 Computer Science and Creative Technologies

**Coursework or Assessment Specification**

## Module Details

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| **Module Code** | UFCFK6-30-2 |
| **Module Title** | Software Engineering |
| **Module Leader** | Mohammed Odeh |
| **Module Tutors** | Eman Qaddoumi  Raj Ramachandran |
| **Year** | 20-21 |
| **Component/Element Number** | B: CW I  B: CW II  B: CW III |
| **Total number of assessments for this module** | Four: one exam (Component A) and three coursework elements (Component B) |
| **Weighting** | Component A at 50%.  For Component B, please see below. |
| **Element Description** | CW I (15%): Group Project Proposal  CW II (65%): Group Project Deliverables  CW III (20%): Individual Reflective Report |

## Dates

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| **Date issued to students** | November 23, 2020 |
| **Date to be returned to students** | Within 20 working days of the submission dates. |
| **Submission Date** | 1. January 21, 2021, at 14:00   CW I: Group Project Proposal   1. May 6, 2021, at 14:00   CW II: Group Project Deliverables   1. May 6, 2021, at 14:00   CW III: Individual Reflective Report |
| **Submission Place** | Online using Blackboard. |
| **Submission Time** | See above. |
| **Submission Notes** | See above. |

## Feedback

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| **Feedback provision will be** | Formal written feedback will be placed in your Blackboard group project folders for the group project deliverables (CW I and II). For your individual reflective report in CW III, feedback will be attached individually to your online returned marked submission via Blackboard.  Formative feedback will be provided during practical sessions. |

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# Section I: Overview of Assessment

This coursework elements assess the following module learning outcomes:

1. Recognise the engineering dimension in software development including professional practice in contrast to non-engineering disciplines.
2. Show detailed knowledge of the notion of “software development process”, and the different generic software development process models along with their key distinguished features.
3. Apply software engineering techniques and methods in a process centred approach to the development of a software application in a group-based setting covering most stages of the software development life cycle.
4. Understand and apply specific UML modelling techniques and notations in relation to the key stages of the software development life cycle.

This assignment is a group-work project. Ideally, you are required to be in a group of four-six students, and you will need to consult your tutor as soon as possible, if you have any difficulty in forming (or being in) such a group. And, subject to approval by your tutor, the minimum number of members in a group cannot be less than four and not more than six. **Please note that all group members should be officially timetabled for the same practical session as per the instructions given to you during the first and subsequent lectures in addition to practical sessions.**

Furthermore, you will need to be in the same group that you sign up with when you started the project, and for the whole life-cycle of this project. Group leadership is rotational as per key milestones in the project (or as you may prefer it to be upon agreement with your tutor). The individual mark of each member in the group is the sum of his/her contribution to both the group-based tasks and individual group project tasks as detailed in the coursework specifications in the sections below. Please note that the individual’s mark in the group-work is **fully dependent on his/her contribution to the achievement of group-work and his/her individual deliverables.**

You have been introduced to Rational’s Unified Process (RUP). Also, you are being introduced to the Unified Modeling Language (UML) related modeling notation in association with this module. Following a customised RUP model in this group-work project, you are required to provide an object-oriented solution to the problem described in Section II. You are required to utilise Rational’s Unified Process to guide you in achieving the objectives of this project utilising the follow up provided in both lectures and tutorials with customisation of this process (i.e. RUP) to fit the deliverables of this project within the timescales set for the three coursework elements.

You should use UML to document your requirements and design models. You are not constrained to use specific UML and requirements management tools. You may use Visual Paradigm, Rational Rose, or StarUML, or any UML modelling tool to specify your UML models. This should be the team’s decision (i.e. your group) to agree on and specify in your project’s proposal. Use MS-Word to specify user requirements and use-cases following the MammoGrid use-case template provided in the assignment folder on Blackboard. However, using a requirements management tool to specify your use-cases is highly encouraged to do, but please note that this IS NOT a REQUIREMENT of the ASSIGNMENT.

