| | **50 Years of Computing Logo.jpg** | Department of Computing | | --- | --- | |  |
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# COSE71208 Software Engineering Principles

# COSE71209 DL

**Please note parts of this assessment are an individual piece of coursework, whilst students are expected and encouraged to collaborate no part of the submission should be the work of another student without correct accreditation. Failure to accredit other contributions correctly is academic dishonesty and your work will referred for plagiarism.**

**Further, parts are groupwork and as such the group takes collective responsibility for originality; anything submitted as part of the groupwork submission will be regarded as having been approved by all members of the group.**

**See University Regulations at** http://www.staffs.ac.uk/assets/Procedure%20for%20Dealing%20with%20Breaches%20of%20Assessment%20Regulations-Academic%20Misconduct%202016-17%20v1\_tcm44-91272.pdf

The module is 100% coursework consisting of:

80% group work

20% individual work

Addressing Module Learning Outcomes as follows:

| **Learning Outcome** |
| --- |

| 1. Demonstrate a systematic understanding of the current theory and practice of software engineering concepts and principles. | Knowledge and Understanding |
| --- | --- |
| 2. Specify and plan a software development project using an appropriate software development life-cycle model. | Enquiry  Learning |
| 3. Analyse, design, implement, test and document a software product using appropriate software development methods and tools as part of a small development team. | Application  Problem Solving |
| 4. Reflect critically on personal contribution, professionalisation and skills developed during the development of a software product using industry standard software engineering principles and practices as part of a development team | Communication  Reflection |

**Group Component (80%)**

The group component consists of two phases.

### Phase One – Initiation and Construction

You will be assigned a team of no more than 3 (unless by tutor discretion) to complete this assignment.

Appendix A details a scenario for which your team has to provide a solution. You may implement in a language of your choice and the solution can be desktop, browser, or mobile based.

Your group is required to complete and submit the following:

A requirements specification for the scenario provided.

A set of design documents for your prototype solution.

Quality control documentation consisting of your project plan, risk assessment, costing, team skills matrix, test plan, change management system, version control system, repository schema.

A user guide for your developed prototype.

A team activity record detailing meetings, a work breakdown for each team member, weekly action plans and achievements.

The source code of your finished prototype.

You will submit one set of documents for the group. For details of each of the submission requirements see the marking guidance.

### Phase Two - Delivery (Assessment Period)

Your group will have to demonstrate your implementation and field questions regarding the specification, design, implementation and test.

**NOTE: Failure to demonstrate, or to attend the demonstration will receive a mark of zero for the entire groupwork component for the absent student(s) unless satisfactory reason and evidence has been presented.**

**Deadlines for Groupwork**

| Submission | See Blackboard |
| --- | --- |
| Phase One Documents | See Blackboard |
| Phase Two – Delivery | See Blackboard |

**Marking Scheme**

A detailed marking guide and breakdown for the groupwork is provided in Appendix B.

**Individual Component (20%)**

You are required to produce a reflective account of your activity on the module of no more than 2000 words (excluding references and appendices). It is expected you will discuss areas of strength and weakness, how you have applied and possibly extended your existing skills as well as how you have developed new skills through your work on the assessment and the application of the concepts, tools and techniques covered in the module.

You will submit your report via Blackboard.

**Deadlines for Individual Work**

| Submission | See Blackboard |
| --- | --- |
| Phase One Documents | See Blackboard |

**Marking Scheme**

A detailed marking guide and breakdown for the individual work is provided in Appendix C.

**Appendix A**

**The Scenario**

Staffordshire Regional Tourist Association would like a holiday review portal for locations within the county. People can leave their reviews of locations, attractions, accommodation, restaurants, events, etc. as well as writing a review users can comment on other people’s reviews and businesses, event organisers, etc. can respond to a review.

You are required to specify, design, implement and test a prototype system that meets the requirements of the Association. These include users being able to search for specific locations, events, restaurants, reviewers, etc. You should design and apply an appropriate rating system which allows for the ranking of locations, venues, events, etc. All postings must be approved by the Association before they are published.

