition of information or lack of clarity)	Slides cover all the required sections. The structure of the presentation is logical in some parts only.	Slides cover all the required sections. The structure of the presentation is logical. Stronger arguments need to be made in some sections.	Slides cover all the required sections. The structure of the presentation is logical, and the arguments made for the solution are strong. The presentation includes a low-fidelity MVP.	Slides cover all the required sections. The structure of the presentation is logical, and the arguments made for the solution are strong and backed by research. The presentation includes a high-fidelity MVP.
<b>[Individual] In-person presentation. (15% of overall module mark)</b>	Presentation not attended.	Presentation attended but group member did not present any part of the presentation.	The audience was somewhat distracted. Group could be heard for parts of the presentation, but parts were indistinct. Body language varied throughout presentation.	The audience was mostly engaged by the presentation. Spoke at a suitable volume for most of the presentation. Mostly appropriate body language but not consistent throughout the presentation.	Regular eye contact, the audience was engaged, and group held the audience's attention. Appropriate speaking volume & body language for majority of presentation.	Regular eye contact, the audience was engaged, and group held the audience's attention. Appropriate speaking volume & body language throughout the presentation.	Constant eye contact. The audience was highly engaged by an extremely confident group who conveyed an elevated level of professionalism throughout the presentation in terms of body language and use of voice. A structured 5-min pitch video was submitteddifferentiati	An exemplary delivery which displays skills that are equivalent to a professional within the field. An exemplary 5-min pitch video was submitted differentiating from the group solution qualifying for competition.

							ng from the group solution.	
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#### D4 [Individual]: Final Year Project Choice Documentation – Table of Marking Criteria (10%)

Criterion	0-20% Fail	20-39% Fail	40-49%	50-59%	60-64%	65-69%	70-79%	80-100%
<b>Project title, keywords, and potential supervisor</b>  (2% of overall module mark)	Project source, title, nominated supervisor and keywords are not provided for any project choices.	Project source, title, nominated supervisor and keywords are not provided for any project choices.	Project source, title, nominated supervisor and keywords are partially provided for only one of the project choices.	All fields of concern filled in for the first project choice only and no agreement is made with nominated supervisor.	Project source, title, nominated supervisor and keywords are partially provided for only first and second project choices (if relevant in case no agreement is made with first choice supervisor).	All fields of concern filled in for the first and second project choices only.	Project source, title, nominated supervisor and keywords are partially provided all three project choices (if relevant in case no agreement is made with first choice)..	All fields of concern filled in for all three project choices (if relevant in case no agreement is made with first choice).
<b>Project target problem and aim for the first project choice</b> (3% of overall module mark)	No target problem nor aim are provided.	Incomplete statement for problem but no aim is provided.	Both the target problem and aim are provided as incomplete statements.	Problem stated but no elaboration is given as to why it needs to be solved. Aim is provided as an incomplete statement.	Problem described concisely elaborating why it needs to be solved but the aim does not address it.	Problem described concisely elaborating why it needs to be solved. The aim clearly shows the intended project output.	Problem described concisely and linked to the project aim. The aim clearly indicates what the output of the project would be. .	Problem described concisely and elaboration is given showing background research has been done on the significance of the problem.
<b>Project functional requirements (FRs) for the first project choice</b> (5% of overall module mark)	No aim nor functional requirements are provided.	The FRs are provided as incomplete statements..	The FRs are provided as complete statements but do not cover the aim's intended output.	The functional requirements comprise 1-3 points in the form of complete statements without linking them to each other nor to the aim..	The FRs comprise 3-5 concise sentences. Requirement IDs are not used. The FRs are not elaborating on the aim.	The FRs comprise 3-5 concise sentences. Requirement IDs are not used. The FRs are elaborating on the aim.	The FRs comprise 3-5 concise sentences. Requirement IDs are used. The FRs are elaborating on the aim with evidence clear distinction between FRs.	The aim is provided as a concise statement made up of 1-2 sentences. The FRs comprise 3-5 concise sentences. Requirement IDs are used. The FRs are elaborating on the aim. There are relevant sub-requirements under each FR.