The coursework assessment consists of 3 elements, accounting for 100% of Component B of the module, and 50% of the overall module assessment. For ease of allocation of marks to the different components of the coursework elements, every 1% of the coursework assessment is worth 10 points on a scale of 100% or 1000 points as detailed below. The coursework elements are:

1. Project proposal **(COURSEWORK I - CWI)**: **this constitutes 15% (150 points) of the total assignment mark and is explained in section II. Submission deadline: Thursday, January 21, 2021, 14:00.**
2. Group project Deliverables **(COURSEWORK II – CW II):** **this constitutes 65%** **(650 points)** **of the total coursework assessment.** This coursework element includes as well the individual’s contribution to pre-set tasks in the group project, as explained in Section III. **Submission deadline: Thursday, May 6, 2021, 14:00.**

For both **CW I** and **CW II**, a signed individual effort contribution sheet, where each member in the group should sign against his/her estimated contribution in the respective coursework element ie CW I and CW II. For example, a group of 5 students may have the following signed-off effort-contribution, 15%, 25%, 25%, 20%, 15%.

1. An individual reflective report **(COURSEWORK III – CW III):** **this constitutes 20%** **(200 points)** **of the total coursework assessment**, for each group member with emphasis on software engineering employability aspects as detailed in Section IV. **Submission deadline: Thursday, May 6, 2021, 14:00.**

**ALL COURSEWORK DELIVERABLES SHOULD BE SUBMITTED ONLINE USING BLACKBOARD FOLLOWING THE UWE BRISTOL FORMAL SUBMISSION PROCEDURES, BOTH FOR GROUP PROJECT AND INDIVIDUAL DELIVERABLES. ANY SUBMITTED WORK THAT IS NOT ONLINE WILL NOT BE ACCEPTED AND WILL NOT BE MARKED.**

Please record the following formative assessment milestones/dates in your diary:

1. *Informal Sign-off of the Requirements Specifications Document: in tutorial session week starting the* ***1st of March, 2021.***
2. *Informal Sign-off of the Solution-Architecture Document: in tutorial session, week starting the* ***29th of March, 2021.***
3. *Informal Sign-off of the System Prototype: in tutorial session, week starting the* ***12th of April, 2021.***
4. *Informal Sign-off of the Testing Document: in tutorial session, week starting the* ***26th of April, 2021.***

Please note that the above ***informal sign-off dates*** imply no official submission and are intended to guide you through the project and serve the basis of tutor and self-assessment of ongoing progress for final assessment of individual contribution. In addition, your tutors will use these sign-off milestones to monitor your progress (both the team and individuals), unofficially assess your performance, and keep records of sign-offs in their diaries.

Please utilise the practical sessions in the week 23rd of November 2020 till the end of April 2021 to work on the group project coursework deliverables in your dedicated group and raise any queries regarding the coursework element to your tutor during these sessions, and beyond as needed, along with the module leader too.

***PLEASE USE BLACKBOARD GROUP REPOSITORY - OFFICIALLY ALLOCATED TO YOUR GROUP BY YOUR TUTOR - TO UPLOAD ALL WORK IN PROGRESS DOCUMENTS FOR THE GROUP DELIVERABLES (CW I and II), BUT NOT FOR YOUR INDIVIDUAL THIRD COURSEWORK (CW III) REPORT. Record your Group Meetings Using Blackboard Collaborate.***

# Section II: The Coursework Problem Statement

*Consider your company, Successful Partners Software (SPSoft), has been approached by the NHS to develop Test and Trace Software platform or system for COVID-19, namely TTS.COVID-19. The following is a brief of the TTS.COVID-19 requirements, outlined in two parts and extracted from:* [*https://www.gov.uk/guidance/nhs-test-and-trace-how-it-works#contents*](https://www.gov.uk/guidance/nhs-test-and-trace-how-it-works#contents)

*Part 1 relates to someone who has symptoms of the Corona virus, and Part 2 is concerned with someone who has been contacted because of having been in close contact with someone who has been positively tested with the Corona virus.*

