COMP6204: Software Project Modelling and Secure Development

Coursework – An ECS Project Archival System Replacement

Project Initial and Planning

Contents

1 Initiation

1.1 Project Charter

Project Charter

Project Title: ECS Project Archival System Replacement

Project Start Date: 06/11/2023 **Project End Date**: 23/10/2024

Project Budget: £200,000.00

Project Manger: Edward Joyce

Project Objectives:
Develop a new project archive system capable of making available previous projects for Part III, MSc and MEng Group Design Projects to staff and students of ECS. The site will include the ability to list, sort and search all three project categories as well as export the final project reports and their datasets. The searching ability of the new system will be comparable to the ePrints system used for research papers and PhD theses at the University.

Project Stakeholders:

ECS Administrative Team	Future ECS Project Students
ECS Faculty	Module Leaders
iSolutions	Project Supervisors
Current ECS Project Students	Development Team

Table 1: Project Stakeholders

Success Criteria:

- Projects can be uploaded
- Projects can be assigned an embargo date
- Projects are assigned keywords and can be searched/sorted according to them
- Project datasets and reports can be exported
- Part III, GDP Projects and MSC Projects are all uploadable and supported

Key Milestone Timeline:

- Project Commences - **06/11/2023**
- Project Initiation & Planning Deliverable Date - **27/12/2023**
- Project Preparation Completion - **25/03/2024**
- Project Development Completion - **05/09/2024**
- Project Handover Completion - **02/10/2024**
- Project Closing Completion - **23/10/2024**

Approach:

- Develop a survey to gather opinions and requirements from the stakeholders including students and staff
- Develop a replacement system and backend to show projects
- Create a link to the existing Handin system to import student projects
- Import previous projects and their data to the new archive
- Handover to iSolutions for ongoing maintenance and operation
- Project reflection with development & planning team

1.2 Assumption Log

ID	Assumption Description	Category	Responsible Owner	Due Date	Status	Actions
1	Team members will be available to work on the project for enough hours to complete the project	Personnel	Edward Joyce	27/12/2023	Open	Determine length of project, staff hours, holiday and if more personnel would need to be brough on board or scope reduced to meet project deadlines.
2	Codebase will be accessible 24/7 - no downtime from any storage solution	Technical	James Muir	23/10/2024	Open	Check SLA of cloud storage/hosting service, deploy multiple backups of development code, live code and project documentation.
3	The project milestone planning milestone will be met by the agreed date so development can begin.	Administrative	Edward Joyce	27/12/2023	Open	Layout plan for planning/initiation phase including work hours and expected progress to track if the deliverable will be completed on time.
4	The project team has the necessary technical abilitiy and knowledge to complete their tasks	Personnel	Edward Joyce	23/10/2024	Open	Determine the technical requirements and needs for the project, ensure additional training for team members who may not have required skills or assign different team members based on knowledge.
5	All students will have a pre-existing university account to access the project	Submission	Arash Hushyar	27/12/2023	Open	Check with ECS/iSolutions that university accounts can be intergrated into the project.

6	The projects uploaded will not be malicous in a way that could damage the archive system (e.g zip bombs)	Submission	Arash Hushyar	05/09/2024	Open	Contact ECS for submission requirments and research potential risks, look at previous projects and determine what security/acceptance criterea for projects should be in place to prevent distribution of any harmful files.
7	All submissions will have meta-data including project title, student name, supervisor name, module name, programme of study, year of study, supervisor information and type of report	Submission	Arash Hushyar	05/09/2024	Open	Contact ECS for submission requirements and meta-data information.
8	The length of the report embargos is defined before any submissions	Submission	Arash Hushyar	05/09/2024	Open	Contact ECS for embargo details, lengths and customisability, by default don't display projects with no assigned embargo.
9	The project will be provided with the full £200,000 from the budget	Administrative	Edward Joyce	23/10/2024	Open	Make sure the full budget is available and assigned to the project - ensure budget release schedule is agreed upon and delivered promptly.
10	Every submission will have a pdf report	Submission	Arash Hushyar	05/09/2024	Open	Discuss submission requirements with ECS, make sure no case where a PDF is not present.
11	There is adequate storage space available to store previous projects and future projects	Technical	James Muir	23/10/2024	Open	Find out what the size requirements of project, potentially upper limits of storage solutions and expansion ability.
12	iSolutions/ECS will be able to take over project operation and maintenance once complete	Administrative	Kristian Ivanov	23/10/2024	Open	Check iSolutions has the capability to takeover operations and that training will be available so they can utilize and manage the tool.

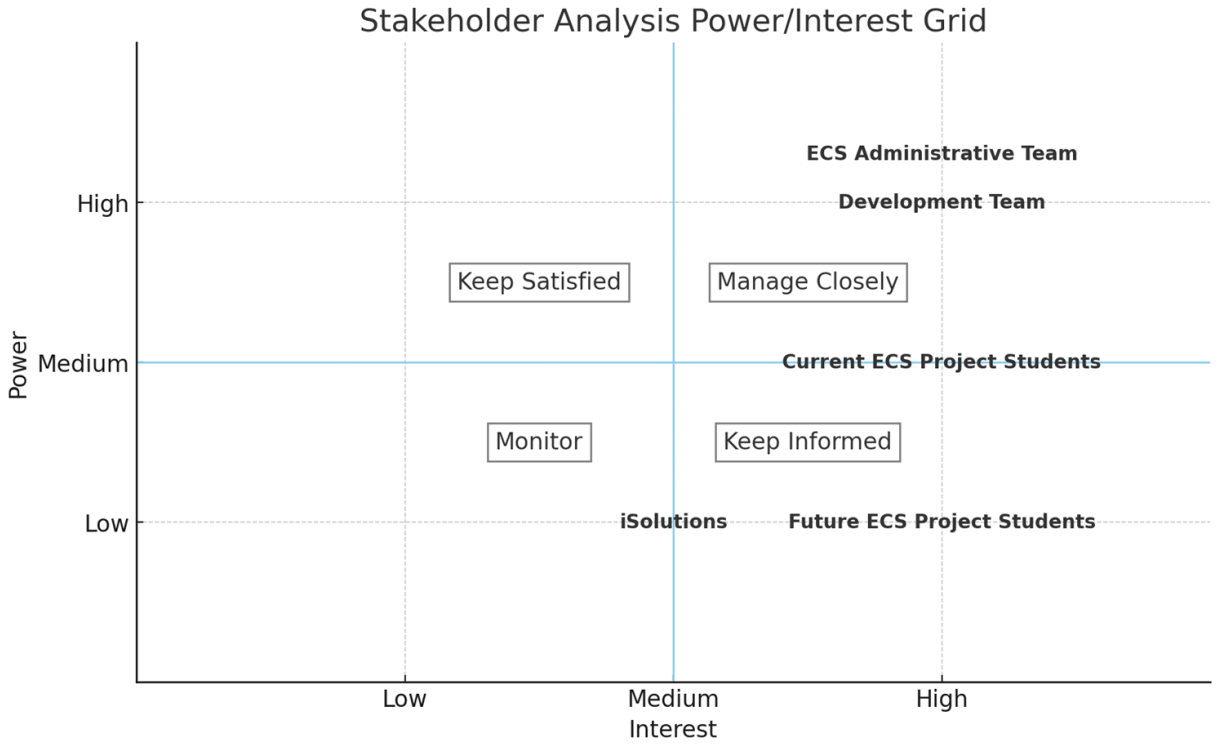
13	The hardware that hosts the completed project will meet all dependencies of the software.	Technical	James Muir	23/10/2024	Open	Find out what the specification of the server that will be running the project after completion. Project or server can be adjusted according to needs.
14	iSolutions/ECS will be able to provide test hardware for the development of the archive systen	Administrative	Kristian Ivanov	05/09/2024	Open	Check iSolutions has the capability to set up the required test enviorments ahead of the start of development. Make sure iSolutions is consulted for technical requirements.
15	iSolutions/ECS will be responsible for setting up and maintaining storage including back-ups	Technical	James Muir	23/10/2024	Open	Check iSolutions has the capability to set up the required storage for both testing and for prodution and that there exists the ability for regular backups to be made
16	iSolutions will setup a test handin system including dummy data to test our archival systems.	Technical	James Muir	05/09/2024	Open	Confirm with iSolutions that system will be deployed and available for the testing phase.
17	Administrative and Technical Stakeholders will be available for training upon project completion to learn how to manage and utilise the new archival system.	Administrative	Kristian Ivanov	02/10/2024	Open	Reach out to stakeholders and confirm a schedule for training to be conducted after project completion.
18	The budget will be utilized for salaries only, equipment, workspace and hardware will be provided by the University out of separate budget.	Financial	Kristian Ivanov	23/10/2024	Open	Ensure the university and ECS faculty are in agreement of the financial obligations they have to the project.

1.3 Project Stakeholders

1.3.1 Stakeholder Register

Name	Position	Relation	Project Role	Contact Information
Current ECS Project Students	Student	Internal	Primary Beneficiaries/Users	ecs-students-current@example.com
iSolutions	IT Support Department	Internal	Technical Support and System Integration	isolutions@example.com
Future ECS Project Students	Student	Internal	Future Beneficiaries/Users	ecs-students-future@example.com
ECS Administrative Team	Administrative Staff	Internal	Project Oversight and Management	ecs-admin@example.com
ECS Faculty	Teaching staff	Internal	Secondary Beneficiaries/Users	ecs-faculty@example.com
Module Leaders	Teaching staff	Internal	Secondary Beneficiaries/Users	module-leareds@example.com
Project Supervisors	Teaching staff	Internal	Secondary Beneficiaries/Users	supervisors@example.com
Kristian Ivanov	Developer	Internal	Development Team	kivanov@example.com
Edward Joyce	Developer	Internal	Development Team	ejoyce@example.com
James Muir	Developer	Internal	Development Team	jmuir@example.com
Arash Hushyar	Developer	Internal	Development Team	ahushyar@example.com

1.3.2 Stakeholder Analysis Power/Interest Grid



1.3.3 Stakeholder Management Strategy

Name	Level of Interest	Level of Influence	Potential Management Strategies
Current ECS Project Students	High	Medium	Engage with regular updates, solicit feedback through surveys and focus groups, involve them in beta testing to ensure their needs are met.
iSolutions (Technical Support)	Medium	Low	Provide detailed documentation and training on the finished product, schedule periodic check-ins to discuss any support issues that arise post-implementation.
Future ECS Project Students	High	Low	Keep informed through newsletters or a project webpage, collect ideas through surveys.
ECS Administrative Team	High	High	Involve in decision-making processes, maintain clear communication on project progress, align project goals with institutional objectives.
Development Team (K. Ivanov, E. Joyce, J. Muir, A. Hushyar)	High	High	Regular project meetings, clear and timely feedback loops, ensure alignment with project specifications and stakeholder requirements.

ECS Faculty	Low	Medium	Keep informed with faculty newsletters and email updates.
Project Supervisors	Medium	Medium	Keep all supervisors informed regularly with updates and survey their requirements.
Module Leaders	Medium	Medium	Keep informed with updates to the systems and survey their requirements.

2 Planning

2.1 Scope Statement

Scope Statement

Project Title: ECS Project Archival System Replacement
Date: 14/11/2023
Project Justification:
The new project archival system will enable the ECS faculty to make previous students work available easily to all students and enable sorting and searching through all projects. At the moment there is a basic system in place for third year Individual Projects however it has limited functionality and Masters projects including the Group Design Project currently have no archive system in place at all. This project was requested by ECS to enable current and future students to be able to access all the part III, MSc and MEng projects and their datasets in a user friendly way.

Product Requirements:
The archive system will be a web app enabling the faculty to store projects of several different types including the part III individual projects as well as the part IV individual and Group Design projects. These projects and any associated datasets will need to be accessible, searchable and sortable from the web app by students, faculty and staff. The projects will be stored on the archive system but will not be accessible until an embargo time is reached.

The projects must be exportable so the reports can be viewed and have associated key words for easier search and discovery - these include: name, email, module name, programme of study, year of study, supervisors' information type of report (Part-III Individual Project, GDP Project or MSc Project).

Product User Acceptance Criteria:

- Projects can be uploaded
- Projects can be assigned an embargo date
- Admin staff can manually edit and manage the archive
- Projects are assigned keywords and can be searched/sorted according to them
- Project datasets and reports can be exported
- Part III, GDP Projects and MSC Projects are all uploadable and supported

Summary of Deliverables:

1. Planning and Initiation Deliverable to Project Team and Stakeholders - 27/12/2023
2. Final Project Deliverable to Stakeholders - system in production with training and documentation made available - 23/10/2024

2.2 Requirements Plan

Requirements Management Plan

2.2.1 Gathering Requirements

During the initiation phase the project team will have developed an approximate understanding of the scope of the project, but during the planning phase the team will now be working with all key stakeholders to elicit a complete set of requirements.

The project team will use a variety of sources and techniques in order to maximise the coverage of requirements from all stakeholders, including:

- An in-depth analysis of all the existing features of the old archive system
- A survey of academics and students to learn what features they want and what improvements are desired
- A case-study of similar systems such as the University Eprints System (eprints.soton.ac.uk)

An in-depth analysis of all the existing features of the old archive system

A survey of academics and students to learn what features they want and what improvements are desired.

A case-study of similar systems such as the University Eprints System (eprints.soton.ac.uk)

Once all requirements are gathered, they will be linked to respective tasks in the Work Breakdown Structure to ensure that all requirements will be addressed by the completed project.

2.2.2 Performing Requirements Management Activities

The project development team will be using the Gitlab code collaboration platform and version control system. This provides shared code repository that allows developers to work collaboratively and track each other's changes to the project source code. Gitlab also provides Continuous Integration and Delivery (CI/CD), which will be used to automate code unit testing, deployment, and code quality checks such as linting.

2.2.3 Prioritising Requirements

To ensure that the most important requirements are met, we will be using a MoSCoW analysis of all our gathered requirements in order to prioritise them. The MoSCoW analysis will classify requirements like so:

- "**M**" if they are considered to be must-have or mandatory
- "**S**" for should-have or desirables
- "**C**" for could-have or nice-to-haves
- "**W**" for will-not-have, or stretch goals

This prioritisation style is a quick and simple way to ensure the development team will focus resources according to the importance of the requirements. Some factors determining priority may include whether a requirement is core to the main functionality of the application and the influence of the affected stakeholder.

2.2.4 Product Metrics for Success

As part of evaluating our deliverables, we need a technique to decide if we were successful in fulfilling each of the requirements we agreed upon with the stakeholders. A key part of this is the product metrics, a way to quantify the success of our product using automatically generated telemetry or manually elicited feedback. Sources for this will include:

- Providing prototype builds to end-users for early feedback
- Deploying surveys within the application interface after a pre-determined amount of usage
- Sending out surveys external of the application via email or physical hand-outs
- Automatic telemetry generated by the client-side application during the usage
- Telemetry generated using statistics available from server-side back-end

These sources will then be used to generate product metrics such as:

- Average time spent searching for submissions
- Time between Handin submission and project becoming available on the Archive system
- Website accessibility rating according to WCAG 2.2
- Number and severity of bug reports and issues raised by users
- Adoption rate by end-users
- Approval rating by end-users
- Downtime and latency-variation of micro-services
- Hardware resource requirements during uptime
- Typical response times to queries

2.3 Requirements Matrix

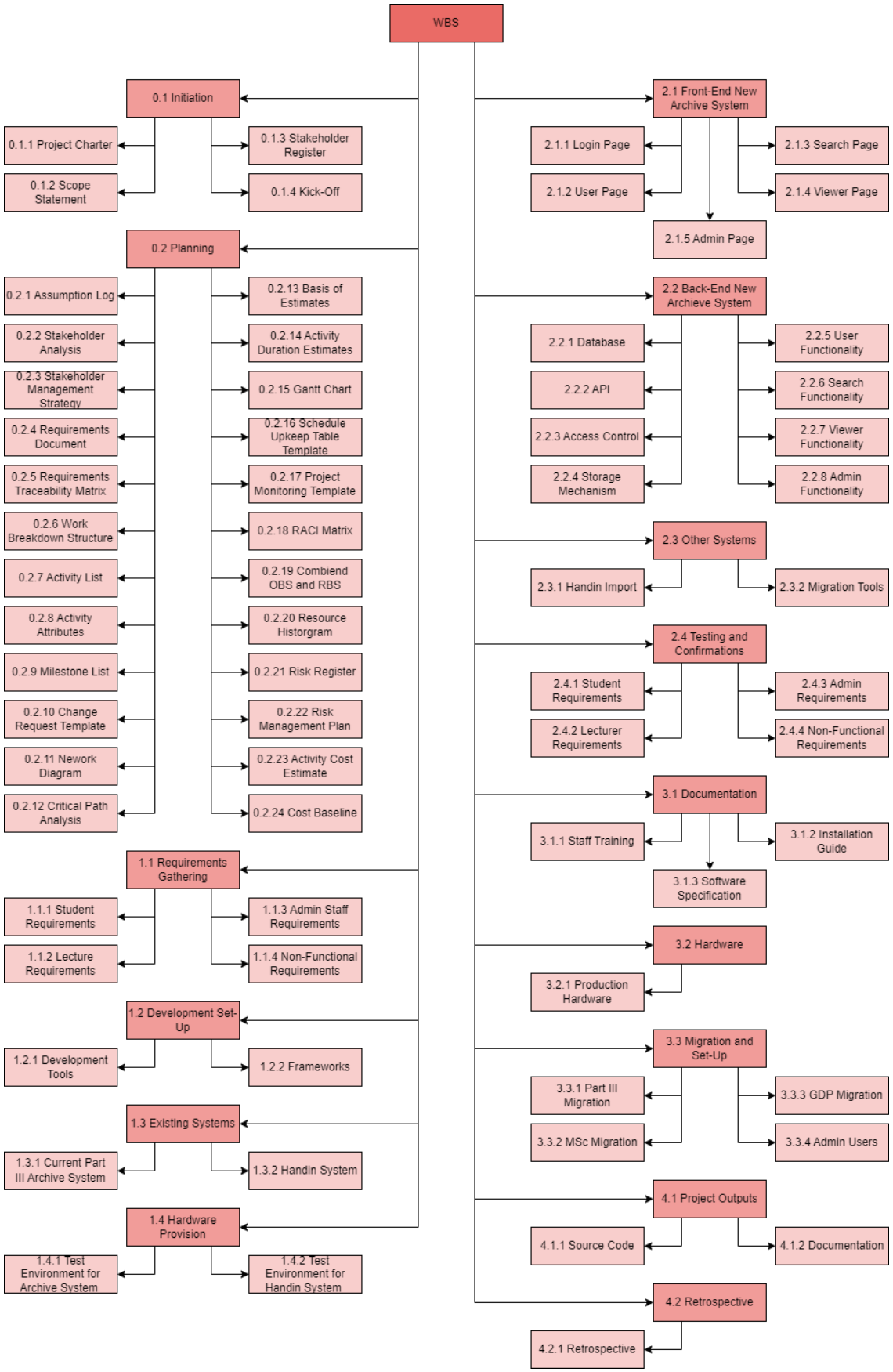
Req ID	WBS ID	Description	Type	Category	Acceptance Criteria	Stakeholder Role	Priority	Phase (1-4)
1	2.2	The archive system must be accessible to Electronics and Computer Science staff and students	Functional	Core Functionality	The system should be accessible on the *.ecs.soton.ac.uk to all ECS members	End-User	Must	2
2	2.1.1	The archive system should have a login page and access control roles depending on the users.	Functional	Security	The system should not be accessible to non-ECS students or staff, and each user should have a personal profile upon login.	End-User	Must	2
3	2.1.5	The archive system should allow for certain users to manage and administrate the system.	Non- Functional	Security	Certain users should be allocated administrative or superuser permissions, which allow them to modify the resources that users have access to	iSolutions	Should	2
4	2.2.3	The system should support and encourage the use of multi-factor authentication. MFA must not be optional for administrator accounts.	Functional	Security	Accounts with MFA setup and enabled should not be accessible unless the MFA token is provided at the start of each session.	End-User	Could	2
5	1.3.2	Students must be able to submit and access their own project reports and dissertations.	Functional	Core Functionality	The upload system should be accessible to students.	End-User	Must	1
6	2.4.2	Project supervisors should be able to access the projects of their assigned students.	Functional	Core Functionality	Supervisors should have read-only access to project files and read/write access to project metadata.	End-User	Must	2