Holiday Review Portal

->Review System JS

-> To-do-list React, mongo db

->Cards (Locations, Attractions) React,

->Event Organiser

<https://www.youtube.com/watch?v=QTHRWGn_sJw>

# Star Ratings With JavaScript & Font Awesome

<https://www.youtube.com/watch?v=u3rylF3y3og>

# Build a Calendar With Vue, Vuetify & Firebase

<https://www.youtube.com/watch?v=2NOsjTT1b_k>

# Build an Event App with Vue.js, Gridsome & Strapi.js

<https://www.youtube.com/watch?v=vB6rmWCmANA>

# Intro To JavaScript Unit Testing & BDD (2 Hour+ Course)

<https://www.youtube.com/watch?v=u5cLK1UrFyQ>

# Build a Wildfire Tracker With React & NASA API

<https://www.youtube.com/watch?v=ontX4zfVqK8>

# Real-Time Tweets & Socket.io Project | Twitter Streaming API

<https://www.youtube.com/watch?v=PjjjhGW4ceM>

# Project Star Rating Systems Using HTML/SASS/JAVASCRIPT

<https://www.youtube.com/watch?v=yT7Wf6meRCE>

# Review & Rating System in PHP & Mysql using Ajax - 2

<https://www.youtube.com/watch?v=y3E6QW5LtFQ>

# Multiple Images in Single Field || Useful in E-Commerce Product ShowCase || PHP

<https://www.youtube.com/watch?v=J4uPkbQK7So>

# How to upload multiple images in PHP and MYSQL database | With Source Code | display it using php

<https://www.youtube.com/watch?v=ScLANHBCkm0>

**Appendix B Groupwork Marking Scheme**

(Marked out of 100 but weighted at 80%)