## “Part 1: for someone with symptoms of coronavirus

1. *isolate: as soon as you experience coronavirus symptoms, medical advice is clear: you must self-isolate for at least 10 days. Anyone else in your household must self-isolate for 14 days from when you started having symptoms*
2. *test:*[*get a free NHS test immediately to check if you have coronavirus*](https://www.gov.uk/get-coronavirus-test)*or call 119 if you have no internet access*
3. *results: if your test is positive, you must complete the remainder of your 10-day self-isolation. Anyone in your household must also complete self-isolation for 14 days from when you started having symptoms. Failure to self-isolate for the full time-period can result in a fine, starting from £1,000. If your test is negative you will no longer be required to self-isolate, though you may wish to do so if you still feel unwell and have symptoms similar to coronavirus. If your test is negative, other household members no longer need to self-isolate.*
4. *share contacts: if you test positive for coronavirus, NHS Test and Trace will send you a text or email alert or call you with instructions of how to share details of people with whom you have had close, recent contact and places you have visited. It is important that you respond quickly and accurately so that we can give appropriate advice to those who need it. You will be told to do this online via a secure website or you will be called by one of our contract tracers. If NHS Test and Trace contact tracers are unable to contact you for 24 hours, they may pass your case to your local authority to follow up by phone or in person.”*

### *“Part 2: if you are contacted by NHS Test and Trace because you have been in close contact with someone who has tested positive for coronavirus*

1. *alert: you will be alerted by NHS Test and Trace if you have been in close contact with someone who has tested positive for coronavirus. The alert will usually come by text, email or phone call. You should then log on to the NHS Test and Trace website, which is normally the easiest way for you and the service to communicate with each other – but, if not, a trained call handler will talk you through what you must do. Under-18s will get a phone call and a parent or guardian will be asked to give permission for the call to continue*
2. *isolate: you will be told to begin self-isolation for 14 days from your last contact with the person who has tested positive. It’s really important to do this even if you don’t feel unwell because, if you have been infected, you could become infectious to others at any point up to 14 days. Failure to self-isolate for the full time-period can result in a fine, starting from £1,000. Your household doesn’t need to self-isolate with you, if you do not have symptoms, but they must take extra care to follow the guidance on social distancing and handwashing and avoid contact with you at home*
3. *test if needed: if you develop symptoms of coronavirus, other members of your household must self-isolate immediately at home for 14 days and you must*[*get a test to check if you have coronavirus*](https://www.gov.uk/get-coronavirus-test)*or call 119 if you have no internet access. If your test is positive, you must continue to stay at home for at least 10 days and we will get in touch to ask about your contacts since they must self-isolate. If your test is negative, you must still complete your 14-day self-isolation period because the virus may not be detectable yet – this is crucial to avoid unknowingly spreading the virus.”*

# Section III: CW I – Group Project Proposal (15%)

## Task Specification: CW I

As a group, ***you will need to develop a group-project proposal for the problem in Section II and to include the following:***

1. Rephrasing of the problem definition (in Section II) to briefly describe the main outcomes of the project. This needs to concentrate on the functional requirements of the anticipated system, and document them as part of a use-case model showing actors, and core use-cases. You ARE NOT REQUIRED to DESCRIBE EACH USE-CASE in DETAIL. ONLY A SHORT DESCRIPTION OF THE USE-CASES is REQUIRED at THIS STAGE. Also, YOU ARE REQUIRED TO DEVELOP A USE-CASE MODEL using USE-CASE DIAGRAMS with <<extend>>, <<include>> relationships. Regardless of the number of students in each group, all functional requirements of the problem given in Section II need to be briefly specified along with the respective use-cases modelled using UML.
2. Sources of information in relation to the project’s run, including the concerned stakeholders and the material to be consulted.
3. Hardware and software tools to be used in different activities within the life-cycle of the project.
4. Initial project plan that is in-line with implementing Rational’s Unified Process in this group-project setting. This plan should include, but not limited to:
   1. Initial project schedule to show tasks start and finish dates for each of the FOUR PHASES OF RUP within the life-cycle of the project from November 23, 2020 to May 6, 2021. Also, this schedule should reflect the duration in person working days (PWD or fraction of it), and tasks’ dependency.
   2. Resource allocation table to show who is working on what.
   3. Risk management to show identification and description of risks that are associated with the run of this project (including all its related issues) within its life-cycle. You need to categorise and analyse these risks, so as to prioritise them and reflect on their severity impact, and suggest avoidance/mitigation/minimisation strategies.
5. Team contract (with charter) for your group with e-signed-off undertakings of this group project and group members’ contact details.