7	2.2.4	Project reports and dissertations from previous years should be accessible to future students and staff.	Functional	Core Functionality	The system should be able to store and return reports and dissertations from any year.	End-User	Should	2
8	2.1	The user experience for students and academics should be user friendly.	Non-Functional	User Experience	The new archive system should have a more usable interface than the old archive system.	End-User	Should	2
9	2.2.2	Students should be able to submit multiple versions of their reports or dissertations.	Functional	Core Functionality	The archive system should have a basic version control system for submissions and prioritise the latest submissions for viewing and marking.	End-User	Should	2
10	2.3.1	Students must be able to submit their report document alongside accompanying files such as source code, data sets and videos.	Functional	Core Functionality	The archive system must import all files accompanying the report document from the Handin system for every project	End-User	Must	2
11	2.2.6	Each submission must have accompanying metadata about the project.	Functional	Core Functionality	The archive system should store the student's information, the supervisor's information, and the type of each project.	End-User	Must	2
12	2.2.3	It should be possible to place embargos on some reports and dissertations as well as any associated data.	Functional	Core Functionality	The archive system should allow a project and its files to remain unlisted and unavailable for a specifiable period.	ECS Administrative Team	Could	2

13	2.2.2	The new archive system should import new submissions and all files from the existing Handin system as soon as the submission is available.	Functional	Core Functionality	The archive system connects to the Handin system to download projects as soon as they are submitted.	End-User	Should	2
14	2.1.3	The archive system should support various ways to search submissions for both students and academics.	Functional	Core Functionality	Projects should be searchable on their title, author, date, supervisor, category, field of study, and abstract.	End-User	Must	2
15	2.2.6	Searching the archive should be fast, even with several years of projects stored.	Non- Functional	Performance	Projects should be efficiently indexed, and searches should finish in less than 10 seconds.	End-User	Should	2
16	3.2.1	The archive system should be scalable over time as the archive size grows.	Non- Functional	Performance	The archive system should be designed such that it's easy to increase the storage allocated to storing project files and metadata.	Development Team	Could	3
17	3.3	The new archive system should make available all the reports and dissertations from the existing archive system.	Functional	User Experience	Projects and dissertations from previous years must be migrated into the new archive system.	End-Users	Could	3
18	2.2.8	The archive system must comply with privacy regulations.	Functional	Security	The archive system should be vetted and complaint with the 2018 Data Protection Act.	End Users / ECS Administrative Team	Should	2
19	1.2.2	The archive system should support over 1000 concurrent users without slowing down.	Non-Functional	Performance	It should take less than 500ms to load pages on the web application.	End-Users	Should	1

20	3.2.1	The archive system should not have downtime once deployed.	Non-Functional	Security	The system should be highly available, have built-in redundancy, and there should be a contingency plan.	Development Team	Should	3
21	2.2.4	The archived files should be secure against unauthorised access, even if leaked.	Non-Functional	Security	Project files (not metadata) should be encrypted such that only users authorised to access them can decrypt them.	End-Users	Should	2
22	2.2.4	The archive system should take backups in case of a data loss.	Functional	Security	The system should take occasional full snapshots as well as regular incremental backups.	Development Team	Could	2

2.4 Work Breakdown Structure



2.5 Activity List

2.5.1 Section 0 – Initiation & Planning

Activity Identifier	Activity Name	Activity Description
0.1.1.1	Create project charter	Create the project charter
0.1.1.2	Sign-off document	Ensure all team members and stakeholders sign-off the project charter
0.1.2.1	Create scope statement	Create the scope statement
0.1.2.2	Sign-off scope statement	Ensure all team members and stakeholders sign-off the scope statement
0.1.3.1	Create stakeholder register	Create stakeholder register
0.1.3.2	Sign-off stakeholder register	Ensure relevant team members sign-off the document
0.1.4.1	Hold kick-off meeting	Full project team in attendance, main kick off meeting.
0.2.1.1	Create assumption log	Create assumption log
0.2.1.2	Sign-off assumption log	Ensure relevant team members sign-off the document
0.2.2.1	Create stakeholder analysis	Create stakeholder analysis
0.2.2.2	Sign-off stakeholder analysis	Ensure relevant team members sign-off the document
0.2.3.1	Create stakeholder management strategy	Create stakeholder management strategy
0.2.3.2	Sign-off stakeholder management strategy	Ensure relevant team members sign-off the document
0.2.4.1	Create requirements document	Create requirements document
0.2.4.2	Sign-off requirements document	Ensure all team members and stakeholders sign-off the requirements document
0.2.5.1	Create requirements traceability matrix	Create requirements traceability matrix
0.2.5.2	Sign-off requirements traceability matrix	Ensure relevant team members sign-off the document
0.2.6.1	Create work breakdown structure	Create work breakdown structure
0.2.6.2	Sign-off work breakdown structure	Ensure relevant team members sign-off the document
0.2.7.1	Create activity list	Create activity list
0.2.7.2	Sign-off activity list	Ensure relevant team members sign-off the document
0.2.8.1	Create activity attributes	Create activity attributes
0.2.8.2	Sign-off activity attributes	Ensure relevant team members sign-off the document
0.2.9.1	Create milestone list	Create milestone list with dates
0.2.9.2	Sign-off milestone list	Ensure relevant team members sign-off the document
0.2.10.1	Create change request template	Create template for use in any future change requests made by project team
0.2.10.2	Sign-off change request template	Ensure relevant team members sign-off the document
0.2.11.1	Create network diagram	Create network diagram of the activities

Activity Identifier	Activity Name	Activity Description
0.2.11.2	Sign-off Network diagram	Ensure relevant team members sign-off the document
0.2.12.1	Create Critical path analysis	Create Critical path analysis document
0.2.12.2	Sign-off critical path analysis	Ensure relevant team members sign-off the document
0.2.13.1	Create basis of estimates	Create basis of estimates outlining how the duration estimates were decided
0.2.13.2	Sign-off basis of estimates	Ensure relevant team members sign-off the document
0.2.14.1	Create activity duration estimates	Outline the workload for each activity and estimate work hour requirement and estimated duration
0.2.14.2	Sign-off activity duration estimates	Ensure relevant team members sign-off the document
0.2.15.1	Create Gantt chart	Create Gantt chart
0.2.15.2	Sign-off Gantt chart	Ensure relevant team members sign-off the document
0.2.16.1	Create Schedule Update Table Template	Create Schedule Update Table Template to track progress during project with value produced
0.2.16.2	Sign-off Schedule Update Table Template	Ensure relevant team members sign-off the document
0.2.17.1	Create project monitoring template	Create project monitoring template
0.2.17.2	Sign-off Project monitoring template	Ensure relevant team members sign-off the document
0.2.18.1	Create RACI responsibility assignment matrix	Create RACI responsibility assignment matrix
0.2.18.2	Sign off RACI responsibility assignment matrix	Ensure relevant team members sign-off the document
0.2.19.1	Create combined RBS and OBS	Create combined RBS and OBS
0.2.19.2	Sign-off combined RBS OBS	Ensure relevant team members sign-off the document
0.2.20.1	Create resource histogram	Create resource histogram
0.2.20.2	Sign-off resource histogram	Ensure relevant team members sign-off the document
0.2.21.1	Create risk register	Create risk register
0.2.21.2	Sign-off risk register	Ensure relevant team members sign-off the document
0.2.22.1	Create risk management plan	Create risk management plan
0.2.22.2	Sign-off risk management plan	Ensure relevant team members sign-off the document
0.2.23.1	Create activity cost estimate	Create activity cost estimate
0.2.23.2	Sign-off activity cost estimate	Ensure relevant team members sign-off the document
0.2.24.1	Create cost baseline	Create cost baseline and compare to budget, decided management and contingency reserve.
0.2.24.2	Sign-off cost baseline	Ensure relevant team members sign-off the document

2.5.2 Section 1 – Preparation Work

Activity Identifier	Activity Name	Activity Description
1.1.1.1	Create survey	Using Microsoft Forms create a survey to be completed online, that gathers the views of the potential student users
1.1.1.2	Secure ethical approval	Apply for ethical approval from the ethics board for the survey using the ergo2 system
1.1.1.3	Send out survey	Distribute survey among students via email lists and ECS discord
1.1.1.4	Analyse survey results	Using the responses look at common requests and assess their suitability for inclusion as features
1.1.1.5	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase
1.1.2.1	Create survey	Using Microsoft Forms create a survey to be compiled online, that gathers the views of the potential lecturer users
1.1.2.2	Secure ethical approval	Apply for ethical approval from the ethics board for the survey using the ergo2 system
1.1.2.3	Send out survey	Distribute survey among lecturers via email lists
1.1.2.4	Analyse survey results	Using the responses look at common requests and assess their suitability for inclusion as features
1.1.2.5	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase
1.1.3.1	Create survey	Using Microsoft Forms create a survey to be compiled online, that gathers the views of the potential admin users
1.1.3.2	Secure ethical approval	Apply for ethical approval from the ethics board for the survey using the ergo2 system
1.1.3.3	Send out survey	Distribute survey among admin staff via emails gathered from ECS department
1.1.3.4	Analyse survey results	Using the responses look at common requests and assess their suitability for inclusion as features
1.1.3.5	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase
1.1.4.1	Identify non-function requirements	Identify non-functional requirements such performance targets and SSO requirements
1.1.4.2	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase
1.2.1.1	Set up repository for code	Set up a repository for the project on the Soton Gitlab and ensure all team members have the appropriate access
1.2.1.2	Identify code review plan	Identify which members of the team will be responsible for signing off each other members code before it can be pushed to the main branch
1.2.2.1	Agree on language for backend	Based off team skills and customer requirements choose language for backend to be written in

Activity Identifier	Activity Name	Activity Description
1.2.2.2	Agree on framework for back-end	Based off team skills, customer requirements and licensing terms choose framework for backend
1.2.2.3	Agree of language for front-tend	Based off team skills and customer requirements choose language for frontend to be written in
1.2.2.4	Agree on framework for front-tend	Based off team skills, customer requirements and licensing terms choose framework for frontend
1.2.2.5	Agree on API structure for Handin to Archive System	Analyse all the requirements regarding communication between the Handin system and the Achieve system and agree on the API structure. If feasible the Handin system will be modified to serve the requests directly, else an intermediary system will be created to scrape the data and return it in the API format to ensure the new Archive system remains usable if Handin is replaced.
1.2.2.6	Agree on API structure for frontend to backend	Analyse all the requirements regarding communication between the front-end and back-end of the new Archive system.
1.3.1.1	Analyse suitability for data migration	Investigate current system to determine the best way to pull the existing projects off It
1.3.1.2	Design tools required to migrate data to new system	Design the tools required to migrate data off the existing system, including sign off from iSolutions if tool will need to access existing databases or other service under iSolutions management
1.3.2.1	Analyse suitability for API access to pull projects and Handin details	Determine if the Handin system has any existing API or method to query data, or it one will need to be created. Either by modifying the Handin system or creating a separate tool to scrap the data off the webpage.
1.3.2.2	Assess if access to Handin source code is possible	Determine if access to Handin source code is possible, and if so, who has responsibility for it.
1.3.2.3	Assess if Handin can be modified within project constraints	If source code access is available assess if it is feasible to modify it if required to serve the API requests. This is constrained by access (1.3.2.2), the state of the code and the skills of team members to modify with in the time and budget constraints of the project.
1.3.2.4	Assess if previous years projects for MSc and MEng reports can be pulled from Handin system	Determine if previous years MSc and MEng are available from Handin system and the feasibility of pulling them off the system into the new Achieve system.
1.4.1.1	Agree software to be used with project stakeholders	Agree on hardware and software constraints with stakeholders. For example, University might require internal tools to use Azure SQL for database services and Windows Server for an OS.
1.4.1.2	Arrange for suitably configured test hardware provision from iSolutions including database for new Archive System	Arrange for iSolutions to set up hardware and storage services like what will used in production for testing purposes.

Activity Identifier	Activity Name	Activity Description
1.4.2.1	Arrange for suitably configured test hardware provision from iSolutions including database for Handing System	Arrange for iSolutions to set up hardware and storage services to run a copy of the Handin system
1.4.2.2	Arrange for copy of Handin system and dependencies to be set up on provisioned hardware	Arrange for a copy of the Handin system to be installed on the hardware provided by iSolutions and populate it with test data.

2.5.3 Section 2 - Development

Activity Identifier	Activity Name	Activity Description
2.1.1.1	Design login UI mock-ups	Using Figma create a series of potential mock-ups of the login page, this page should allow users to authenticate themselves using the university SSO
2.1.1.2	Agree on login mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design
2.1.1.3	Implement chosen login mock-up	Take the chosen design and implement it with the previously decided framework
2.1.2.1	Design user UI mock-ups	Using Figma create a series of potential mock-ups of the upload page, this page should direct the user to their home page. For students this should show previously viewed reports and recent searches. For lecturers it should show the same and summaries of any modules with reports that they oversee. For admin staff it should show a summary of recent actions.
2.1.2.2	Agree on user mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design
2.1.2.3	Implement chosen user mock-up	Take the chosen design and implement it with the previously decided framework
2.1.3.1	Design search UI mock-ups	Using Figma create a series of potential mock-ups of the search page. This page should allow users to search for past reports with a variety of different criteria, including module, year, keywords, title, author and supervisor.
2.1.3.2	Agree on search mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design
2.1.3.3	Implement chosen search mock-up	Take the chosen design and implement it with the previously decided framework
2.1.4.1	Design viewer UI mock-ups	Using Figma create a series of potential mock-ups of the viewer page, this should show users the report alongside that information about it. The user should be allowed to save the report for future reference
2.1.4.2	Agree on viewer mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design

Activity Identifier	Activity Name	Activity Description
2.1.4.3	Implement chosen viewer mock-up	Take the chosen design and implement it with the previously decided framework
2.1.5.1	Design admin UI mock-ups	Using Figma create a series of potential mock-ups of the admin page this page should allow admin staff to manual edit information and configure settings. They should also be able to see a summary of what is commonly being looked for.
2.1.5.2	Agree on admin mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design
2.1.5.3	Implement chosen admin mock-up	Take the chosen design and implement it with the previously decided framework
2.2.1.1	Design database structure	Design the structure of the database, this will need to store the information about the reports, a reference to their location and user data.
2.2.1.2	Implement database	Using the structure designed in 2.2.1.1 implemented the database in the software agreed in 1.4.1.1
2.2.2.1	Implement API for front-end to back-end	Implement skeleton API to serve requests from the front-end to the back end
2.2.2.2	Implement API to request report pages	Implement API for new archive system to request reports
2.2.3.1	Create user account types	Create back-end functionality for the three user account types, student, lecturer and admin
2.2.3.2	Create user account levels	Implement the various permission options that can be granted to an account
2.2.3.3	Create login logic	Create functionality for users to login, likely using SSO
2.2.3.4	Add checks on API to enforce permissions	Add checks on the APIs to ensure only authorised requests are processed
2.2.4.1	Identify format of report storage	Based on the requirements agreed in 1.4.1.1 identify the best way to store the reports
2.2.4.2	Configure backend storage mechanism	Configure the back end to use the identified storage
2.2.5.1	Implement user page functionality	Implement the back-end code required to create the user page
2.2.5.2	Implement API to serve user page to front end	Implement the section of the API required to serve the back-end user page functionality to the front end
2.2.6.1	Implement ability of search results by title or module	Implement the back-end code required to allow users search results by title or module
2.2.6.2	Implement advance search functionality	Implement ability to search by keywords, author and supervisors
2.2.6.3	Implement the ability to generate reports on common searched items	Implement the ability to generate reports on common searched items for use by admin staff
2.2.6.4	Implement API to serve search page to front end	Implement the section of the API required to serve the back-end search page functionality to the front end
2.2.7.1	Implement ability to generate viewer page	Implement the back-end code required to generate the viewer page, such as request the report file and data to be served to the user

Activity Identifier	Activity Name	Activity Description
2.2.7.2	Implement ability to save pages	Implement the ability for users to save pages for them to later view from their account
2.2.7.3	Implement ability to export pages	Implement the ability to export pages for users including the file and the refence in a selected common format
2.2.7.4	Implement API to serve view functionality to front end	Implement the section of the API required to serve the back-end view page functionality to the front end
2.2.8.1	Implement the ability for admin staff to manually upload reports and report information	Implement the ability for admin staff to manually upload reports and report information
2.2.8.2	Implement the ability for admin staff to block certain modules from public search	Implement the ability for admin staff to block certain modules from public search, such as when marking or feedback is delayed
2.2.8.3	Implement the ability for admin staff to manual edit information	Implement the ability for admin staff to manually edit the information or file of individual reports and block if from being overwritten by the data from Handin
2.3.1.1	Implement request via API the reports and their details	Implement the ability for the Handin system to respond to request the file and information about reports
2.3.1.2	Implement request via API the module information	Implement the ability for the Handin system to respond to request the information about the module such as the year and coordinator
2.3.2.1	Create tool to transfer Part III projects to new system	Create a tool to transfer Part III projects to new system likely by copying the existing database and transferring it in a few format
2.3.2.2	Create tool to transfer MSc and GDP projects to new system	Create a tool to transfer MSc and MEng projects to new system by copying them off Handin or another source if possible
2.4.1.1	Confirm student requirements met with the acceptance criteria	Test to ensure each identified student requirement has been met
2.4.1.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met
2.4.2.1	Confirm lecturer requirements met with the acceptance criteria	Test to ensure each identified lecturer requirement has been met
2.4.2.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met
2.4.3.1	Confirm admin requirements met with the acceptance criteria	Test to ensure each identified admin requirement has been met
2.4.3.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met
2.4.4.1	Confirm non-functional requirements have been met	Test to ensure each identified non-functional requirement has been met
2.4.4.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met