| Criteria | Maximum  Mark | Acquisition and application of requisite knowledge | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Novice** | **Beginner** | **Competent** | **Proficient** | **Expert** |
| *Requirements specification* | 10 | Unsatisfactory specification with little or no evidence of decomposition not consistently applied identifies few relevant FRs and NFRs. Presentation is not as expected. | Attempted specification evidence of decomposition but not consistently applied identifies acceptable amount of FRs and NFRs. Presentation is acceptable, dependency matrix significantly incomplete. | Satisfactory specification with clear evidence of decomposition identifying significant amount of FRs and NFRs. Suitably presented, with dependency matrix though incomplete. | Good specification with good evidence of decomposition identifying majority of FRs and NFRs. Well presented, with dependency matrix though incomplete. | Complete specification with full decomposition, of FRs and NFRs. Professionally presented including dependency matrix. |
| *Design documentation* | 15 | Unsatisfactory set of design documents of little value major inconsistencies or omissions and errors in the design. | Attempted set of design documents detailing structure, interaction, behaviour and data modelled though some noticeable inconsistencies or omissions and errors in the design. | Satisfactory and significantly accurate set of design documents detailing structure, interaction, behaviour and data modelled though some minor inconsistencies or omissions. | Good and accurate set of design documents detailing structure, interaction, behaviour and data modelled though some minor inconsistencies or omissions. | Complete and accurate set of design documents detailing structure, interaction, behaviour and data modelled. |
| *Project plan* | 5 | Unsatisfactory use planning techniques plan is of little value. | Attempt to use planning techniques but plan is not reflective of the assessment activities and team effort. | Satisfactory use of planning techniques to plan is mostly reflective of the assessment activities and team effort. | Good use of planning techniques to produce a good plan reflective of the assessment activities and team effort. | Excellent use of planning techniques to produce a professional plan reflective of the assessment activities and team effort. |
| *Risk assessment* | 5 | Unsatisfactory risk assessment, poorly presented providing little value. | Attempt at risk assessment evident, presentation is acceptable though significant omissions or irrelevance. | Satisfactory risk assessment, suitably presented with minor omissions or irrelevance. | Good risk assessment, professionally presented with minor omissions or irrelevance. | Effective and representative risk assessment, professionally presented. |
| *Costing* | 5 | Unrealistic costing with little valid evidence of how the cost has been generated | Costing contains valid elements but is insufficiently rigorous or defined. | Satisfactory costing which is acceptable though not wholly realistic or viably constructed. | Good costing though elements could be more realistic or costs better defined. | Professionally produced and realistic costing |
| *Skills Matrix* | 5 | Unsatisfactory team matrix poorly presented and of little value. | Attempt at team matrix present though there are inaccuracies and unrealistic measurements. | Satisfactory, suitably presented and mostly realistic team matrix. | Good, well presented and representative team matrix. | Excellent, wholly professional and representative team matrix, professionally presented. |
| *Test plan* | 10 | Unsatisfactory test plan, minimal number of tests covered, poor presentation. | Attempt at test plan evident, significant number of tests covered, acceptable presentation. | Satisfactory test plan, majority of tests covered, suitably presented. | Good test plan, full evidence of testing, suitably presented. | Comprehensive test plan, full evidence of testing, professionally presented. |
| *Change Management System* | 5 | Unsatisfactory change management system, unworkable and poorly modelled. | Attempt at change management system evident but not suitably modelled and applied. | Satisfactory change management system, suitably modelled and applied. | Good change management system, professionally modelled and applied. | Excellent change management system, professionally modelled and applied. |
| *Version Control System* | 5 | Unsatisfactory version control system, unworkable and poorly modelled. | Attempt at version control system evident but not suitably modelled and applied. | Satisfactory version control system, suitably modelled and applied. | Good version control system, professionally modelled and applied. | Excellent version control system, professionally modelled and applied. |
| *Repository Schema* | 5 | Unsatisfactory scheme no real logic to the storage of system artefacts. | Attempt at a scheme outlining location of all project resources present, but not wholly clear and structure slightly confused. | Satisfactory scheme outlining location of all project resources, clear evidence of suitable naming scheme and structure. | Good scheme detailing location of all project resources, clear evidence of professional naming scheme and structure. | Professional scheme detailing location of all project resources, clear evidence of professional naming scheme and structure. |
| *User Guide* | 5 | Unsatisfactory guide of little value to a user. | Attempt at user guide evident but incomplete or of limited use, acceptably presented. | Satisfactory and suitable user guide. | A good professional and accurate user guide. | A fully detailed, professional and accurate user guide. |
| *Team Log* | 5 | Unsatisfactory log, little detail and poor presentation. | Attempt at log evident, not wholly accurate log, acceptably produced with the majority of team activities, roles and responsibilities covered. | A satisfactory and sufficiently accurate log, suitably produced detailing team activities, roles and responsibilities. | A good and sufficiently accurate log, professionally produced detailing team activities, roles and responsibilities. | A detailed and accurate log, professionally produced detailing team activities, roles and responsibilities. |
| *Demonstration* | 20 | Unsatisfactory application with little value to the customer. | Attempt at application that reflects the design and requirements for the most part though there are issues with suitability. | Satisfactory application that reflects the design and requirements for the most part, and is suitable for purpose. | A good application that reflects the design and requirements, clearly suitable for purpose. | A nearly professional application that fully reflects the design and requirements, clearly suitable for purpose. |

**Appendix C Individual Marking Scheme**

(Marked out of 100 but weighted at 20%)

| Criteria | Maximum Mark | Acquisition and application of requisite knowledge | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Novice** | **Beginner** | **Competent** | **Proficient** | **Expert** |
| *Degree to which you have reflected appropriately on the work you have produced, the lessons learnt, strengths and weaknesses etc.* | 70 | Not a reflective account, details are presented as is rather than considering the impact upon the learner. | Evidence of some reflection rather than just a narrative of the process though not consistent. | Clear evidence of reflection though lacking depth and some objectivity. | Reflection is evident throughout identifying areas of development and skill acquisition though minor inconsistencies present. | Deeply reflective account with clear evidence of development and skill acquisition along with evaluation of previous skill and knowledge deployment. |
| *Presentation of the report, evidence of additional reading, citations, references.* | 30 | Poor presentation with document providing little assistance to aid comprehension with negligible evidence of additional reading. | Document has errors but they do not detract significantly from content, little evidence of additional reading. | Acceptable standard of documentation with some evidence of additional reading. | High standard of documentation with some evidence of additional reading, appropriately presented. | Wholly professional document, well-structured with clear evidence of additional reading, correctly presented. |

Appendix D – Peer Assessment Notes

For each team member including yourself you are required to complete and submit a Peer Assessment form (use the spreadsheet on Blackboard) the result of the groupwork is then modified by the peer assessment.