Once this proposal is submitted online and received by your tutor, you will receive feedback from him/her early in the second term. Your tutors will keep this project proposal with them for the final assessment of all coursework elements as part of the final group-project’s report, but you SHOULD ALWAYS HAVE YOUR OWN ELECTRONIC COPY OF THE UPDATED PROJECT PROPOSAL accessible every practical/tutorial session.

## Deliverables vs. Marking Criteria for Coursework I: (150 points, 15% of Component B)

You should submit the following as part of the project proposal document:

1. **Introduction** **(Total: 10 points)** to the project proposal document with emphasis on functional requirements **(up to 7 points depending on extent of coverage of functional requirements on a scale from 0-7)** and**projectorganisation** **(on a scale of 0-3 points)**.
2. **Use-Cases and associated models (Total: 50 points).** No more than 19 points will be awarded, if the use-case model does not represent the core use-cases of the anticipated system. 20-29 points will be awarded to the use-case model with core use-cases having basic human actors-use-cases relationships. 29-34 points for inclusion of human and non-human actors’ relationships with core-use-cases. Then, the mark extends beyond 35-50 points depending on the correctly identified <<include>> and <<extend>> relationships.
3. **Project Schedule (Total: 35 points).** Points will be awarded to the RUP phases depending on the correct identification of tasks or activities per phase as follows: 10, 10, 5, and 5 points to the inception, elaboration, construction, and transition phases, respectively. The allocation of required resources will be awarded 5 points depending on correct allocation per phase.
4. **Risk Management (Total: 30 points).** At least five different types of risks should be identified along with their priorities/severity impact and avoidance/mitigation/minimisation strategies that are only related to the run of this group project in current coursework and its duration constraints. 15, 5, and 10 points will be assigned to identified risks, risk priorities/severity impact, and avoidance/mitigation/mitigation strategies, respectively. Risks that are associated with budget and hypothetical issues (that students may pick from textbooks or the Internet) are not be accepted.
5. **Hardware and software tools (Total: 10 points).** Up to 10 points will be awarded to a maximum of 5 software and hardware tools with justification behind their identifications.
6. **Sources of Information (Total: 10 points).** Up to 10 points will be awarded to a maximum of 5 information sources with full description.
7. **Team Contract (Total: 5 points). Contract or charter** with BUT with e-**S**IGNED-OFF SHEET of undertakings of this group project and group members’ contact details.

# Section IV: CW II - Group Project Deliverables (65%)

## Task Specification for CW II

This course work relates to developing the key related deliverables of the activities planned for in your project proposal (CW I). As a general rule, please assign one team member to lead the activities that lead into the outlined set of deliverables described below in the Deliverables Section. However, completing and validating the group deliverables is the responsibility of the whole group. There are individual group project deliverable that should be only completed by each member of the group as detailed below in the Deliverables Section. **Should problems occur you need to consult your tutor and the module leader not later than ONE WEEK from the start of any group problems or difficulties.**

Please use ONLY e-mail to share and communicate any problems regarding the progress of the project with your colleagues in the group but copied to your tutor and module leader when needed. Also, your tutor will guide you to use your Blackboard Group for this project with a shared repository (or group folder) to upload and update different group members’ deliverables.

You will need to organise your group work deliverables in one consolidated document paying attention to both high readability with a good structure to include

* + Table of contents.
  + Introduction
  + Section numbering.
  + Pagination.
  + High traceability between deliverables.
  + Citations and bibliography section as needed.

## Deliverables vs. Marking Criteria for Coursework II (650 points, 65% of Component B):

You should submit the following as part of the group project deliverables document:

1. **Project Management: (70 points)**
2. An updated project plan showing phases, deliverables, and tasks’ dependency, if any.
3. Show changes to your project plan (compared to your initial submitted plan as part of your initial project proposal) during the life-cycle of the project, if any, ie reviews of plans as per progress in the project. This should also reflect any changes from actual resource allocation table vs. the earlier planned ones in the project proposal.