2.5.4 Section 3 – Handover

Activity Identifier	Activity Name	Activity Description
3.1.1.1	Create a staff training guide	Create a guide to be used to train staff on how to use the system
3.1.1.2	Create a schedule for staff training	Create a schedule that uses the guide as a basis to train staff
3.1.2.1	Create an installation guide	Create the documentation on how to install and configure the new archive system for use by iSolutions.
3.1.2.2	Secure iSolutions sign off	Ensure that iSolutions are satisfied with the installation guide and they fully understand the procedure
3.1.3.1	Create a document outlining software requirements	Create a document that outlines the software requirements including items like required storage and database set ups
3.2.1.1.	Arrange for iSolutions to set up the production hardware configuration	Arrange for iSolutions to set up the production hardware configuration that the new achieve system will be run on and ensure the hardware configuration is correct
3.2.1.2	Arrange for iSolutions to set up database	Arrange for iSolutions to set up the database configuration that the new achieve system will use and ensure the database configuration is correct
3.2.1.3	Arrange for iSolutions to provision necessary storage	Arrange for iSolutions to set up the necessary storage for the report files that the new achieve system will use and ensure the storage configuration is correct
3.2.1.4	Arrange for iSolutions to update Handin system if required	If required arrange for iSolutions to update the Handin system to enable the new Archive system to make API requests
3.2.1.5	Arrange for iSolutions to install new archive system	Arrange for iSolutions to install new archive system and verify it's working
3.3.1.1	Use tool to migrate Part III projects from the current production system and transfer them to the new one	Use the migration tool to migrate existing Part III projects one the new system
3.3.2.1	Confirm if it is feasible to add past MSc projects to the system	Confirm if it was possible at the development stage to develop tool to migrate past MSc projects either from the Handin system or another place. Else document reasons why and methods tried for possible future work.
3.3.2.2	Transfer MSc projects to the new system	If possible, transfer MSc projects to the new system with the created tool
3.3.3.1	Confirm if it is feasible to add past GDP projects to the system	Confirm if it was possible at the development stage to develop tool to migrate past GDP projects either from the Handin system or another place. Else document reasons why and methods tried for possible future work.
3.3.3.2	Transfer GDP projects to the new system	If possible, transfer GDP projects to the new system with the created tool

3.3.4.1	Obtain list of admin staff from ECS and their required permissions	Communicate with ECS leadership team to build a list of admin staff that require access to the system and what level of permissions they require. Ensure there is a member of admin staff designated as "in charge" for ongoing permission updates and staff changes
3.3.4.2	Add admin staff with appropriate permissions	Add the admin staff with the specified level of permissions, ensure all users can access the system and no issues exist

2.5.5 Section 4 – Closing Tasks

Activity Identifier	**Activity Name**	**Activity Description**
4.1.1.1	Ensure the source code for the new archive system is stored and available	Make sure that all the source code and related development materials are stored and handed over to iSolutions and ECS for long term storage.
4.1.1.2	Ensure any code changes or API module for the Handin system is stored and available	Make sure that all the source code and related development materials are stored and handed over to iSolutions and ECS for long term storage.
4.1.2.1	Ensure all documentation is stored and available	Make sure that any documentation is stored and handed over to iSolutions and ECS for long term storage.
4.2.1.1	Have the team reflect on what went well for the preparation phase	Have the team reflect on what went well for the preparation phase
4.2.1.2	Have the team reflect on what went well for the development phase	Have the team reflect on what went well for the development phase
4.2.1.3	Have the team reflect on what went well for the migration phase	Have the team reflect on what went well for the migration phase
4.2.1.4	Document all reflections for future learning	Document all reflections for future learning

2.6 Activity Attributes

2.6.1 Section 0 – Initiation and Planning Work

Activity Identifier	Predecessors	Successors	Logical Relationships	Imposed Dates	Resource Requirements	Constraints	Assumptions
0.1.1.1	N/A	0.1.1.2	Finish To Finish	8/11/2023	Standard IT equipment, access to university systems	N/A	Budget has been allocated
0.1.1.2	0.1.1.1	0.1.2.1	Finish to Start	9/11/2023	Standard IT equipment, access to university systems	Stakeholders must have availability to review documents	Sign-off takes no longer than a week including any revisions to the document.
0.1.2.1	0.1.1.2	0.1.2.2	Finish To Finish	14/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.1.2.2	0.1.2.1	0.1.3.1	Finish to Start	15/11/2023	Standard IT equipment, access to university systems	Stakeholders must have availability to review documents	Sign-off takes no longer than a week including any revisions to the document.
0.1.3.1	0.1.2.2	0.1.3.2	Finish To Finish	13/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.1.3.2	0.1.3.1	0.1.4.1	Finish to Start	14/11/2023	Standard IT equipment, access to university systems	Stakeholders must have availability to review documents	Sign-off takes no longer than a week including any revisions to the document.

0.1.4.1	0.1.3.2	0.2.1.1, 0.2.2.1, 0.2.4.1, 0.2.6.1, 0.2.10.1, 0.2.13.1, 0.2.16.1, 0.2.19.1, 0.2.21.1	Finish to Start	06/11/2023	Standard IT equipment, access to university systems	Full team must be available with all key stakeholders	Kick-off meeting will be held in-person, if possible, on the University campus
0.2.1.1	0.1.4.1	0.2.1.2	Finish To Finish	17/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.1.2	0.2.1.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	20/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.2.1	0.1.4.1	0.2.2.2	Finish To Finish	17/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.2.2	0.2.2.1	0.2.3.1	Finish to Start	20/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.3.1	0.2.2.2	0.2.3.2	Finish To Finish	23/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.3.2	0.2.3.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	24/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.4.1	0.1.4.1	0.2.4.2	Finish To Finish	16/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.4.2	0.2.4.1	0.2.5.1	Finish to Start	20/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document

0.2.5.1	0.2.4.2	0.2.5.2	Finish To Finish	23/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.5.2	0.2.5.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	24/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.6.1	0.1.4.1	0.2.6.2	Finish To Finish	14/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.6.2	0.2.6.1	0.2.7.1	Finish to Start	15/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.7.1	0.2.6.2	0.2.7.2	Finish To Finish	22/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.7.2	0.2.7.1	0.2.8.1	Finish to Start	23/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.8.1	0.2.7.2	0.2.8.2	Finish To Finish	28/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.8.2	0.2.8.1	0.2.9.1	Finish to Start	29/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.9.1	0.2.8.2	0.2.9.2	Finish To Finish	17/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.9.2	0.2.9.1	0.2.11.1	Finish to Start	20/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.10.1	0.1.4.1	0.2.10.2	Finish To Finish	22/11/2023	Standard IT equipment, access to university systems	N/A	N/A

0.2.10.2	0.2.10.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	23/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.11.1	0.2.9.2	0.2.11.2	Finish To Finish	4/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.11.2	0.2.11.1	0.2.12.1, 0.2.14.1	Finish to Start	5/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.12.1	0.2.11.2	0.2.12.2	Finish To Finish	29/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.12.2	0.2.12.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	1/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.13.1	0.1.4.1	0.2.13.2	Finish To Finish	28/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.13.2	0.2.13.1	0.2.14.1	Finish to Start	29/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.14.1	0.2.11.2, 0.2.13.2	0.2.14.2	Finish To Finish	7/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.14.2	0.2.14.1	0.2.15.1	Finish to Start	8/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.15.1	0.2.14.2	0.2.15.2	Finish To Finish	13/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.15.2	0.2.14.1	0.2.18.1	Finish to Start	14/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document

0.2.16.1	0.1.4.1	0.2.16.2	Finish To Finish	1/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.16.2	0.2.16.1	0.2.17.1	Finish to Start	4/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.17.1	0.2.16.2	0.2.17.2	Finish To Finish	29/11/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.17.2	0.2.17.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	30/11/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.18.1	0.2.15.2	0.2.18.2	Finish To Finish	8/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.18.2	0.2.18.1	0.2.20.1	Finish to Start	11/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.19.1	0.1.4.1	0.2.19.2	Finish To Finish	14/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.19.2	0.2.19.1	0.2.20.1	Finish to Start	15/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.20.1	0.2.18.2, 0.2.19.2	0.2.20.2	Finish To Finish	5/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.20.2	0.2.20.1	0.2.23.1	Finish to Start	6/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.21.1	0.1.4.1	0.2.21.2	Finish To Finish	4/12/2023	Standard IT equipment, access to university systems	N/A	N/A

0.2.21.2	0.2.21.1	0.2.22.1	Finish to Start	5/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.22.1	0.2.21.2	0.2.22.2	Finish To Finish	8/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.22.2	0.2.22.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	11/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.23.1	0.2.20.1	0.2.23.2	Finish To Finish	20/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.23.2	0.2.23.1	0.2.24.1	Finish to Start	21/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document
0.2.24.1	0.2.23.2	0.2.24.2	Finish To Finish	26/12/2023	Standard IT equipment, access to university systems	N/A	N/A
0.2.24.2	0.2.21.1	1.1.1.1, 1.1.2.1, 1.1.3.1	Finish to Start	27/12/2023	Standard IT equipment, access to university systems	N/A	Only team will review document

2.6.2 Section 1 – Preparation Work

Activity Identifier	Predecessors	Successors	Logical Relationships	Imposed Dates	Resource Requirements	Constraints	Assumptions
1.1.1.1	Start	1.1.1.2	Finish to Start	29/12/2023	Standard IT equipment, access to university systems	N/A	The survey will be designed in Micrsoft forms and distributed to affected students via the university email system. The survey will ask a series of questions measured in a Likert system and offer space for freeform suggestions. The survey will be administered online and will be anonymous to ease ethical approval.
1.1.1.2	1.1.1.1	1.1.1.3	Finish to Start	5/1/2024	Standard IT equipment, access to university systems, access to ERGO2 system	EGRO committee must be available	Once written it will take no more than two weeks (10 working days) between submission of ethics forms and approval from the ethics committee
1.1.1.3	1.1.1.2	1.1.1.4	Finish to Start	8/1/2024	Standard IT equipment, access to university systems, access to university email lists and discord	Ethical approval must be secured before survey is sent out	The survey will be sent out to students via university email lists

1.1.1.4	1.1.1.3	1.1.1.5	Finish to Start	15/1/2024	Standard IT equipment, access to university systems	Sufficient multiple choice and freeform replies will be given to draw adequate conclusions	N/A
1.1.1.5	1.1.1.4	1.1.4.1	Finish to Start	18/1/2024	Standard IT equipment, access to university systems	N/A	The conclusions are adequate to create acceptance criteria. The acceptance criteria will be created in the form of user stories.
1.1.2.1	None	1.1.2.2	Finish to Start	29/12/2023	Standard IT equipment, access to university systems	N/A	The survey will be designed in Micrsoft forms and distributed to affected lecturers via the university email system. The survey will ask a series of questions measured in a Likert system and offer space for freeform suggestions. The survey will be administered online and will be anonymous to ease ethical approval.
1.1.2.2	1.1.2.1	1.1.2.3	Finish to Start	5/1/2024	Standard IT equipment, access to university systems, access to ERGO2 system	EGRO committee must be available	Once written it will take no more than two weeks (10 working days) between submission of ethics forms and approval from the ethics committee

1.1.2.3	1.1.2.2	1.1.2.4	Finish to Start	8/1/2024	Standard IT equipment, access to university systems, access to university email lists and discord	Ethical approval must be secured before survey is sent out	The survey will be sent out to students via university email lists
1.1.2.4	1.1.2.3	1.1.2.5	Finish to Start	15/1/2024	Standard IT equipment, access to university systems	Sufficient multiple choice and freeform replies will be given to draw adequate conclusions	N/A
1.1.2.5	1.1.2.4	1.1.4.1	Finish to Start	18/1/2024	Standard IT equipment, access to university systems	N/A	The conclusions are adequate to create acceptance criteria. The acceptance criteria will be created in the form of user stories.
1.1.3.1	None	1.1.3.2	Finish to Start	29/12/2023	Standard IT equipment, access to university systems	N/A	The survey will be designed in Micrsoft forms and distributed to affected admin staff via the university email system. The survey will ask a series of questions measured in a Likert system and offer space for freeform suggestions. The survey will be administered online and will be anonymous to ease ethical approval.

1.1.3.2	1.1.3.1	1.1.3.3	Finish to Start	5/1/2024	Standard IT equipment, access to university systems, access to ERGO2 system	EGRO committee must be available	Once written it will take no more than two weeks (10 working days) between submission of ethics forms and approval from the ethics committee
1.1.3.3	1.1.3.2	1.1.3.4	Finish to Start	8/1/2024	Standard IT equipment, access to university systems, access to university email lists and discord	Ethical approval must be secured before survey is sent out	The survey will be sent out to students via university email lists
1.1.3.4	1.1.3.3	1.1.3.5	Finish to Start	15/1/2024	Standard IT equipment, access to university systems	Sufficient multiple choice and freeform replies will be given to draw adequate conclusions	N/A
1.1.3.5	1.1.3.4	1.1.4.1	Finish to Start	18/1/2024	Standard IT equipment, access to university systems	N/A	The conclusions are adequate to create acceptance criteria. The acceptance criteria will be created in the form of user stories.
1.1.4.1	1.1.1.5, 1.1.2.4, 1.1.3.5	1.1.4.2	Finish to Start	25/1/2024	Standard IT equipment, access to university systems	N/A	ISolutions and development team will have sufficient knowledge to identify non-functional requirements.
1.1.4.2	1.1.4.1	1.2.1.1	Finish to Start	30/1/2024	Standard IT equipment, access to university systems	N/A	iSolutions and development team will have sufficient knowledge to frame requirements in a way for later use as acceptance criteria

1.2.1.1	1.1.4.2	1.2.1.2	Finish to Start	31/1/2024	Standard IT equipment, access to university systems	N/A	University Gitlab will be used for the repository and all team members will have existing access to the system
1.2.1.2	1.2.1.1	1.2.2.1	Finish to Start	1/2/2024	Standard IT equipment, access to university systems	N/A	All team members will require at least one other approval to submit to main branch.
1.2.2.1	1.2.1.2	1.2.2.2	Finish to Start	2/2/2024	Standard IT equipment, access to university systems	N/A	All team members will have at least one language in common
1.2.2.2	1.2.2.1	1.2.2.3	Finish to Start	6/2/2024	Standard IT equipment, access to university systems	N/A	All team members will have at least one framework in common
1.2.2.3	1.2.2.2	1.2.2.4	Finish to Start	2/2/2024	Standard IT equipment, access to university systems	N/A	All team members will have at least one language in common
1.2.2.4	1.2.2.3	1.2.2.5	Finish to Start	6/2/2024	Standard IT equipment, access to university systems	N/A	All team members will have at least one framework in common
1.2.2.5	1.2.2.4	1.2.2.6	Finish to Start	13/2/2024	Standard IT equipment, access to university systems	N/A	There is no current API structure to interface with Handin
1.2.2.6	1.2.2.5	1.3.1.1, 1.3.2.1	Finish to Start	16/2/2024	Standard IT equipment, access to university systems	N/A	Preference will be given to REST based API
1.3.1.1	1.2.2.6	1.3.1.2	Finish to Start	23/2/2024	Standard IT equipment, access to university systems	N/A	It will be possible in some capacity to pull existing part III projects from a system
1.3.1.2	1.3.1.1	1.4.1.1, 1.4.2.1	Finish to Start	1/3/2024	Standard IT equipment, access to university systems	N/A	Tools will be used only by the development team to aid in migration

1.3.2.1	1.1.2.6	1.3.2.2	Finish to Start	23/2/2024	Standard IT equipment, access to university systems	N/A	Either it will be possible to modify Handin to support API requests, or a module will be built that will scrape the Handin system and return responses in return to API requests
1.3.2.2	1.3.2.1	1.3.3.3	Finish to Start	27/2/24	Standard IT equipment, access to university systems	N/A	Handin source code will be available in some form
1.3.2.3	1.3.2.2	1.3.2.4	Finish to Start	1/3/2024	Standard IT equipment, access to university systems	Must have access to source code and the ability to build it.	Team members will have sufficient experience in the used languages and frameworks
1.3.2.4	1.3.2.3	1.4.1.1, 1.4.2.1	Finish to Start	6/3/2024	Standard IT equipment, access to university systems	N/A	Handin may store multiple previous years submissions
1.4.1.1	1.3.1.2, 1.3.2.4	1.4.1.2	Finish to Start	11/3/2024	Standard IT equipment, access to university systems	Key stakeholders must have availability	Team will have sufficient knowledge of the required platforms
1.4.1.2	1.4.1.1	2.1.1.1, 2.1.2.1, 2.1.3.1, 2.1.4.1, 2.1.5.1	Finish to Start	18/3/2024	Standard IT equipment, access to university systems	ISolutions need to have availability	ISolutions will manage the whole aspect of setting up the VMs
1.4.2.1	1.3.1.2, 1.3.2.4	1.4.2.2	Finish to Start	18/3/2024	Standard IT equipment, access to university systems	N/A	ISolutions will manage the whole aspect of setting up the VMs

1.4.2.2	1.4.2.1	2.1.1.1, 2.1.2.1, 2.1.3.1, 2.1.4.1, 2.1.5.1	Finish to Start	25/3/2024	Standard IT equipment, access to university systems	N/A	Handin test system will be supplied with an identical configuration to the current production system. Handin test system will contain mock data or anonymised actual data.