Failure to submit a peer assessment form will result in you being recorded as not participating.

There are 5 criteria:

| Participation - attendance at group meetings, timely response to communications, etc. |
| --- |
| Contribution - timely completion of tasks, quality of work, etc. |
| Accountability - making changes when required, well-prepared for meetings, etc. |
| Collaboration - helping others, accepting constructive criticism, etc. |
| Respect - listening to others, not dominating meetings, conflict resolution, etc. |

You rate them for each criteria using the following scale:

| Excellent | Contribution was faultless |
| --- | --- |
| Very good | Great contribution though there were some minor issues, maybe they did not attend a meeting without apologising ahead of time or did not respond to a communication as per the team contract, or their work required minor reformatting. |
| Satisfactory | No real issues but they could have given more to the project/team but did not add to any other team members burden. |
| Ordinary | Acceptable contribution though some additional work had to be done with because they underperformed. |
| Marginal | Issues meant other team members had to do additional work but did not cause significant stress or delay. |
| Deficient | Contribution was made but did not help the team greatly, maybe they required a lot of support to get their work done, or were late with delivery, etc. |
| Unsatisfactory | Team did not function properly because of their contribution, extra work had to be undertaken by others but no components were omitted |
| Superficial | Very minor contribution, overall team would have functioned better without them. |
| No participation | No contribution made at all. |

You may be asked for proof to justify your rating particularly if it is challenged.

Appendix E Skill Matrix

In week 3 of the module, you will be asked to complete a skills matrix (use the spreadsheet on Blackboard). There are two main categories of skills, professional and technical.

Professional skills are:

| Communication | Oral | How comfortable are you talking in groups and being understood? |
| --- | --- | --- |
| Written | How good are you at writing emails, messages etc? |
| Productivity | Team | How well do you work in a team? How capable are you of working with people wo do not have the same work ethic as you or have a different achievement threshold, or special need? |
| Individual | How well do you work as an individual, managing your time, meeting deadlines, etc? |
| Presenting | Confidence | Are you confident speaking in public, presenting to an audience, etc? |
| Q&A | Are you comfortable asking and answering questions, especially in public? |
| Planning | Organisation | How good are you at creating a plan, organising activities in the correct order, etc? |
| Performance | How good are you at performing to a deadline, being accountable for what you do, taking remedial action when required and being proactive? |
| Report Writing | Written | How good are you at professional report writing, structuring, organising, collating and producing a report? |
| Visualisation | How good are you at presenting data, creating visuals, infographics, etc? |

Technical skills are:

| Modelling | Software | How good are you at modelling software, particularly for web or mobile applications using appropriate techniques? |
| --- | --- | --- |
| Data | How good are you at modelling a datastore using appropriate techniques? |
| Programming | Design | How good are you at creating the design of a software application, separating concerns, components, etc? |
| Implementation | How good are you at writing software, particularly for web or mobile applications? |
| Back-end | How good are you at creating or configuring a software server, the logical components, etc? |
| UI | How good are you at creating functional user interfaces with appropriate user interfaces? |
| Testing | Design | How good are you at designing a test specification for a software application? |
| Automation | How good are you at creating tests for software using automation? |

You rate your skill using the following scale:

| Rating | Skill Level | Description |
| --- | --- | --- |
| 5 | Expert | * Fully capable and experienced * Often sought by others for guidance and advice * No need for assistance to complete tasks requiring this skill * Capable of demonstrating and training others in this skill * Regarded as a Subject Matter Expert |
| 4 | Proficient | * Capable and experienced * Have demonstratable record of achievement * Able to use this sill with very little assistance * Ongoing development in this skill moving toward expert |
| 3 | Demonstrating | * Able to perform tasks using this skill at a basic level * Has demonstrable record of using this skill within constraints (i.e., coursework only) * Has need of help but can complete basic tasks with minimal guidance |
| 2 | Basic | * Limited in applying this skill * Limited knowledge of this skill * Cannot perform for project critical tasks * Requires significant guidance and support |
| 1 | None/Low | * Cannot use the skill to a successful standard * Little or no worthwhile experience |

NOTE: It is important you are honest in completing the matrix, do not claim proficiency you do not have, it will harm the project and could ultimately lead to your own personal failure!