Updates to this initial project proposal as per your tutor’s recommendations and project progress are awarded as follows: **9 points** for the elaboration phase, **5 points** for the construction phase, and **6 points** for the transition phase. **18 points** are awarded to the updated and derived resources allocation table. **(A total of 38 points for this section)**

1. Minutes of group meetings: You need to show minutes of eight key project meetings, where four of these meetings are attended by your tutor during practical sessions **along with all these minutes of meetings e-SIGNED OFF by your tutor.**

Well-structured minutes of a meetings that include an agenda for the meeting, resulting actions, and review of actions from last to current meeting. Each minutes of meeting signed off by your tutor is awarded **up to 4 points. (A total of 32 points)**

1. **Requirements Specifications Document with concentration on the following issues (which may be used as a suggested structure for this document): (260 points)**
2. ***Introduction***: **(a total of 10 points)**, one team member to write the introduction to the document and the rest of the team to read and validate.

A maximum of **10 points** will be awarded to this section with a good roadmap to the requirements specifications document along with the main functional requirements of the anticipated system.

1. ***Actors:*** **(a total of 20 points)** these have already been identified in the initial project proposal, but it is the time to correct any mistakes or missed ones. Also, one team member is to write a short description of each actor with the rest of the group to validate all the actors’ specifications.

A total of **20 points** will be awarded to both the actors and its short description.

1. ***Specifications of the core use-cases: (a total of 50 points).*** You are required to use the MammoGrid use-case template example in the assignment folder on Blackboard to write your use-case specifications document.

Every team member **should specify only ONE use-case and should be his/her own contribution only.** Failure to do so SHALL result in that respective team member having 0% contribution to this section. Up to **50 points** will be awarded to use-case specifications adhering to the MammoGrid example use-case template sections:

* **0-19 points** for a use-case specification with no thorough main and core workflow specifications, and no non-functional requirements.
* **20-29 points** for a use-case specification with no thorough main and core workflow specifications, but with non-functional requirements.
* **30-50** for a use-case specification with thorough main and core workflow specifications, non-functional requirements, and well specified pre and post use-case conditions.

1. ***System* Models: (A total of 130 points)**
2. ***Class Diagram:*** to model inheritance, association, aggregation, composition, and dependency, where available. You need to include ONLY ENTITY CLASSES and their attributes BUT, OTHER CLASS TYPES ARE ENCOURAGED AND NOT PENALISED IF NOT INCLUDED. This is a group-based activity and everyone must participate in the brainstorming session(s) to deliver the class model. Your tutor will have a record in his/her diary of the individual team members participating in this task. You need to decide on one team member to finalise the class diagram.

Points are allocated as follows to the Class Model: **(A Total of 50 points)**

* Identified Entity Classes: **20 points.**
* Relationships: **15 points.**
* Attributes and methods: **15 points**

1. ***Use-Case Views:*** **(A total of 50 points).** This section has two components, system level use-case model which is a group-based activity, and individual team member use-case model. The system level use-case model depictscore use-cases and actors’ interactions, whether human or non-human actors. This view will be re-used as an architectural view in the system’s architecture section below.

A **total of 25 points** will be awarded to the system level use-case model as follows:

* Identified core use-cases: **10 points**
* Human actors and their associations: **8 points**
* Non-human actors and their associations: **7 points**

Every team member **who specifies the use-case in part 2.c** above should also produce the corresponding use-case view, showing interaction with respective actors and relationships (<<extend>> and <<include>>) with other non-core use-cases. Failure to do so SHALL result in that team member having 0% his/her contribution in this section. A **total of 25 points** will be awarded to the individual team member use-case model as follows:

* Actors’ and relationships: **(10points).**
* Use-case relationships such as <include>> and <<extend>>: **(15 points)**

1. ***Sequence Diagram: (A Total of 30 points)*** Every team member who specifies the use-case in part 2.c should also produce a respective ***SEQUENCE DIAGRAM for ONE MAIN SUB-FLOW*** that relates to this use-case. Failure to do so SHALL result in that team member having 0% contribution to this section.

A **total of 30 points** will be awarded to this section as follows:

* Identification of Objects with proper syntax: **15 points**.
* Sequence of Processing: **15 points.**

1. ***Non-Functional Requirements (NFRs): (A total of 36 points),*** this is a group-based activity to identify and specify NFRs that relate to the problem in this assignment. These NFRs will have to be related to **product, process, and external** requirements. Assign one team member to finalise the specifications of these NFRs based on your agreement (as a group) for the identified NFRs.