2.6.3 Section 2 - Development

Activity Identifier	Predecessors	Successors	Logical Relationships	Imposed Dates	Resource Requirements	Constraints	Assumptions
2.1.1.1	1.4.1.2, 1.4.2.2	2.1.1.2	Finish to Start	28/3/2024	Standard IT equipment, access to university systems	N/A	Mock ups will be designed using figma, design to be based off style guide provided by university
2.1.1.2	2.1.1.1	2.1.1.3	Finish to Start	1/4/2024	Standard IT equipment, access to university systems	Key stakeholder availability	Agreement will not take more than two weeks once designs finalised
2.1.1.3	2.1.1.2	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	8/4/2024	Standard IT equipment, access to university systems	To lower risk implementation can't start until key stakeholder approval has been obtained	Front-end work will be able to be completed independent of backend
2.1.2.1	1.4.1.2, 1.4.2.2	2.1.2.2	Finish to Start	1/4/2024	Standard IT equipment, access to university systems	N/A	Mock ups will be designed using figma, design to be based off style guide provided by university
2.1.2.2	2.1.2.1	2.1.2.3	Finish to Start	3/4/2024	Standard IT equipment, access to university systems	Key stakeholder availability	Agreement will not take more than two weeks once designs finalised
2.1.2.3	2.1.2.2	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	17/4/2024	Standard IT equipment, access to university systems	To lower risk implementation can't start until key stakeholder approval has been obtained	Front-end work will be able to be completed independent of backend

2.1.3.1	1.4.1.2, 1.4.2.2	2.1.3.2	Finish to Start	1/4/2024	Standard IT equipment, access to university systems	N/A	Mock ups will be designed using figma, design to be based off style guide provided by university
2.1.3.2	2.1.3.1	2.1.3.3	Finish to Start	3/4/2024	Standard IT equipment, access to university systems	Key stakeholder availability	Agreement will not take more than two weeks once designs finalised
2.1.3.3	2.1.3.2	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	17/4/2024	Standard IT equipment, access to university systems	To lower risk implementation can't start until key stakeholder approval has been obtained	Front-end work will be able to be completed independent of backend
2.1.4.1	1.4.1.2, 1.4.2.2	2.1.4.2	Finish to Start	1/4/2024	Standard IT equipment, access to university systems	N/A	Mock ups will be designed using figma, design to be based off style guide provided by university
2.1.4.2	2.1.4.1	2.1.4.3	Finish to Start	3/4/2024	Standard IT equipment, access to university systems	N/A	Agreement will not take more than two weeks once designs finalised
2.1.4.3	2.1.4.2	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	17/4/2024	Standard IT equipment, access to university systems	To lower risk implementation can't start until key stakeholder approval has been obtained	Front-end work will be able to be completed independent of backend
2.1.5.1	1.4.1.2, 1.4.2.2	2.1.5.2	Finish to Start	15/4/2024	Standard IT equipment, access to university systems	N/A	Mock ups will be designed using figma, design to be based off style guide provided by university

2.1.5.2	2.1.5.1	2.1.5.3	Finish to Start	17/4/2024	Standard IT equipment, access to university systems	N/A	Agreement will not take more than two weeks once designs finalised
2.1.5.3	2.1.5.2	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	3/5/2024	Standard IT equipment, access to university systems	To lower risk implementation can't start until key stakeholder approval has been obtained	Front-end work will be able to be completed independent of backend
2.2.1.1	1.4.1.2, 1.4.2.2	2.2.1.2	Finish to Start	24/4/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Database will be used to store only report location and details. No user details will be stored
2.2.1.2	2.2.1.1	2.2.3.1	Finish to Start	6/5/2024	Standard IT equipment, access to university systems, access to test environment	N/A	ISolutions will have set up the
2.2.2.1	1.4.1.2, 1.4.2.2	2.2.2.2	Finish to Start	13/5/2024	Standard IT equipment, access to university systems, access to test environment	N/A	The API will use a REST structure
2.2.2.2	2.2.2.1	2.2.3.1	Finish to Start	23/5/2024	Standard IT equipment, access to university systems, access to test environment	N/A	API will make requests to Handin or an intermediate system to collect report information and reports
2.2.3.1	2.2.1.2, 2.2.2.2	2.2.3.2	Finish to Start	30/5/2024	Standard IT equipment, access to university systems, access to test environment	N/A	There will be three main user account types

2.2.3.2	2.2.3.1	2.2.3.3	Finish to Start	6/6/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Accounts will have both general permissions and then per project permissions
2.2.3.3	2.2.3.2	2.2.3.4	Finish to Start	13/6/2024	Standard IT equipment, access to university systems, access to test environment	N/A	SSO will be used to authenticate users with no need to store user details on the archive system
2.2.3.4	2.2.3.3	2.2.4.1, 2.2.5.1, 2.2.6.1, 2.2.7.1, 2.2.8.1	Finish to Start	18/6/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Each request will need to be authorised
2.2.4.1	2.2.3.4	2.2.4.2	Finish to Start	21/6/2024	Standard IT equipment, access to university systems, access to test environment	iSolutions need to have availably	Storage set up will be handled by iSolutions and will be provided to development team for testing
2.2.4.2	2.2.4.1	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	28/6/2024	Standard IT equipment, access to university systems, access to test environment	iSolutions need to have availably	Storage set up will be handled by iSolutions and will be provided to development team for testing
2.2.5.1	2.2.3.4	2.2.5.2	Finish to Start	25/6/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Backend will return data to front end via an API request
2.2.5.2	2.2.5.1	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	28/6/24	Standard IT equipment, access to university systems, access to test environment	N/A	Each request will need to be authorised

2.2.6.1	2.2.3.4	2.2.6.2	Finish to Start	25/6/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Search will be simple text based for title and back-end will handle input sanitisation
2.2.6.2	2.2.6.1	2.2.6.3	Finish to Start	5/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Backend will handle input sanitisation
2.2.6.3	2.2.6.2	2.2.6.4	Finish to Start	12/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Reports will be outputted in a PDF format to the local system of the user
2.2.6.4	2.2.6.3	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	17/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Backend will return data to front end via an API request and completed independently of front end
2.2.7.1	2.2.3.4	2.2.7.2	Finish to Start	25/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Backend will return data to front end via an API request and completed independently of front end
2.2.7.2	2.2.7.1	2.2.7.3	Finish to Start	2/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Save requests will be sent from front-end to back-end
2.2.7.3	2.2.7.2	2.2.7.4	Finish to Start	9/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Pages will be exportable with the report as a PDF or ZIP and the metadata in a range of common reference formats

2.2.7.4	2.2.7.3	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	12/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	API can be created independently of frontend
2.2.8.1	2.2.3.4	2.2.8.2	Finish to Start	28/6/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Manual reports will be locked from automatic updating by Handin
2.2.8.2	2.2.8.1	2.2.8.3	Finish to Start	5/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	N/A
2.2.8.3	2.2.8.2	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	17/7/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Manual information will be locked from automatic updating by Handin
2.3.1.1	1.4.1.2, 1.4.2.2	2.3.1.2	Finish to Start	2/8/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Implementation will be independent from Handin rework
2.3.1.2	2.3.1.1	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	9/8/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Implementation will be independent from Handin rework
2.3.2.1	1.4.1.2, 1.4.2.2	2.3.2.2	Finish to Start	2/8/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Tool will only be run once at the initial migration stage

2.3.2.2	2.3.2.1	2.4.1.1, 2.4.2.1, 2.4.3.1, 2.4.4.1	Finish to Start	20/8/2024	Standard IT equipment, access to university systems, access to test environment	MSc and GDP archives are available	Tool will only be run once at the initial migration stage
2.4.1.1	2.1.1.3, 2.1.2.3, 2.1.3.3, 2.1.4.3, 2.1.5.3, 2.2.4.2, 2.2.5.2, 2.2.6.4, 2.2.7.4, 2.2.8.3, 2.3.1.2, 2.3.2.2	2.4.1.2	Finish to Start	30/8/2024	Standard IT equipment, access to university systems, access to test environment	N/A	N/A
2.4.1.2	2.4.1.1	3.1.1.1, 3.1.2.1, 3.1.3.1	Finish to Start	5/9/2024	Standard IT equipment, access to university systems, access to test environment	Perform corrective actions for minor requirement failures only if time and budget is available.	This assumes requirements aren't met
2.4.2.1	2.1.1.3, 2.1.2.3, 2.1.3.3, 2.1.4.3, 2.1.5.3, 2.2.4.2, 2.2.5.2, 2.2.6.4, 2.2.7.4, 2.2.8.3, 2.3.1.2, 2.3.2.2	2.4.2.2	Finish to Start	30/8/2024	Standard IT equipment, access to university systems, access to test environment	N/A	N/A

2.4.2.2	2.4.2.1	3.1.1.1, 3.1.2.1, 3.1.3.1	Finish to Start	5/9/2024	Standard IT equipment, access to university systems, access to test environment	Perform corrective actions for minor requirement failures only if time and budget is available.	This assumes requirements aren't met
2.4.3.1	2.1.1.3, 2.1.2.3, 2.1.3.3, 2.1.4.3, 2.1.5.3, 2.2.4.2, 2.2.5.2, 2.2.6.4, 2.2.7.4, 2.2.8.3, 2.3.1.2, 2.3.2.2	2.4.3.2	Finish to Start	30/8/2024	Standard IT equipment, access to university systems, access to test environment	N/A	N/A
2.4.3.2	2.4.3.1	3.1.1.1, 3.1.2.1, 3.1.3.1	Finish to Start	5/9/2024	Standard IT equipment, access to university systems, access to test environment	Perform corrective actions for minor requirement failures only if time and budget is available.	This assumes requirements aren't met

2.4.4.1	2.1.1.3, 2.1.2.3, 2.1.3.3, 2.1.4.3, 2.1.5.3, 2.2.4.2, 2.2.5.2, 2.2.6.4, 2.2.7.4, 2.2.8.3, 2.3.1.2, 2.3.2.2	2.4.2.2	Finish to Start	5/9/2024	Standard IT equipment, access to university systems, access to test environment	N/A	N/A
2.4.4.2	2.4.4.1	3.1.1.1, 3.1.2.1, 3.1.3.1	Finish to Start	5/9/2024	Standard IT equipment, access to university systems, access to test environment	Perform corrective actions for minor requirement failures only if time and budget is available.	Requirements aren't met.

2.6.4 Section 3 – Handover

Activity Identifier	Predecessors	Successors	Logical Relationships	Imposed Dates	Resource Requirements	Constraints	Assumptions
3.1.1.1	2.4.1.2, 2.4.2.2, 2.4.3.2, 2.4.4.2	3.1.1.2	Finish to Start	12/9/2024	Standard IT equipment, access to university systems, access to test environment	Admin staff availability	Admin staff will have time to help the development team identify key aspects for training
3.1.1.2	3.1.1.1	3.2.1.1	Finish to Start	17/9/2024	Standard IT equipment, access to university systems, access to test environment	Admin staff availability	Admin staff will have time to help the development team identify timescale for training
3.1.2.1	2.4.1.2, 2.4.2.2, 2.4.3.2, 2.4.4.2	3.1.2.1	Finish to Start	11/9/2024	Standard IT equipment, access to university systems, access to test environment	N/A	Installation guide is only for the use of iSolutions
3.1.2.2	3.1.2.1	3.2.1.1	Finish to Start	16/9/2024	Standard IT equipment, access to university systems, access to test environment	iSolutions availability	Sign-off and required rework will take under 1 week
3.1.3.1	2.4.1.2, 2.4.2.2, 2.4.3.2, 2.4.4.2	3.2.1.1	Finish to Start	10/9/2024	Standard IT equipment, access to university systems, access to test environment	iSolutions availability	Software requirements is only for the use of iSolutions
3.2.1.1	3.1.1.2, 3.1.2.1, 3.1.3.1	3.2.1.2	Finish to Start	9/9/2024	Standard IT equipment, access to university systems	iSolutions availability	iSolutions will set up VMs to run the archive system
3.2.1.2	3.2.1.1	3.2.1.3	Finish to Start	9/9/2024	Standard IT equipment, access to university systems	iSolutions availability	iSolutions will set up the database itself and the method of running it

3.2.1.3	3.2.1.2	3.2.1.4	Finish to Start	9/9/2024	Standard IT equipment, access to university systems	iSolutions availability	iSolutions will set up report storage
3.2.1.4	3.2.1.3	3.2.1.5	Finish to Start	12/9/2024	Standard IT equipment, access to university systems	iSolutions availability	N/A
3.2.1.5	3.2.1.4	3.3.1.1, 3.3.2.1, 3.3.3.1, 3.3.4.1	Finish to Start	10/9/2024	Standard IT equipment, access to university systems	iSolutions availability	iSolutions will handle the install of the new system with the development team available to support
3.3.1.1	3.2.1.5	4.1.1.1	Finish to Start	30/9/2024	Standard IT equipment, access to university systems	N/A	The Part 3 projects can be mass transferred across to the new archive.
3.3.2.1	3.2.1.5	3.3.2.2	Finish to Start	17/9/2024	Standard IT equipment, access to university systems, access to production system	Past MSc projects must contain relevant meta data and information.	It may not be possible to access existing reports for MSc
3.3.2.2	3.3.2.1	4.1.1.1	Finish to Start	3/10/2024	Standard IT equipment, access to university systems, access to production system	N/A	It may not be possible to access existing reports for MSc
3.3.3.1	3.2.1.5	3.3.3.2	Finish to Start	17/9/2024	Standard IT equipment, access to university systems, access to production system	Past GDP projects must have relevant meta data and information.	It may not be possible to access existing reports for GDP
3.3.3.2	3.3.3.1	4.1.1.1	Finish to Start	3/10/2024	Standard IT equipment, access to university systems, access to production system	N/A	It may not be possible to access existing reports for GDP

3.3.4.1	3.2.1.5	3.3.4.2	Finish to Start	17/9/2024	Standard IT equipment, access to university systems, access to production system	N/A	ECS admin team are capable and have available resource to administrate the system.
3.3.4.2	3.3.4.1	4.1.1.1	Finish to Start	20/9/2024	Standard IT equipment, access to university systems, access to production system	N/A	Admin staff will, once added, set up other users.

2.6.5 Section 4 – Closing Tasks

Activity Identifier	Predecessors	Successors	Logical Relationships	Imposed Dates	Resource Requirements	Constraints	Assumptions
4.1.1.1	3.3.1.1, 3.3.2.2, 3.3.3.2, 3.3.4.2	4.1.1.2	Finish to Start	8/10/2024	Standard IT equipment, access to university systems	University server and data storage availability	ISolutions will maintain project artifacts, ECS might also maintain a copy
4.1.1.2	4.1.1.1	4.1.2.1	Finish to Start	8/10/2024	Standard IT equipment, access to university systems	N/A	ISolutions will maintain project artifacts, ECS might also maintain a copy. The handin system is capable of handling changes
4.1.2.1	4.1.1.2	4.2.1.1	Finish to Start	8/10/2024	Standard IT equipment, access to university systems	N/A	ISolutions will maintain project artifacts, ECS might also maintain a copy
4.2.1.1	4.1.2.1	4.2.1.2	Finish to Start	8/10/2024	Standard IT equipment, access to university systems	Team must have simultaneous availability	Only development team will be involved
4.2.1.2	4.2.1.1	4.2.1.3	Finish to Start	11/10/2024	Standard IT equipment, access to university systems	Team must have simultaneous availability	Only development team will be involved
4.2.1.3	4.2.1.2	4.2.1.4	Finish to Start	16/10/2024	Standard IT equipment, access to university systems	Team must have simultaneous availability	Only development team will be involved
4.2.1.4	4.2.1.3	END	Finish to Start	23/10/2024	Standard IT equipment, access to university systems	Team must have simultaneous availability	Only development team will be involved

2.7 Milestone List

Milestone List

Project Name: ECS Project Archival System Replacement

Milestone	Due Date
Project Commences	**06/11/2023**
Project Initiation	15/11/2023
Project Planning	27/12/2023
Project Initiation & Planning Deliverable Date	**27/12/2023**
Requirements Finalised	30/01/2024
Development Set-Up	16/02/2024
Existing Infrastructure Research	06/03/2024
Hardware Provisioned	25/03/2024
Project Preparation	**25/03/2024**
Archive Front End Complete	3/05/2024
Archive Back End Complete	17/07/2024
Auxiliary Systems Complete	20/08/2024
Testing Complete	05/09/2024
Project Development Completion	**05/09/2024**
Documentation Ready	17/09/2024
Hardware Specification Provided	11/09/2024
Migration and Setup Complete	02/10/2024
Project Handover Completion	**02/10/2024**
Project Output Reviewed	08/10/2024
Project Retrospective Complete	22/10/2024
Project Closing Completion	**23/10/2024**

Table 11: Milestones and Date

2.8 Change Request Form Template

Change Request Form

Project Name: Replacement Project Archival System
Submission Date:

Change Title:

Change Number:

Change Author:

Category:

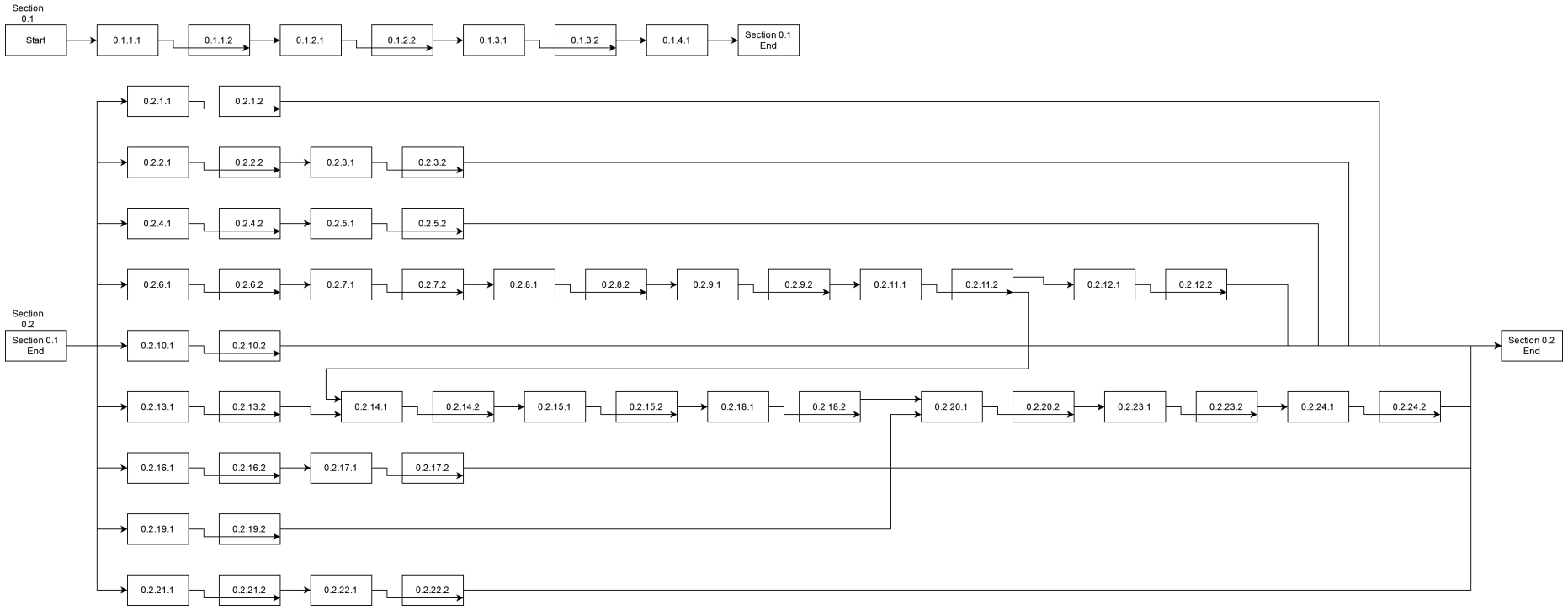
Change Description:

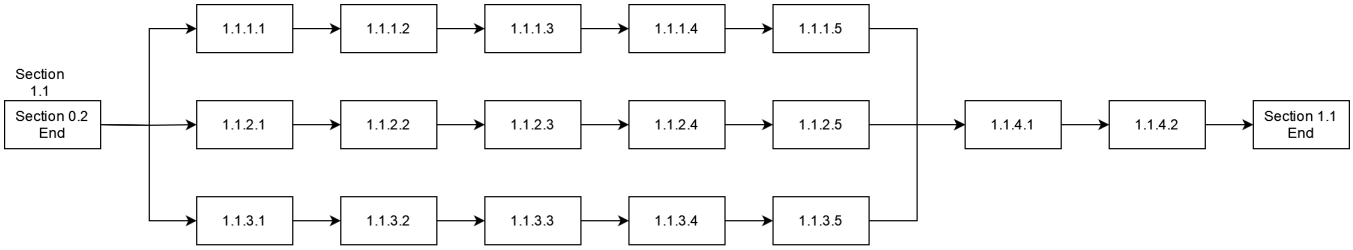
Cause of Change Request:

Benefits of the Change:

Impact on Project:

2.9 Activity Network Diagram (AoN)

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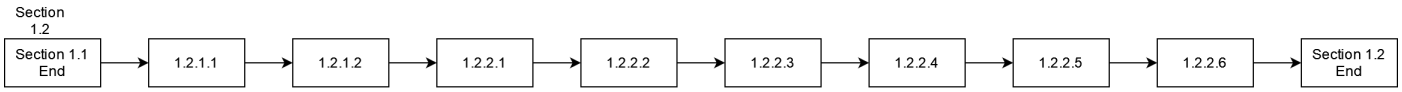
1.1.4.2
Section 1.1 End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1.2.2.4
1.2.2.5
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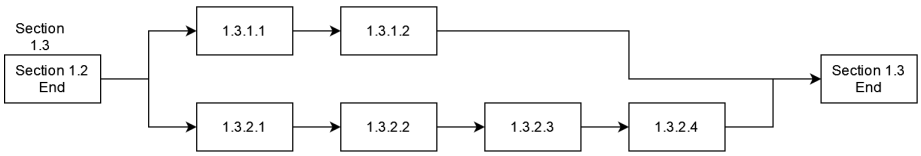
Section 1.2 End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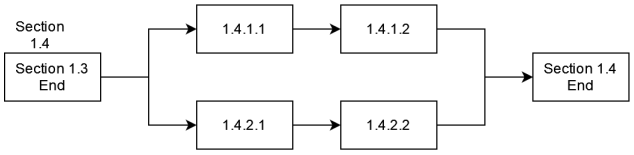
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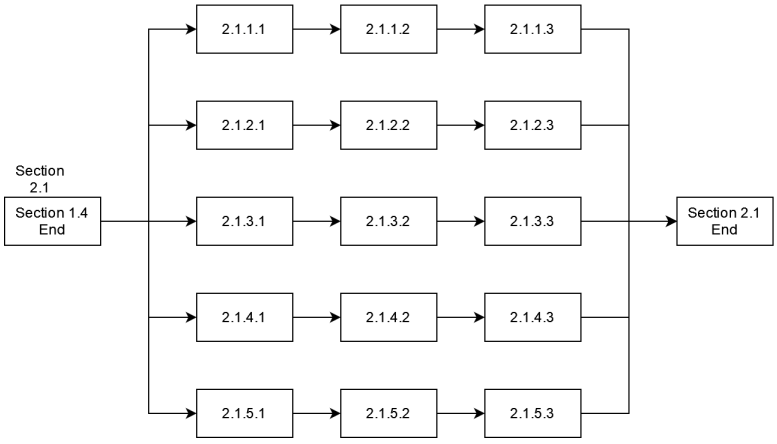
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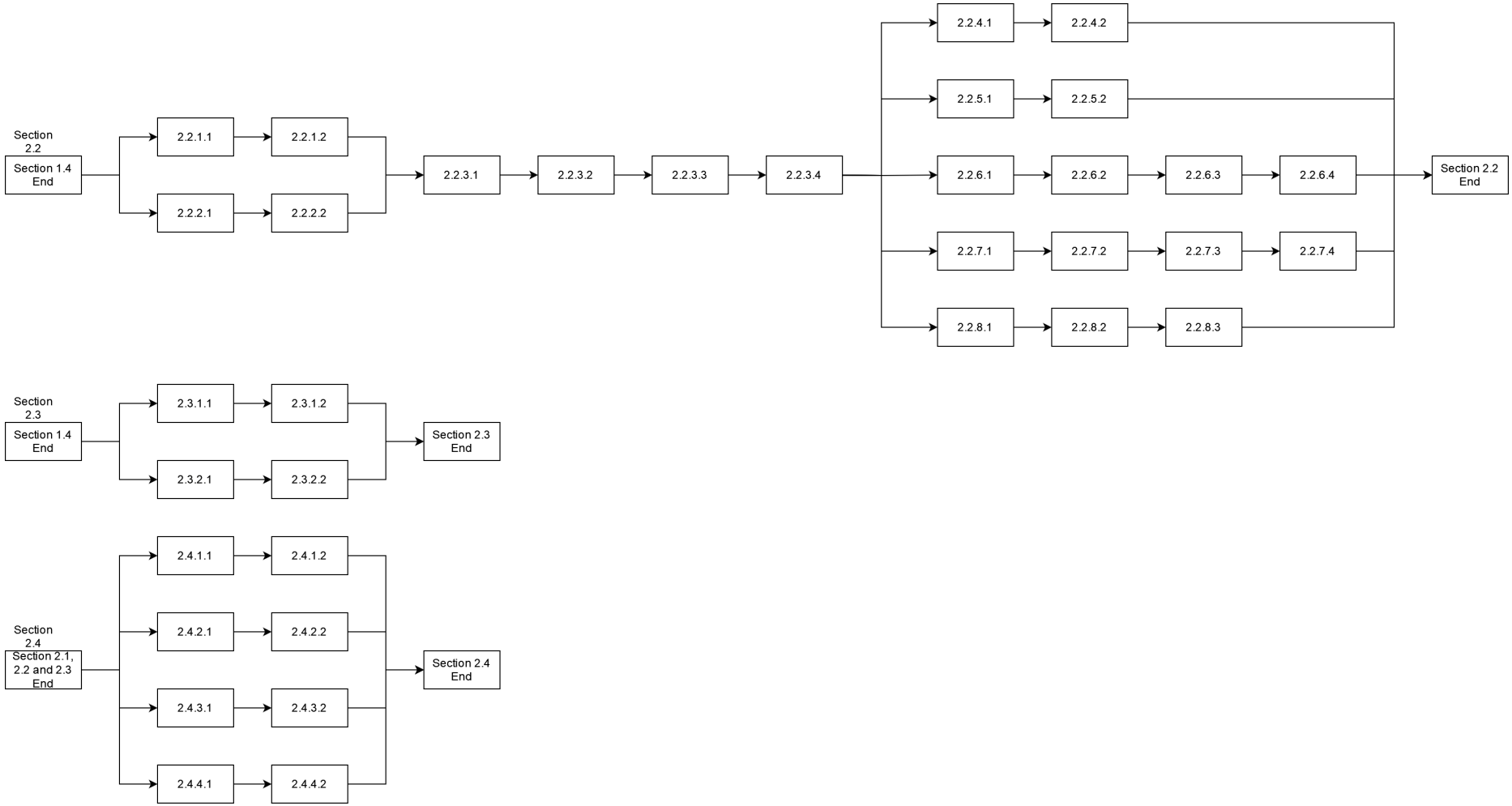
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2.2.8.1
2.2.8.2
2.2.8.3
Section 2.2 End
Section 2.3
Section 1.4 End
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2.3.2.2
Section 2.3 End
Section 2.4
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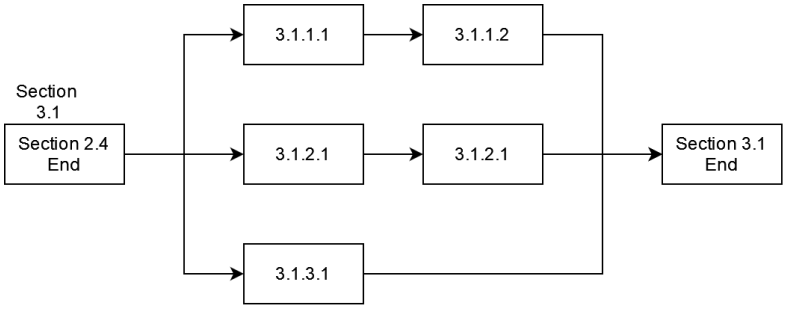
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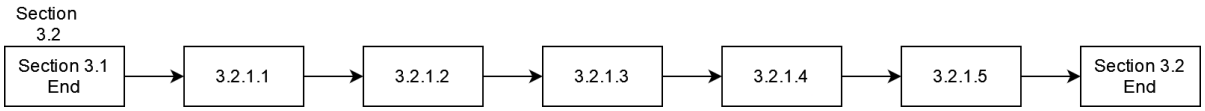
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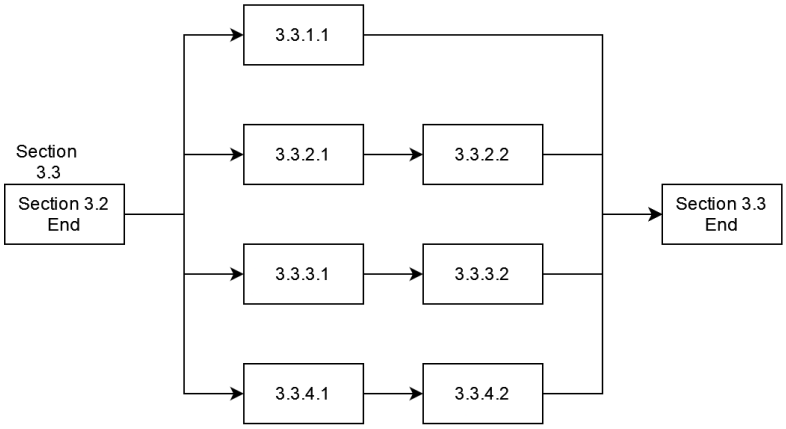
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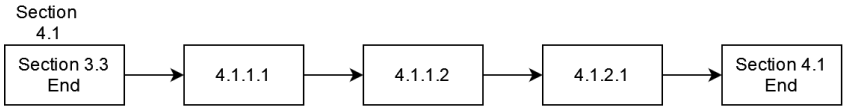
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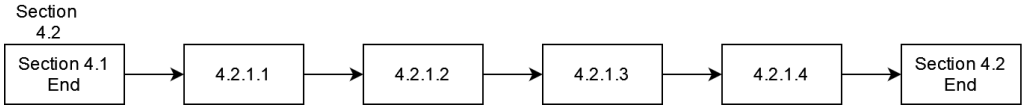
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4.2
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End
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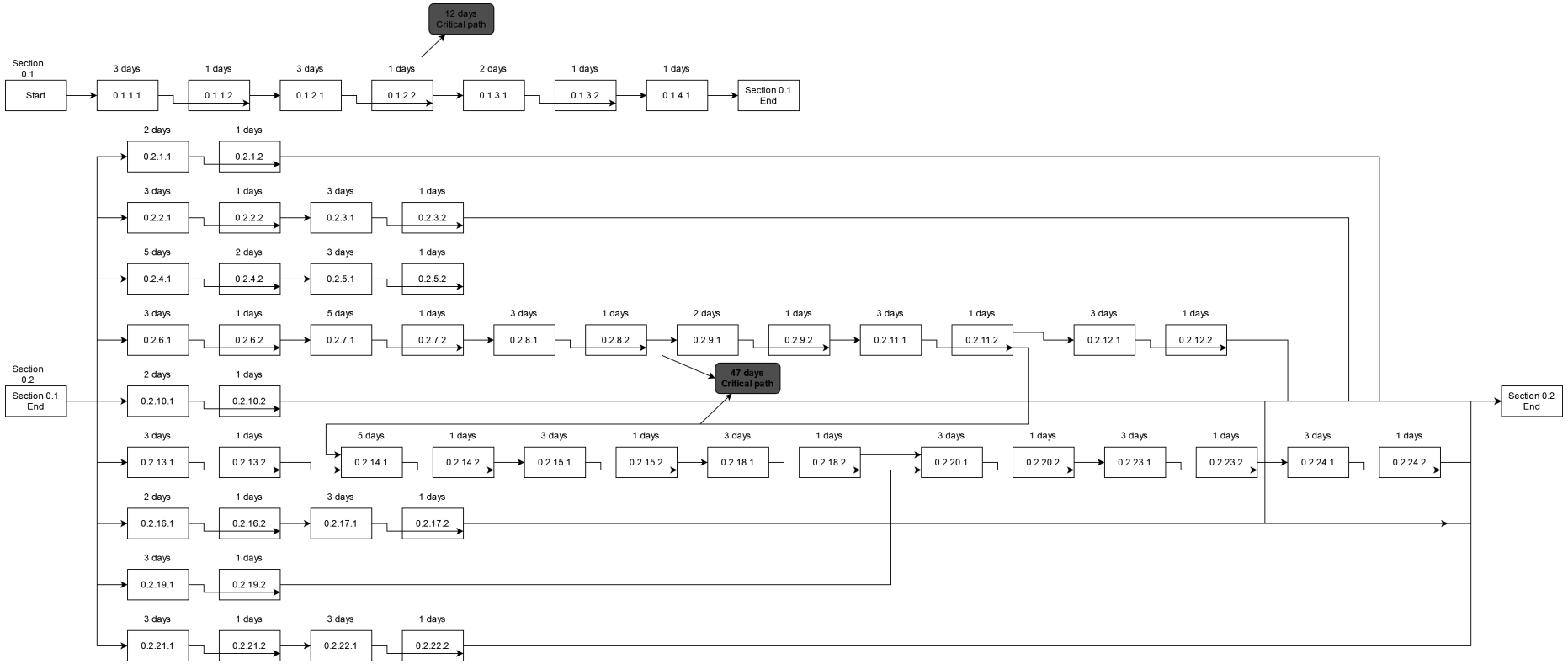
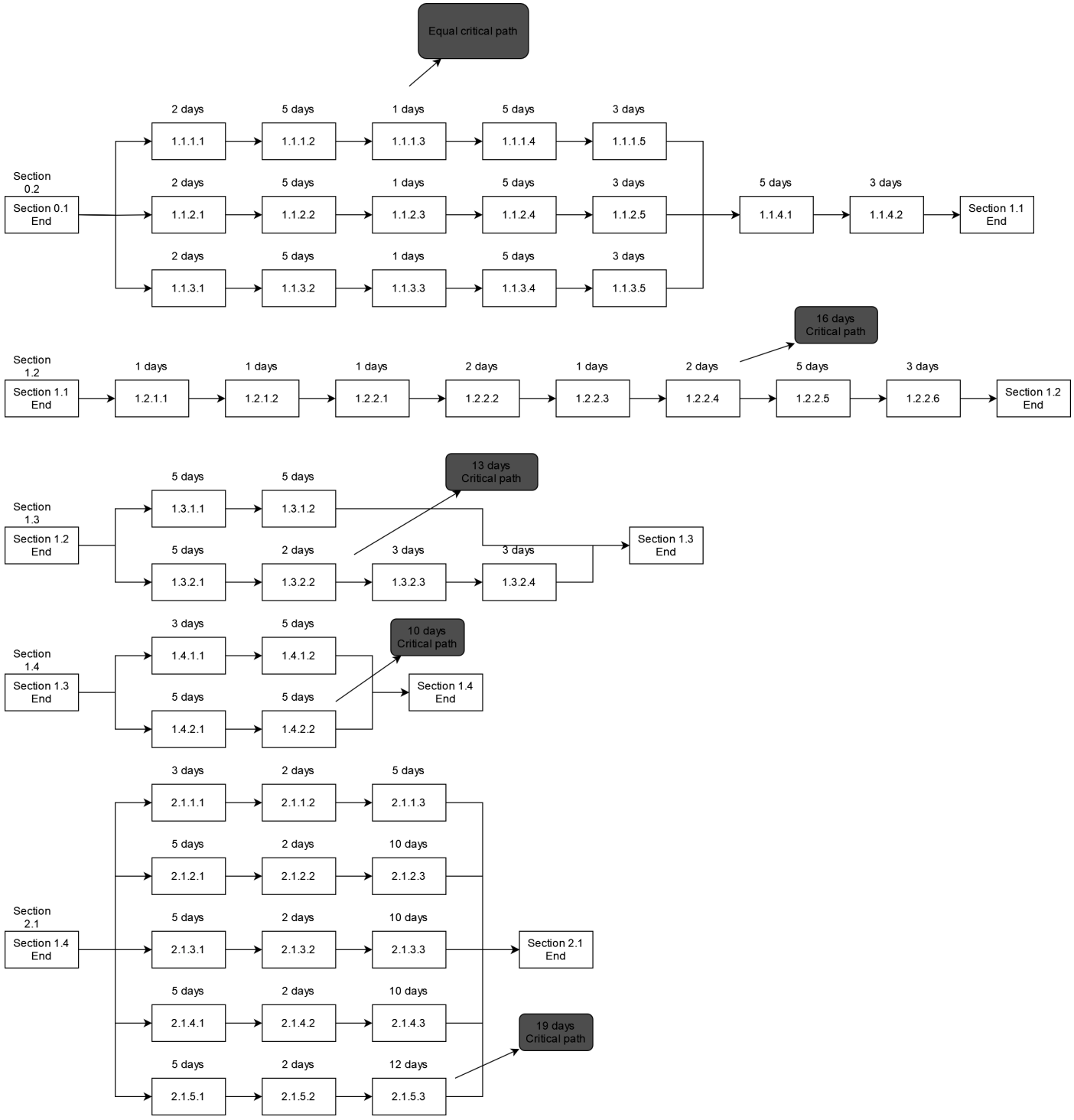
4.2.1.4
Section 4.2
End