A total of **36 points** will be awarded to 9 NFRs with their specifications as follows:

* Product: **16 points in total.**
* Project: **8 points in total.**
* Externally-related: **12 points in total.**

1. ***Glossary:*** **(A total of 14 points)**, this is a group-based activity with ultimate responsibility relayed to one team member to finalise.

A maximum of 7 glossary terms related to the group project assignment, where each term awarded **2 points**, a total of **14 points.**

**Note: Every team member should participate in all deliverables for the requirements specifications document and in particular work on his/her agreed use-case specification, use-case views, and sequence diagrams. All team members should validate the requirements specifications document before submission.**

1. ***The solution architecture*** **(A total of 100 points)**: Use the “4+1 views” model of software architecture discussed in this module to describe the Implementation/Component views of the anticipated system’s architecture. Show how the developed use-case model drives and assists in the development of these views.

**Note: every team member should participate in the discussions to develop the implementation/component views and at least one member to do the documentation, followed by document validation meeting by all team members.**

A maximum of **100 points** will be awarded as follows:

* Implementation view: **20 points** for the justification of packages/components identified, **20 points** for the implementation view diagram, **25 points** for component diagrams. Total is 65 points.
* Use-case model implications: **35 points** for describing briefly how the use-case model has driven the design of the implementation and component views above.

1. ***Software Prototype (A total of 100 points):*** this needs to be developed using an object-oriented programming language (preferably using Java) for the front-end GUI and business logic with MySQL as the back-end DBMS. You are expected to show adherence to key usability aspects, and the use-case and class diagram you have developed as part of your requirements document. **You are required to demonstrate your prototype after final coursework II submission with dates/times to be agreed with your group and tutors. The number of use-cases implemented in the prototype should be equal to the number of students in the same group. The backend database should embody sample data to demonstrate the implementation and testing of these use-cases.**

A total of **100 points** will be awarded to the developed software prototype as follows:

* Adherence to the use-case model and the use-case specifications in the requirements specifications document: **40 points.**
* Adherence to user-interface design metaphor: **20 points.**
* Adherence to usability aspects including ease-of-use, user-guidance, level of end-user, etc: **40 points.**

**Note: At least one team member should develop this prototype and then to be validated by all other members of the team for their implemented use-case. *You should agree with your tutor on the tools that you will use by the time you submit your project proposal.***

1. ***Software test specification (A total of 120 points):*** you need to provide a set of suggested test approaches/strategies to test the proposed system, the anticipated software and hardware tools needed for testing,functional and non-functional requirements to be tested, test cases, andtest recording mechanisms.

**A total of 120 points will be awarded as follows:**

* Testing plan including testing strategies/methods: **30** points.
* Functional and non-functional requirements to be tested: **30** points.
* Test cases and results: **30** points
* HW & SW requirements: **20** points
* Recording mechanism of tests: **10** points.

**As an individual, you are only required to produce test cases for the use-cases you have already specified in the requirements document and that have been implemented in the prototype in 4 above.** *This means that the software test specification document will have* **both individual contribution (i.e. test-case vs. use-case vs. sequence diagram) and group-based contribution to the remaining parts.**

# Section V: CW III – Individual Reflective Report (20%)

## Task Specification for CW III

This part constitutes 20% of the assignment’s total mark and should provide critical assessment of the areas covered in this report. This report shall not exceed 2500 words (not including appendix) and shall be authored by each individual in the project.

This report should be reflecting critically on the software engineering professional development you have been engaged in both CW1 and CW2 via this software engineering group project and providing a personal project portfolio using the template in the Assignment folder on Blackboard. You need also to reflect on how such software engineering professional development experience has inspired or reinforced your software engineering career specific goals and interests so far.

More specifically, you should, in your report:

1. maintain through the year the “personal project portfolio templates on Blackboard” with respect to **the following five key milestones:** (a) group project proposal, (b) requirements document, (c) solution architecture, (d) software prototype, and the (e) testing document specifications;
2. submit a copy of your “the personal project portfolio” as a compulsory appendix to your report, referring to it intensively in the report body;
3. give an account of the major problems you faced in the project;
4. outline your experience of the different sections of the assignment and the lessons learnt including reflections on: (a) a contrast between the initial project proposal and the actual documented plan in CW2, (b) the role of your tutors undertaking quality management of your interim and final deliverables and (c) the system of systems context in your delivered solution space;
5. draw on the role(s) you have played during your software engineering project, linking your treatment to the knowledge you have gained on the typical professional roles of the Software Engineer and common graduate destinations from BSc Computing and BSc Computer Science;
6. reflect on how well or otherwise the roles you have played this year match with your emerging career goals;
7. reflect on how, in your project team, different roles interacted, and how you might improve multi-role team work in the future.
8. Suggest TWO enhancements to the developed software application, ONE functional and ONE non-functional reflecting on the particular roles to be taken by the software engineers in attending to these suggested enhancements.