2.10 Critical Path Analysis

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5 days
1.1.4.1
3 days
1.1.4.2
Section 1.1 End
16 days
Critical path
Section 1.2
Section 1.1 End
1 days
1.2.1.1
1 days
1.2.1.2
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5 days
1.2.2.5
3 days
1.2.2.6
Section 1.2 End
13 days
Critical path
Section 1.3
Section 1.2 End
5 days
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3 days
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Section 1.3 End
10 days
Critical path
Section 1.4
Section 1.3 End
3 days
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5 days
1.4.1.2
5 days
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5 days
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Section 1.4 End
Section 2.1
Section 1.4 End
3 days
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2 days
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10 days
2.1.3.3
Section 2.1 End
5 days
2.1.4.1
2 days
2.1.4.2
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19 days
Critical path
5 days
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2 days
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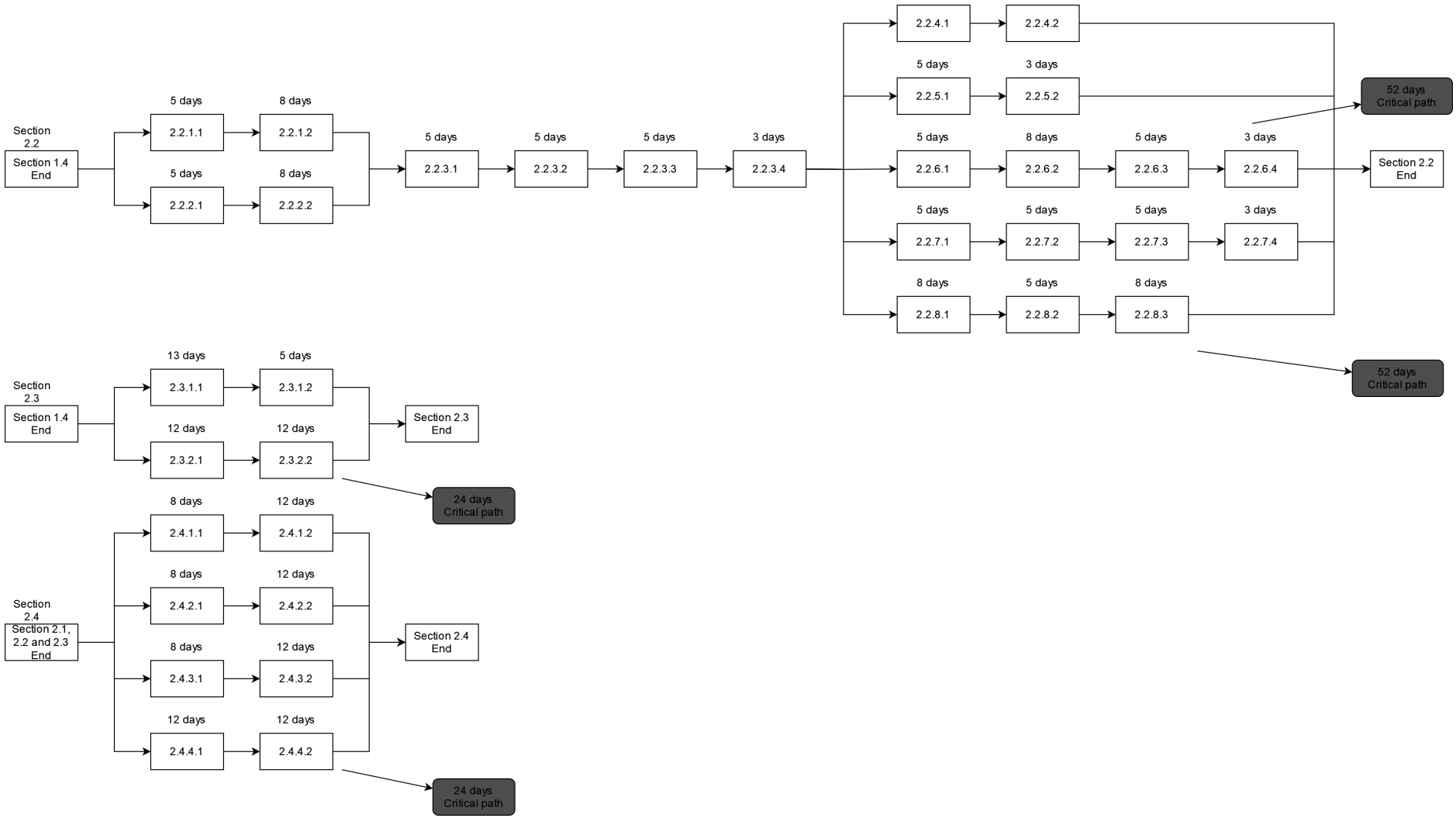
2.1.5.3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3 days
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8 days
2.2.8.1
5 days
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8 days
2.2.8.3
52 days Critical path
Section 2.2 End
52 days Critical path
Section 2.3
Section 1.4 End
13 days
2.3.1.1
5 days
2.3.1.2
12 days
2.3.2.1
12 days
2.3.2.2
Section 2.3 End
24 days Critical path
Section 2.4
Section 2.1, 2.2 and 2.3 End
8 days
2.4.1.1
12 days
2.4.1.2
8 days
2.4.2.1
12 days
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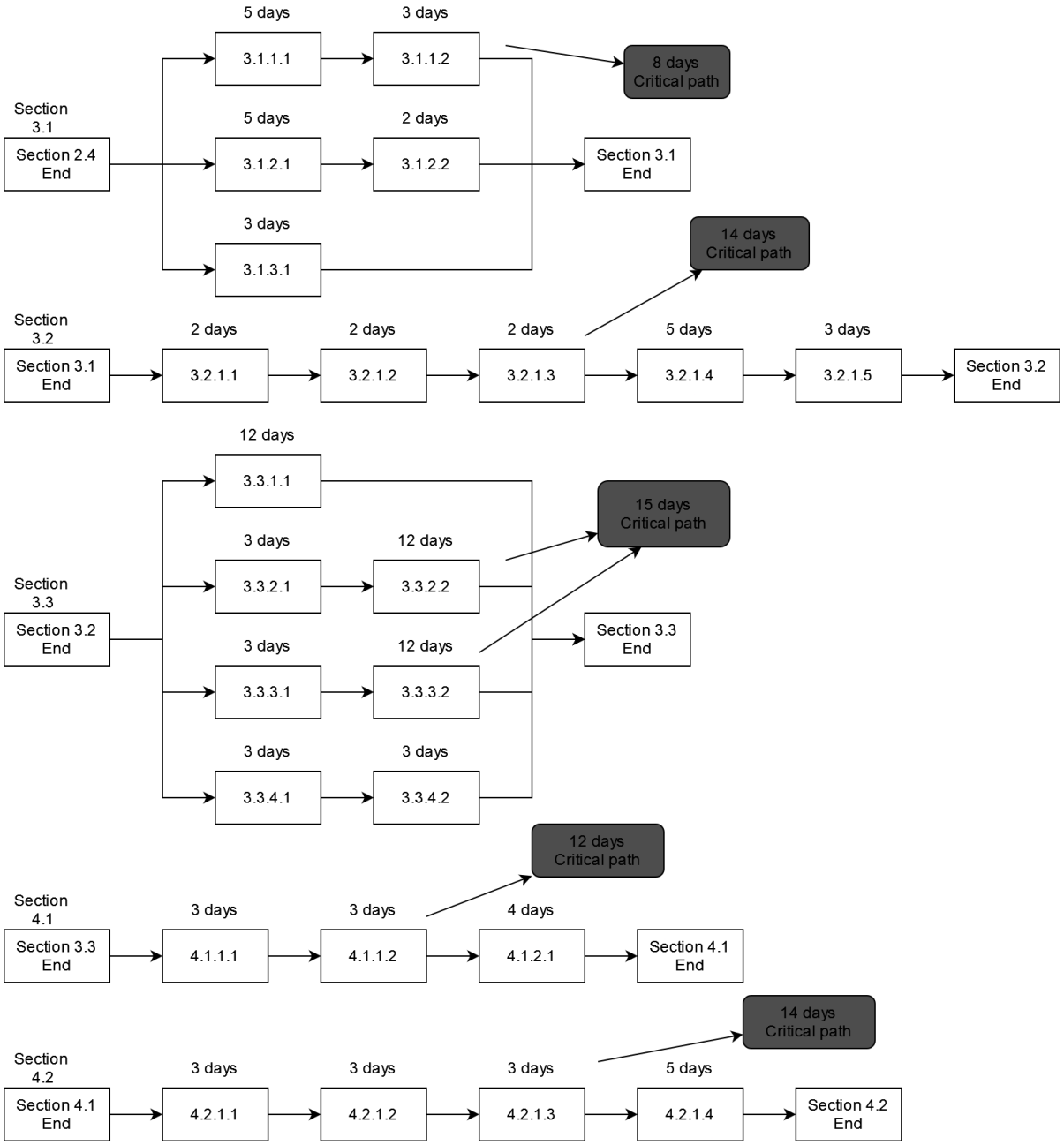
12 days
2.4.4.2
Section 2.4 End
24 days Critical path



2.11 Basis of Estimates

Basis of Estimates

We based our activity duration on the activities of similar activities from other projects that the project team had worked on or for activities that the team was not familiar with, projects and activities of a similar form were researched to help estimate the workload and time required for those activities to be completed.

Many of the activities were complex and required breaking down the activity into components that would together complete that activity – these components were then estimated, and the results combined to form the best estimate we could provide for that activity.

Many of the activities that could hold up the project or for any that required external input such as discussions with iSolutions for handover extra time was added as a buffer, so the activity is less likely

to overrun and delay the project timeline. Similarly for tasks that required feedback such as from stakeholders, additional time was added as the feedback could take a while to be returned and again the project would have buffer time to make sure unexpected or uncertain time delays would have a minimal impact on the deliverable date.

2.12 Activity Duration Estimates

Activity Identifier	Activity Name	Activity Description	Estimated Working Effort	Estimated Duration
0.1.1.1	Create project charter	Create the project charter	8 hours	3 days
0.1.1.2	Sign-off document	Ensure all team members and stakeholders sign-off the project charter	2 hours	1 day
0.1.2.1	Create scope statement	Create the scope statement	8 hours	3 days
0.1.2.2	Sign-off scope statement	Ensure all team members and stakeholders sign-off the scope statement	2 hours	1 day
0.1.3.1	Create stakeholder register	Create stakeholder register	4 hours	2 days
0.1.3.2	Sign-off stakeholder register	Ensure relevant team members sign-off the document	2 hours	1 day
0.1.4.1	Hold kick-off meeting	Full project team in attendance, main kick off meeting.	4 hours	1 day
0.2.1.1	Create assumption log	Create assumption log	4 hours	2 days
0.2.1.2	Sign-off assumption log	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.2.1	Create stakeholder analysis	Create stakeholder analysis	8 hours	3 days
0.2.2.2	Sign-off stakeholder analysis	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.3.1	Create stakeholder management strategy	Create stakeholder management strategy	8 hours	3 days
0.2.3.2	Sign-off stakeholder management strategy	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.4.1	Create requirements document	Create requirements document	16 hours	5 days
0.2.4.2	Sign-off requirements document	Ensure all team members and stakeholders sign-off the requirements document	4 hours	2 days
0.2.5.1	Create requirements traceability matrix	Create requirements traceability matrix	8 hours	3 days
0.2.5.2	Sign-off requirements traceability matrix	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.6.1	Create work breakdown structure	Create work breakdown structure	8 hours	3 days

0.2.6.2	Sign-off work breakdown structure	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.7.1	Create activity list	Create activity list	16 hours	5 days
0.2.7.2	Sign-off activity list	Ensure relevant team members sign-off the document&	2 hours	1 day
0.2.8.1	Create activity attributes	Create activity attributes	8 hours	3 days
0.2.8.2	Sign-off activity attributes	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.9.1	Create milestone list	Create milestone list with dates	4 hours	2 days
0.2.9.2	Sign-off milestone list	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.10.1	Create change request template	Create template for use in any future change requests made by project team	4 hours	2 days
0.2.10.2	Sign-off change request template	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.11.1	Create network diagram	Create network diagram of the activities	8 hours	3 days
0.2.11.2	Sign-off Network diagram	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.12.1	Create Critical path analysis	Create Critical path analysis document	8 hours	3 days
0.2.12.2	Sign-off critical path analysis	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.13.1	Create basis of estimates	Create basis of estimates outlining how the duration estimates were decided	8 hours	3 days
0.2.13.2	Sign-off basis of estimates	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.14.1	Create activity duration estimates	Outline the workload for each activity and estimate work hour requirement and estimated duration	16 hours	5 days
0.2.14.2	Sign-off activity duration estimates	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.15.1	Create Gantt chart	Create Gantt chart	8 hours	3 days
0.2.15.2	Sign-off Gantt chart	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.16.1	Create Schedule Update Table Template	Create Schedule Update Table Template to track progress during project with value produced	4 hours	2 days
0.2.16.2	Sign-off Schedule Update Table Template	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.17.1	Create project monitoring template	Create project monitoring template	8 hours	3 days
0.2.17.2	Sign-off Project monitoring template	Ensure relevant team members sign-off the document	2 hours	1 day

0.2.18.1	Create RACI responsibility assignment matrix	Create RACI responsibility assignment matrix	8 hours	3 days
0.2.18.2	Sign off RACI responsibility assignment matrix	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.19.1	Create combined RBS and OBS	Create combined RBS and OBS	8 hours	3 days
0.2.19.2	Sign-off combined RBS OBS	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.20.1	Create resource histogram	Create resource histogram	8 hours	3 days
0.2.20.2	Sign-off resource histogram	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.21.1	Create risk register	Create risk register	8 hours	3 days
0.2.21.2	Sign-off risk register	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.22.1	Create risk management plan	Create risk management plan	8 hours	3 days
0.2.22.2	Sign-off risk management plan	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.23.1	Create activity cost estimate	Create activity cost estimate	8 hours	3 days
0.2.23.2	Sign-off activity cost estimate	Ensure relevant team members sign-off the document	2 hours	1 day
0.2.24.1	Create cost baseline	Create cost baseline and compare to budget, decide management and contingency reserve.	8 hours	3 days
0.2.24.2	Sign-off cost baseline	Ensure relevant team members sign-off the document	2 hours	1 day
1.1.1.1	Create survey	Using Microsoft Forms create a survey to be compiled online, that gathers the views of the potential student users	8 hours	2 days
1.1.1.2	Secure ethical approval	Apply for ethical approval from the ethics board for the survey using the ergo2 system	4 hours	5 days
1.1.1.3	Send out survey	Distribute survey among students via email lists and ECS discord	2 hours	1 day
1.1.1.4	Analyse survey results	Using the responses look at common requests and assess their suitability for inclusion as features	16 hours	5 days
1.1.1.5	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase	8 hours	3 days

1.1.2.1	Create survey	Using Microsoft Forms create a survey to be compiled online, that gathers the views of the potential lecturer users	8 hours	2 days
1.1.2.2	Secure ethical approval	Apply for ethical approval from the ethics board for the survey using the ergo2 system	4 hours	5 days
1.1.2.3	Send out survey	Distribute survey among lecturers via email lists	2 hours	1 day
1.1.2.4	Analyse survey results	Using the responses look at common requests and assess their suitability for inclusion as features	16 hours	5 days
1.1.2.5	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase	8 hours	3 days
1.1.3.1	Create survey	Using Microsoft Forms create a survey to be compiled online, that gathers the views of the potential admin users	8 hours	2 days
1.1.3.2	Secure ethical approval	Apply for ethical approval from the ethics board for the survey using the ergo2 system	4 hours	5 days
1.1.3.3	Send out survey	Distribute survey among admin staff via emails gathered from ECS department	2 hours	1 day
1.1.3.4	Analyse survey results	Using the responses look at common requests and assess their suitability for inclusion as features	16 hours	5 days
1.1.3.5	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase	8 hours	3 days
1.1.4.1	Identify non-function requirements	Identify non-functional requirements such performance targets and SSO requirements	16 hours	5 days
1.1.4.2	Create acceptance criteria	Based off the suitable features identified create acceptance criteria to be used for verification of the feature at the testing phase	8 hours	3 days
1.2.1.1	Set up repository for code	Set up a repository for the project on the Soton Gitlab and ensure all team members have the appropriate access	4 hours	1 day

1.2.1.2	Identify code review plan	Identify which members of the team will be responsible for signing off each other members code before it can be pushed to the main branch	4 hours	1 day
1.2.2.1	Agree on language for backend	Based off team skills and customer requirements choose language for backend to be written in	4 hours	1 day
1.2.2.2	Agree on framework for backend	Based off team skills, customer requirements and licensing terms choose framework for backend	8 hours	2 days
1.2.2.3	Agree of language for frontend	Based off team skills and customer requirements choose language for frontend to be written in	4 hours	1 day
1.2.2.4	Agree on framework for frontend	Based off team skills, customer requirements and licensing terms choose framework for frontend	8 hours	2 days
1.2.2.5	Agree on API structure for Handin to Archive System	Analyse all the requirements regarding communication between the Handin system and the Achieve system and agree on the API structure. If feasible the Handin system will be modified to serve the requests directly, else an intermediary system will be created to scrape the data and return it in the API format to ensure the new Archive system remains usable if Handin is replaced.	16 hours	5 days
1.2.2.6	Agree on API structure for frontend to backend	Analyse all the requirements regarding communication between the front-end and back-end of the new Archive system.	8 hours	3 days
1.3.1.1	Analyse suitability for data migration	Investigate current system to determine the best way to pull the existing projects off It	16 hours	5 days
1.3.1.2	Design tools required to migrate data to new system	Design the tools required to migrate data off the existing system, including sign off from iSolutions if tool will need to access existing databases or other service under iSolutions management	16 hours	5 days

1.3.2.1	Analyse suitability for API access to pull projects and Handin details	Determine if the Handin system has any existing API or method to query data, or it one will need to be created. Either by modifying the Handin system or creating a separate tool to scrap the data off the webpage.	16 hours	5 days
1.3.2.2	Assess if access to Handin source code is possible	Determine if access to Handin source code is possible, and if so, who has responsibility for it.	4 hours	2 days
1.3.2.3	Assess if Handin can be modified within project constraints	If source code access is available assess if it is feasible to modify it if required to serve the API requests. This is constrained by access (1.3.2.2), the state of the code and the skills of team members to modify with in the time and budget constraints of the project.	8 hours	3 days
1.3.2.4	Assess if previous years projects for MSc and MEng reports can be pulled from Handin system	Determine if previous years MSc and MEng are available from Handin system and the feasibility of pulling them off the system into the new Achieve system.	8 hours	3 days
1.4.1.1	Agree software to be used with project stakeholders	Agree on hardware and software constraints with stakeholders. For example, University might require internal tools to use Azure SQL for database services and Windows Server for an OS.	8 hours	3 days
1.4.1.2	Arrange for suitably configured test hardware provision from iSolutions including database for new Archive System	Arrange for iSolutions to set up hardware and storage services like what will used in production for testing purposes.	8 hours	5 days
1.4.2.1	Arrange for suitably configured test hardware provision from iSolutions including database for Handing System	Arrange for iSolutions to set up hardware and storage services to run a copy of the Handin system	8 hours	5 days
1.4.2.2	Arrange for copy of Handin system and dependencies to be set up on provisioned hardware	Arrange for a copy of the Handin system to be installed on the hardware provided by iSolutions and populate it with test data.	16 hours	5 days

2.1.1.1	Design login UI mock-ups	Using Figma create a series of potential mock-ups of the login page, this page should allow users to authenticate themselves using the university SSO	8 hours	3 days
2.1.1.2	Agree on login mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design	4 hours	2 days
2.1.1.3	Implement chosen login mock-up	Take the chosen design and implement it with the previously decided framework	16 hours	5 days
2.1.2.1	Design user UI mock-ups	Using Figma create a series of potential mock-ups of the upload page, this page should direct the user to their home page. For students this should show previously viewed reports and recent searches. For lecturers it should show the same and summaries of any modules with reports that they oversee. For admin staff it should show a summary of recent actions.	16 hours	5 days
2.1.2.2	Agree on user mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design	4 hours	2 days
2.1.2.3	Implement chosen user mock-up	Take the chosen design and implement it with the previously decided framework	32 hours	10 days
2.1.3.1	Design search UI mock-ups	Using Figma create a series of potential mock-ups of the search page. This page should allow users to search for past reports with a variety of different criteria, including module, year, keywords, title, author and supervisor.	16 hours	5 days
2.1.3.2	Agree on search mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design	4 hours	2 days
2.1.3.3	Implement chosen search mock-up	Take the chosen design and implement it with the previously decided framework	32 hours	10 days

2.1.4.1	Design viewer UI mock-ups	Using Figma create a series of potential mock-ups of the viewer page, this should show users the report alongside that information about it. The user should be allowed to save the report for future reference	16 hours	5 days
2.1.4.2	Agree on viewer mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design	4 hours	2 days
2.1.4.3	Implement chosen viewer mock-up	Take the chosen design and implement it with the previously decided framework	32 hours	10 days
2.1.5.1	Design admin UI mock-ups	Using Figma create a series of potential mock-ups of the admin page this page should allow admin staff to manual edit information and configure settings. They should also be able to see a summary of what is commonly being looked for.	16 hours	5 days
2.1.5.2	Agree on admin mock-ups with stakeholders	Present the mock ups to the stakeholders and agree on a final design	4 hours	2 days
2.1.5.3	Implement chosen admin mock-up	Take the chosen design and implement it with the previously decided framework	40 hours	12 days
2.2.1.1	Design database structure	Design the structure of the database, this will need to store the information about the reports, a reference to their location and user data.	16 hours	5 days
2.2.1.2	Implement database	Using the structure designed in 2.2.1.1 implemented the database in the software agreed in 1.4.1.1	24 hours	8 days
2.2.2.1	Implement API for front-end to back-end	Implement skeleton API to serve requests from the front-end to the back end	16 hours	5 days
2.2.2.2	Implement API to request report pages	Implement API for new archive system to request reports	24 hours	8 days
2.2.3.1	Create user account types	Create back-end functionality for the three user account types, student, lecturer and admin	16 hours	5 days
2.2.3.2	Create user account levels	Implement the various permission options that can be granted to an account	16 hours	5 days
2.2.3.3	Create login logic	Create functionality for users to login, likely using SSO	24 hours	5 days

2.2.3.4	Add checks on API to enforce permissions	Implement security checks on each API endpoint to enforce user privileges	8 hours	3 days
2.2.4.1	Identify format of report storage	Based on the requirements agreed in 1.4.1.1 identify the best way to store the reports	8 hours	3 days
2.2.4.2	Configure backend storage mechanism	Configure the back end to use the identified storage	16 hours	5 days
2.2.5.1	Implement user page functionality	Implement the back-end code required to create the user page	16 hours	5 days
2.2.5.2	Implement API to serve user page to front end	Implement the section of the API required to serve the back- end user page functionality to the front end	8 hours	3 days
2.2.6.1	Implement ability of search results by title or module	Implement the back-end code required to allow users search results by title or module	16 hours	5 days
2.2.6.2	Implement advance search functionality	Implement ability to search by keywords, author and supervisors	24 hours	8 days
2.2.6.3	Implement the ability to generate reports on common searched items	Implement the ability to generate reports on common searched items for use by admin staff	16 hours	5 days
2.2.6.4	Implement API to serve search page to front end	Implement the section of the API required to serve the back- end search page functionality to the front end	8 hours	3 days
2.2.7.1	Implement ability to generate viewer page	Implement the back-end code required to generate the viewer page, such as request the report file and data to be served to the user	16 hours	5 days
2.2.7.2	Implement ability to save pages	Implement the ability for users to save pages for them to later view from their account	16 hours	5 days
2.2.7.3	Implement ability to export pages	Implement the ability to export pages for users including the file and the refence in a selected common format	16 hours	5 days
2.2.7.4	Implement API to serve view functionality to front end	Implement the section of the API required to serve the back- end view page functionality to the front end	8 hours	3 days
2.2.8.1	Implement the ability for admin staff to manually upload reports and report information	Implement the ability for admin staff to manually upload reports and report information	24 hours	8 days

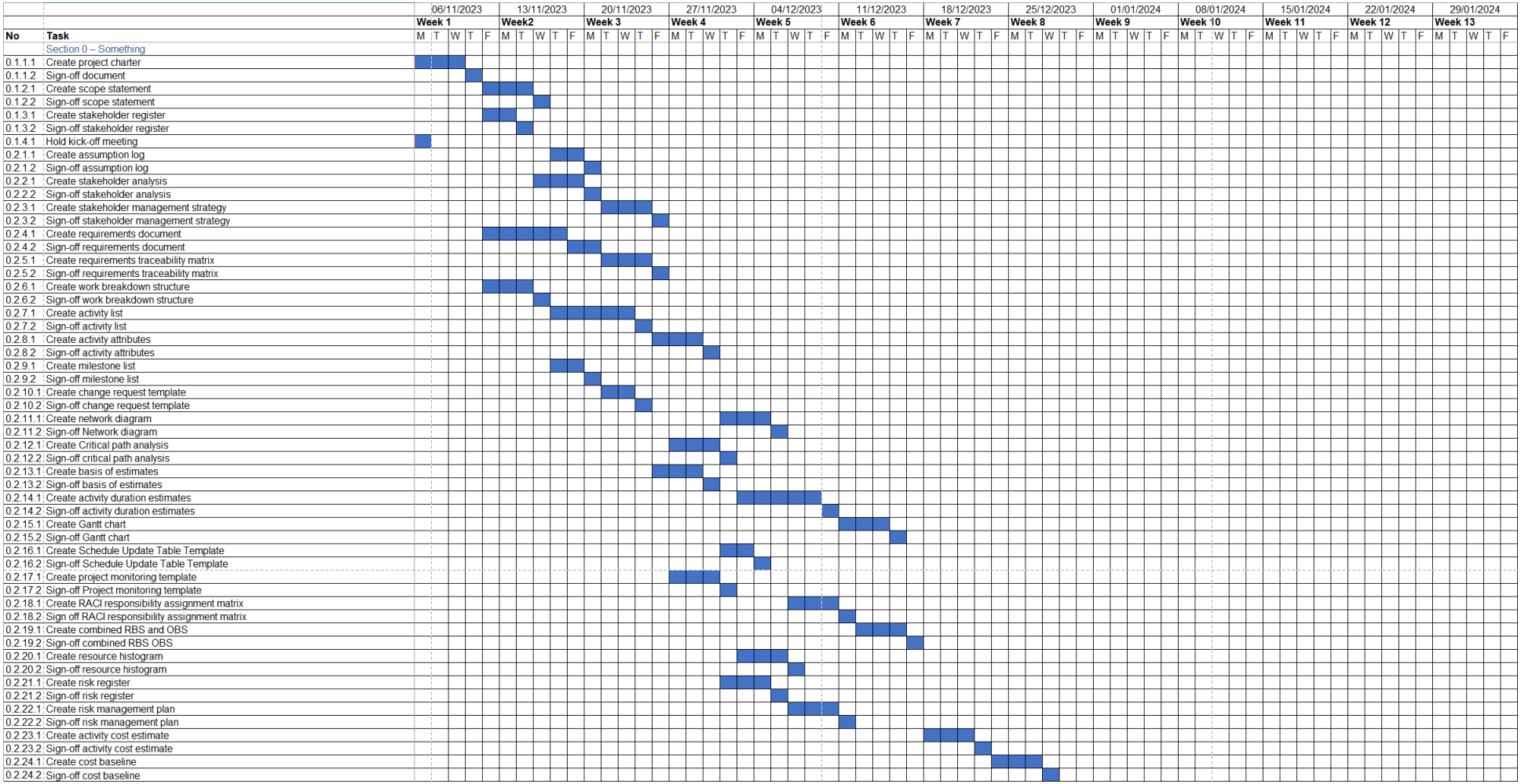
2.2.8.2	Implement the ability for admin staff to block certain modules from public search	Implement the ability for admin staff to block certain modules from public search, such as when marking or feedback is delayed	16 hours	5 days
2.2.8.3	Implement the ability for admin staff to manual edit information	Implement the ability for admin staff to manually edit the information or file of individual reports and block if from being overwritten by the data from Handin	24 hours	8 days
2.3.1.1	Implement request via API the reports and their details	Implement the ability for the Handin system to respond to request the file and information about reports	40 hours	12 days
2.3.1.2	Implement request via API the module information	Implement the ability for the Handin system to respond to request the information about the module such as the year and coordinator	16 hours	5 days
2.3.2.1	Create tool to transfer Part III projects to new system	Create a tool to transfer Part III projects to new system likely by copying the existing database and transferring it in a few format	40 hours	12 days
2.3.2.2	Create tool to transfer MSc and GDP projects to new system	Create a tool to transfer MSc and MEng projects to new system by copying them off Handin or another source if possible	40 hours	12 days
2.4.1.1	Confirm student requirements met with the acceptance criteria	Test to ensure each identified student requirement has been met	24 hours	8 days
2.4.1.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met	40 hours	12 days
2.4.2.1	Confirm lecturer requirements met with the acceptance criteria	Test to ensure each identified lecturer requirement has been met	24 hours	8 days
2.4.2.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met	40 hours	12 days
2.4.3.1	Confirm admin requirements met with the acceptance criteria	Test to ensure each identified admin requirement has been met	24 hours	8 days
2.4.3.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met	40 hours	12 days

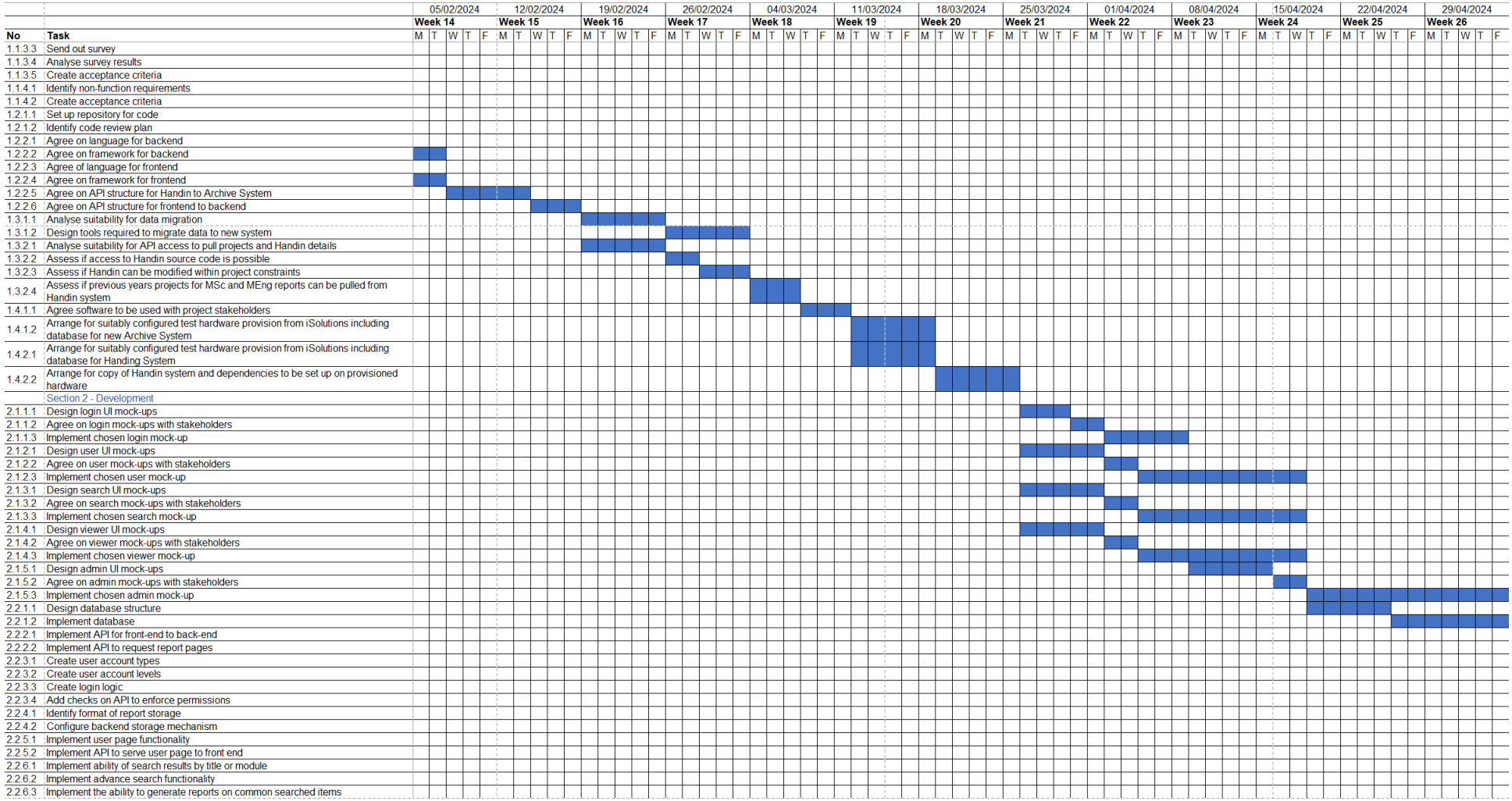
2.4.4.1	Confirm non-functional requirements have been met	Test to ensure each identified non-functional requirement has been met	40 hours	12 days
2.4.4.2	Implement corrective action	Resolve any issue that have caused the requirements not to be met	40 hours	12 days
3.1.1.1	Create a staff training guide	Create a guide to be used to train staff on how to use the system	16 hours	5 days
3.1.1.2	Create a schedule for staff training	Create a schedule that uses the guide as a basis to train staff	8 hours	3 days
3.1.2.1	Create an installation guide	Create the documentation on how to install and configure the new archive system for use by iSolutions.	16 hours	5 days
3.1.2.2	Secure iSolutions sign off	Ensure that iSolutions are satisfied with the installation guide and they fully understand the procedure	4 hours	2 days
3.1.3.1	Create a document outlining software requirements	Create a document that outlines the software requirements including items like required storage and database set ups	8 hours	3 days
3.2.1.1	Arrange for iSolutions to set up the production hardware configuration	Arrange for iSolutions to set up the production hardware configuration that the new achieve system will be run on and ensure the hardware configuration is correct	4 hours	2 days
3.2.1.2	Arrange for iSolutions to set up database	Arrange for iSolutions to set up the database configuration that the new achieve system will use and ensure the database configuration is correct	4 hours	2 days
3.2.1.3	Arrange for iSolutions to provision necessary storage	Arrange for iSolutions to set up the necessary storage for the report files that the new achieve system will use and ensure the storage configuration is correct	4 hours	2 days
3.2.1.4	Arrange for iSolutions to update Handin system if required	If required arrange for iSolutions to update the Handin system to enable the new Archive system to make API requests	8 hours	5 days
3.2.1.5	Arrange for iSolutions to install new archive system	Arrange for iSolutions to install new archive system and verify its working	8 hours	3 days

3.3.1.1	Use tool to migrate Part III projects from the current production system and transfer them to the new one	Use the migration tool to migrate existing Part III projects one the new system	40 hours	12 days
3.3.2.1	Confirm if it is feasible to add past MSc projects to the system	Confirm if it was possible at the development stage to develop tool to migrate past MSc projects either from the Handin system or another place. Else document reasons why and methods tried for possible future work.	8 hours	3 days
3.3.2.2	Transfer MSc projects to the new system	If possible, transfer MSc projects to the new system with the created tool	40 hours	12 days
3.3.3.1	Confirm if it is feasible to add past GDP projects to the system	Confirm if it was possible at the development stage to develop tool to migrate past GDP projects either from the Handin system or another place. Else document reasons why and methods tried for possible future work.	8 hours	3 days
3.3.3.2	Transfer GDP projects to the new system	If possible, transfer GDP projects to the new system with the created tool	40 hours	12 days
3.3.4.1	Obtain list of admin staff from ECS and their required permissions	Communicate with ECS leadership team to build a list of admin staff that require access to the system and what level of permissions they require. Ensure there is a member of admin staff designated as in charge for ongoing permission updates and staff changes	8 hours	3 days
3.3.4.2	Add admin staff with appropriate permissions	Add the admin staff with the specified level of permissions, ensure all users can access the system and no issues exist	8 hours	3 days
4.1.1.1	Ensure the source code for the new archive system is stored and available	Make sure that all the source code and related development materials are stored and handed over to iSolutions and ECS for long term storage.	8 hours	3 days

4.1.1.2	Ensure any code changes or API module for the Handin system is stored and available	Make sure that all the source code and related development materials are stored and handed over to iSolutions and ECS for long term storage.	8 hours	3 days
4.1.2.1	Ensure all documentation is stored and available	Make sure that any documentation is stored and handed over to iSolutions and ECS for long term storage.	16 hours	4w days
4.2.1.1	Have the team reflect on what went well for the preparation phase	Have the team reflect on what went well for the preparation phase	8 hours	3 days
4.2.1.2	Have the team reflect on what went well for the development phase	Have the team reflect on what went well for the development phase	8 hours	3 days
4.2.1.3	Have the team reflect on what went well for the migration phase	Have the team reflect on what went well for the migration phase	8 hours	3 days
4.2.1.4	Document all reflections for future learning	Document all reflections for future learning	16 hours	5 days