## Deliverables vs. Marking Criteria for Coursework III:

The following are the required deliverables that should be embodied into your individual reflective report.

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| --- |
| 1. Yearly “the personal project portfolio” (as specified in the templates stored on Blackboard assignment folder) with respect to **the following five key milestones:** (a) group project proposal, (b) requirements document, (c) solution architecture, (d) software prototype, and the (e) testing document specifications. |
| 1. An account of the major problems faced in the project and observations on the different sections of the assignment and the lessons learnt with reflections on: (a) a contrast between the initial project proposal and the actual documented plan in CW2, and (b) the role of your tutors undertaking quality management of your interim and final deliverables. |
| 1. Role(s) played during your software engineering project, linking your treatment to the knowledge gained on the typical professional roles of the Software Engineer and common graduate destinations from your programme. Provide reflections on how well or otherwise the roles played matched emerging career goals and how in the project team, different roles interacted, and how you might improve multi-role team work in the future |
| 1. TWO types of enhancements to the developed software application, TWO functional and TWO non-functional requirements reflecting on the particular roles to be taken by the software engineers in attending to these suggested enhancements. |

The following are the assessment criteria and performance benchmarks for the individual reflections on the group-based professional development in software engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criterion** | **Fail:**  **0-9 points** | **Pass**  **10-24 points** | **Satisfactory performance**  **25-29 points** | **Good performance**  **30-34 points** | **excellent performance**  **35-50 points** |
| 1. Maintenance and use of personal project portfolio | Not submitted (0 points),  (1-8 points) points with just stages went through | only maintained on a cursory or partial basis | Covers the minimum requirement but without much flair or enthusiasm | Diligent, and thoughtful maintenance and use of the portfolio | Diligent, thoughtful and rigorous maintenance and use of the portfolio |
| 1. Insightful Account of team roles in this year’s group project | Barely refers to team roles | attempts only descriptive or partial treatment | A reasonable account of team roles though depth and rigour of treatment could be improved | Coherent, account of team roles with useful ideas for improvement | Coherent, critically analytic account of team roles with useful ideas for improvement |
| 1. Account of major problems faced with insightful and lessons learnt with reflections on: contrast ing initial project plan to the actual tutor’s role in QM, and SoS Context | No real identification of problems, observations, lessons learned, PM , QM, , and SoS Context | Descriptive on problems, observations, lessons learned, PM, QM, , and SoS Context | Some insight into problems, observations, lessons learned, PM, QM and SoS Context | Insightful vision into problems, observations, lessons learned, PM QM, and SoS Context | Highly insightful vision into problems, observations, lessons learned, PM, QM, and SoS Context |
| 1. Functional and Non-Functional Requirements Enhancements | No functional or non-functional enhancements are suggested | Functional and non-functional requirements are only identified with no description and weak relationship to the anticipated system | Functional and non-functional requirements are specified but with weak relationship to the anticipated system | Functional and non-functional requirements are specified but with strong relationship to the anticipated system | Functional and non-functional requirements are specified but with strong relationship to the anticipated system and roles needed to undertake their implementation |

# Section VI: Feedback Mechanisms

Summative formal written feedback will be placed in your Blackboard group project folders for the group project deliverables (CW I and II). For your individual reflective report in CW III, feedback will be attached individually to your online returned marked submission via Blackboard.

Please note that Formative Feedback will be provided ONLY during practical sessions.

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# Section VII: Further Information

## Plagiarism/Collusion

Please note that normal rules about plagiarism and collusion apply as usual. Plagiarism in group deliverables will affect the overall group deliverables. Individual plagiarism in individual deliverables will affect the overall individual contribution.