2.13 Gantt Chart

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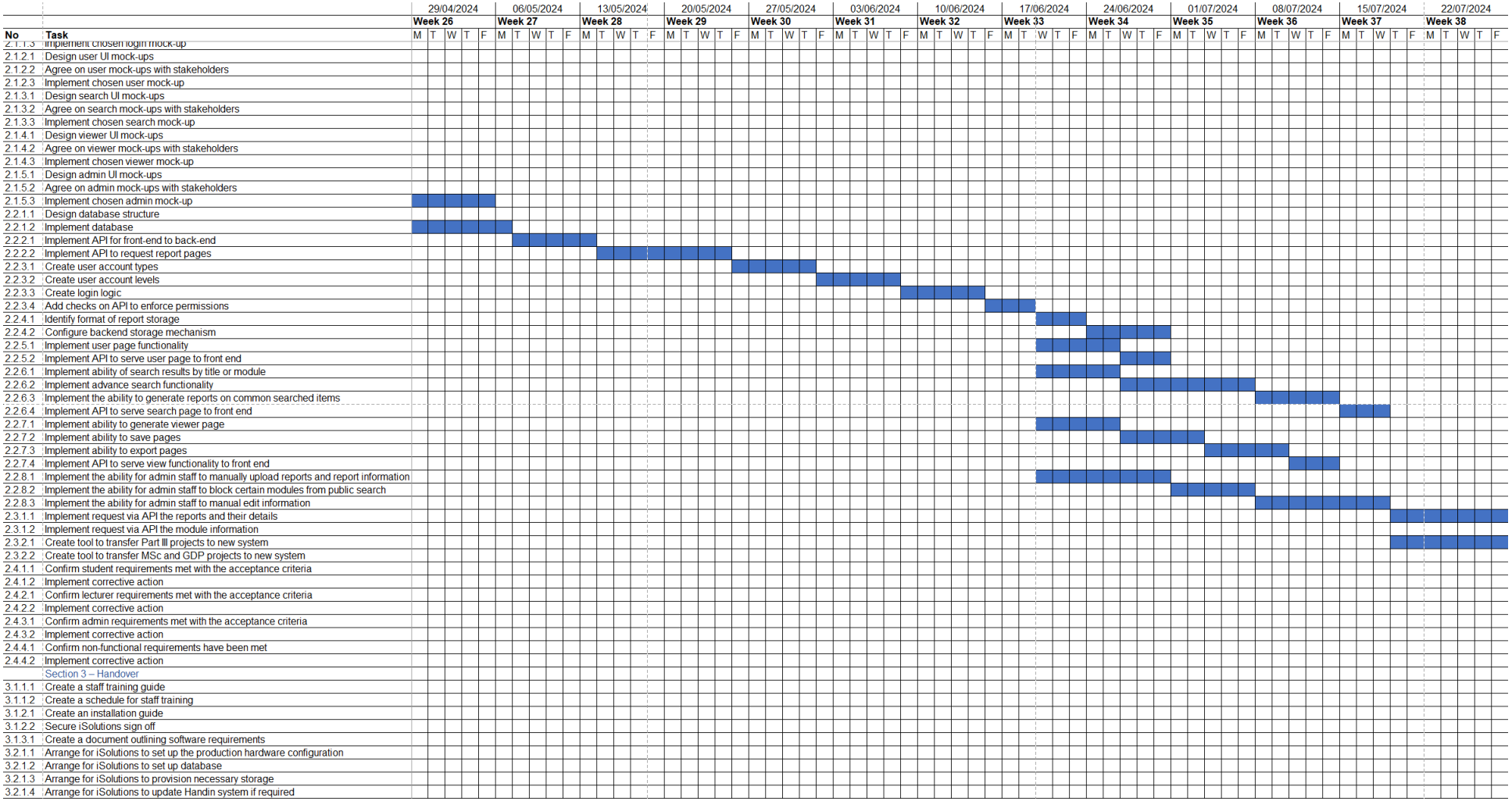
Week 15
Week 16
Week 17
Week 18
Week 19
Week 20
Week 21
Week 22
Week 23
Week 24
Week 25
Week 26
M T W T F
No
Task
1.1.3.3 Send out survey
1.1.3.4 Analyse survey results
1.1.3.5 Create acceptance criteria
1.1.4.1 Identify non-function requirements
1.1.4.2 Create acceptance criteria
1.2.1.1 Set up repository for code
1.2.1.2 Identify code review plan
1.2.2.1 Agree on language for backend
1.2.2.2 Agree on framework for backend
1.2.2.3 Agree of language for frontend
1.2.2.4 Agree on framework for frontend
1.2.2.5 Agree on API structure for Handin to Archive System
1.2.2.6 Agree on API structure for frontend to backend
1.3.1.1 Analyse suitability for data migration
1.3.1.2 Design tools required to migrate data to new system
1.3.2.1 Analyse suitability for API access to pull projects and Handin details
1.3.2.2 Assess if access to Handin source code is possible
1.3.2.3 Assess if Handin can be modified within project constraints
1.3.2.4 Assess if previous years projects for MSc and MEng reports can be pulled from Handin system
1.4.1.1 Agree software to be used with project stakeholders
1.4.1.2 Arrange for suitably configured test hardware provision from iSolutions including database for new Archive System
1.4.2.1 Arrange for suitably configured test hardware provision from iSolutions including database for Handing System
1.4.2.2 Arrange for copy of Handin system and dependencies to be set up on provisioned hardware
Section 2 - Development
2.1.1.1 Design login UI mock-ups
2.1.1.2 Agree on login mock-ups with stakeholders
2.1.1.3 Implement chosen login mock-up
2.1.2.1 Design user UI mock-ups
2.1.2.2 Agree on user mock-ups with stakeholders
2.1.2.3 Implement chosen user mock-up
2.1.3.1 Design search UI mock-ups
2.1.3.2 Agree on search mock-ups with stakeholders
2.1.3.3 Implement chosen search mock-up
2.1.4.1 Design viewer UI mock-ups
2.1.4.2 Agree on viewer mock-ups with stakeholders
2.1.4.3 Implement chosen viewer mock-up
2.1.5.1 Design admin UI mock-ups
2.1.5.2 Agree on admin mock-ups with stakeholders
2.1.5.3 Implement chosen admin mock-up
2.2.1.1 Design database structure
2.2.1.2 Implement database
2.2.2.1 Implement API for front-end to back-end
2.2.2.2 Implement API to request report pages
2.2.3.1 Create user account types
2.2.3.2 Create user account levels
2.2.3.3 Create login logic
2.2.3.4 Add checks on API to enforce permissions
2.2.4.1 Identify format of report storage
2.2.4.2 Configure backend storage mechanism
2.2.5.1 Implement user page functionality
2.2.5.2 Implement API to serve user page to front end
2.2.6.1 Implement ability of search results by title or module
2.2.6.2 Implement advance search functionality
2.2.6.3 Implement the ability to generate reports on common searched items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Week 26
Week 27
Week 28
Week 29
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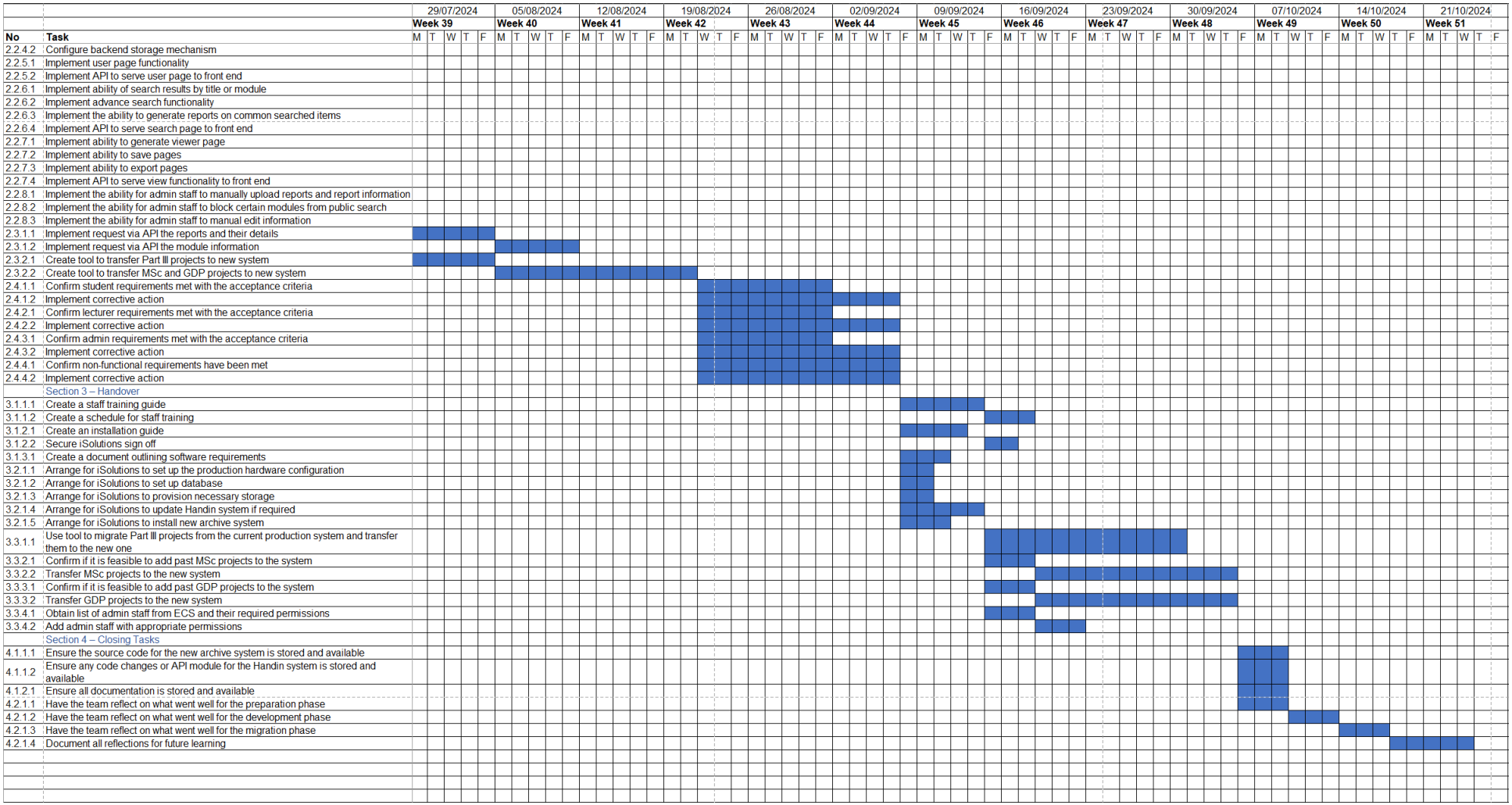
Task
2.1.1.3 Implement chosen login mock-up
2.1.2.1 Design user UI mock-ups
2.1.2.2 Agree on user mock-ups with stakeholders
2.1.2.3 Implement chosen user mock-up
2.1.3.1 Design search UI mock-ups
2.1.3.2 Agree on search mock-ups with stakeholders
2.1.3.3 Implement chosen search mock-up
2.1.4.1 Design viewer UI mock-ups
2.1.4.2 Agree on viewer mock-ups with stakeholders
2.1.4.3 Implement chosen viewer mock-up
2.1.5.1 Design admin UI mock-ups
2.1.5.2 Agree on admin mock-ups with stakeholders
2.1.5.3 Implement chosen admin mock-up
2.2.1.1 Design database structure
2.2.1.2 Implement database
2.2.2.1 Implement API for front-end to back-end
2.2.2.2 Implement API to request report pages
2.2.3.1 Create user account types
2.2.3.2 Create user account levels
2.2.3.3 Create login logic
2.2.3.4 Add checks on API to enforce permissions
2.2.4.1 Identify format of report storage
2.2.4.2 Configure backend storage mechanism
2.2.5.1 Implement user page functionality
2.2.5.2 Implement API to serve user page to front end
2.2.6.1 Implement ability of search results by title or module
2.2.6.2 Implement advance search functionality
2.2.6.3 Implement the ability to generate reports on common searched items
2.2.6.4 Implement API to serve search page to front end
2.2.7.1 Implement ability to generate viewer page
2.2.7.2 Implement ability to save pages
2.2.7.3 Implement ability to export pages
2.2.7.4 Implement API to serve view functionality to front end
2.2.8.1 Implement the ability for admin staff to manually upload reports and report information
2.2.8.2 Implement the ability for admin staff to block certain modules from public search
2.2.8.3 Implement the ability for admin staff to manual edit information
2.3.1.1 Implement request via API the reports and their details
2.3.1.2 Implement request via API the module information
2.3.2.1 Create tool to transfer Part III projects to new system
2.3.2.2 Create tool to transfer MSc and GDP projects to new system
2.4.1.1 Confirm student requirements met with the acceptance criteria
2.4.1.2 Implement corrective action
2.4.2.1 Confirm lecturer requirements met with the acceptance criteria
2.4.2.2 Implement corrective action
2.4.3.1 Confirm admin requirements met with the acceptance criteria
2.4.3.2 Implement corrective action
2.4.4.1 Confirm non-functional requirements have been met
2.4.4.2 Implement corrective action
Section 3 – Handover
3.1.1.1 Create a staff training guide
3.1.1.2 Create a schedule for staff training
3.1.2.1 Create an installation guide
3.1.2.2 Secure iSolutions sign off
3.1.3.1 Create a document outlining software requirements
3.2.1.1 Arrange for iSolutions to set up the production hardware configuration
3.2.1.2 Arrange for iSolutions to set up database
3.2.1.3 Arrange for iSolutions to provision necessary storage
3.2.1.4 Arrange for iSolutions to update Handin system if required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Week 39
Week 40
Week 41
Week 42
Week 43
Week 44
Week 45
Week 46
Week 47
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Week 49
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Week 51
M T W T F
No
Task
2.2.4.2 Configure backend storage mechanism
2.2.5.1 Implement user page functionality
2.2.5.2 Implement API to serve user page to front end
2.2.6.1 Implement ability of search results by title or module
2.2.6.2 Implement advance search functionality
2.2.6.3 Implement the ability to generate reports on common searched items
2.2.6.4 Implement API to serve search page to front end
2.2.7.1 Implement ability to generate viewer page
2.2.7.2 Implement ability to save pages
2.2.7.3 Implement ability to export pages
2.2.7.4 Implement API to serve view functionality to front end
2.2.8.1 Implement the ability for admin staff to manually upload reports and report information
2.2.8.2 Implement the ability for admin staff to block certain modules from public search
2.2.8.3 Implement the ability for admin staff to manual edit information
2.3.1.1 Implement request via API the reports and their details
2.3.1.2 Implement request via API the module information
2.3.2.1 Create tool to transfer Part III projects to new system
2.3.2.2 Create tool to transfer MSc and GDP projects to new system
2.4.1.1 Confirm student requirements met with the acceptance criteria
2.4.1.2 Implement corrective action
2.4.2.1 Confirm lecturer requirements met with the acceptance criteria
2.4.2.2 Implement corrective action
2.4.3.1 Confirm admin requirements met with the acceptance criteria
2.4.3.2 Implement corrective action
2.4.4.1 Confirm non-functional requirements have been met
2.4.4.2 Implement corrective action
Section 3 – Handover
3.1.1.1 Create a staff training guide
3.1.1.2 Create a schedule for staff training
3.1.2.1 Create an installation guide
3.1.2.2 Secure iSolutions sign off
3.1.3.1 Create a document outlining software requirements
3.2.1.1 Arrange for iSolutions to set up the production hardware configuration
3.2.1.2 Arrange for iSolutions to set up database
3.2.1.3 Arrange for iSolutions to provision necessary storage
3.2.1.4 Arrange for iSolutions to update Handin system if required
3.2.1.5 Arrange for iSolutions to install new archive system
3.3.1.1 Use tool to migrate Part III projects from the current production system and transfer them to the new one
3.3.2.1 Confirm if it is feasible to add past MSc projects to the system
3.3.2.2 Transfer MSc projects to the new system
3.3.3.1 Confirm if it is feasible to add past GDP projects to the system
3.3.3.2 Transfer GDP projects to the new system
3.3.4.1 Obtain list of admin staff from ECS and their required permissions
3.3.4.2 Add admin staff with appropriate permissions
Section 4 – Closing Tasks
4.1.1.1 Ensure the source code for the new archive system is stored and available
4.1.1.2 Ensure any code changes or API module for the Handin system is stored and available
4.1.2.1 Ensure all documentation is stored and available
4.2.1.1 Have the team reflect on what went well for the preparation phase
4.2.1.2 Have the team reflect on what went well for the development phase
4.2.1.3 Have the team reflect on what went well for the migration phase
4.2.1.4 Document all reflections for future learning

2.14 Schedule Upkeep Table Template

Week	BAC	PV	EV	AC	SV	SPI	CV	CPI	ETC	EAC	VAC	TCPI
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
...												

2.14.1 Schedule - Glossary of Terms

BAC	Budget at Completion
PV	Planned Value
EV	Earned Value
AC	Actual Value
SV	Schedule Variance
SPI	Schedule Performance Index
CV	Cost Variance
CPI	Cost Performance Index
ETC	Estimate to Complete
EAC	Estimate at Completion
VAC	Variance at Completion
TCPI	To Complete Performance Index

2.15 Project Monitoring Form

2.15.1 Project Monitoring Form - Example

Project Monitoring Example

PROJECT NAME	Project Team	START DATE	END DATE
ECS Archive System	Arash Hushyar, Edward Joyce, James Muir, Kristian Ivanov	01/01/2024	01/07/2024

			Work in HOURS								Work in DAYS									
REF ID	ACTIVITY DESCRIPTION	STATUS	MON	TUES	WED	THURS	FRI	SAT	SUN	WEEKLY TOTAL	PREVIOUS DAYS	DAYS THIS WEEK	TOTAL TO DATE	EST. DAYS REMAINING	ESTIMATED TOTAL	BUDGETED DAYS	VARIANCE	FORECASTED DATE OF COMPLETION	ORIGINAL DATE OF COMPLETION	VARIANCE
1.1.1.1	Create Student Survey	Complete	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0	1.00	0.00	1.00	1.00	0.00	29/12/2023	01/01/2024	-3.00
1.1.1.2	Secure Ethical Approval	Complete	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.25	0.25	0.50	0.00	0.50	0.50	0.00	01/01/2024	01/01/2024	0.00
1.1.1.3	Send out Student Survey	Complete	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.25	0.25	0.00	0.25	0.25	0.00	02/01/2024	02/01/2024	0.00
1.1.1.4	Analyse Student Survey Results	Complete	0.00	0.00	6.00	5.00	5.00	0.00	0.00	16.00	0.00	2	2.00	0.00	2.00	2.00	0.00	05/01/2024	04/01/2024	1.00
1.1.1.5	Create Acceptance Criteria	Needs Review	0.00	0.00	0.00	4.00	4.00	0.00	0.00	8.00	0.00	1	1.00	0.00	1.00	1.00	0.00	05/01/2024	04/01/2024	1.00
1.1.2.1	Create Lecturer Survey	Complete	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.75	0.25	1.00	0.00	1.00	1.00	0.00	01/01/2024	01/01/2024	0.00
1.1.2.2	Secure Ethical Approval	Complete	0.00	4.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.5	0.50	0.00	0.50	0.50	0.00	02/01/2024	02/01/2024	0.00
1.1.2.3	Send out Lecturer Survey	Complete	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.25	0.25	0.00	0.25	0.25	0.00	03/01/2024	02/01/2024	1.00
1.1.2.4	Analyse Lecturer Survey Results	Needs Review	0.00	0.00	4.00	6.00	6.00	0.00	0.00	16.00	0.00	2	2.00	0.00	2.00	2.00	0.00	05/01/2024	04/01/2024	1.00
1.1.2.5	Create Acceptance Criteria	In Progress	0.00	0.00	0.00	0.00	5.00	0.00	0.00	5.00	0.00	0.625	0.63	0.38	1.00	1.00	0.00	08/01/2024	05/01/2024	3.00
1.1.3.1	Create Student Survey	Complete	4.00	4.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	1	1.00	0.00	1.00	1.00	0.00	02/01/2024	02/01/2024	0.00
1.1.3.2	Secure Ethical Approval	Complete	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.25	0.25	0.00	0.25	0.50	-0.25	03/01/2024	02/01/2024	1.00
1.1.3.3	Send out Student Survey	Complete	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	0.00	0.25	0.25	0.00	0.25	0.25	0.00	04/01/2024	03/01/2024	1.00
1.1.3.4	Analyse Student Survey Results	In Progress	0.00	0.00	0.00	0.00	6.00	0.00	0.00	6.00	0.00	0.75	0.75	1.25	2.00	2.00	0.00	08/01/2024	04/01/2024	4.00

STATUS KEY
Proposed
In Progress
Complete
On Hold
Overdue
Needs Review
Scheduled

2.15.2 Project Monitoring Form - Blank Template

Project Monitoring Template

PROJECT NAME	Project Team	START DATE	END DATE
ECS Archive System			

			Work in HOURS								Work in DAYS									
REF ID	ACTIVITY DESCRIPTION	STATUS	MON	TUES	WED	THURS	FRI	SAT	SUN	WEEKLY TOTAL	PREVIOUS DAYS	DAYS THIS WEEK	TOTAL TO DATE	EST. DAYS REMAINING	ESTIMATED TOTAL	BUDGETED DAYS	VARIANCE	FORECASTED DATE OF COMPLETION	ORIGINAL DATE OF COMPLETION	VARIANCE
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00
										0.00		0	0.00		0.00		0.00			0.00

STATUS KEY
Proposed
In Progress
Complete
On Hold
Overdue
Needs Review
Scheduled

2.16 RACI Responsibility Assignment Matrix

2.16.1 Section 0 – Initiation & Planning

Activity Identifier	Responsible	Accountable	Consult	Inform
0.1.1.1	James	Kristian	Ash	Edward
0.1.1.2	James	James	Kristian	Ash
0.1.2.1	Edward	Edward	James	Kristian
0.1.2.2	Edward	Ash	Edward	James
0.1.3.1	Kristian	Kristian	Ash	Edward
0.1.3.2	Kristian	James	Kristian	Ash
0.1.4.1	Ash	Edward	James	Kristian
0.2.1.1	Edward	Kristian	Ash	Edward
0.2.1.2	Edward	Kristian	Ash	Edward
0.2.2.1	Kristian	James	Kristian	Ash
0.2.2.2	Kristian	James	Kristian	Ash
0.2.3.1	Kristian	Kristian	Ash	Edward
0.2.3.2	Kristian	Kristian	Ash	Edward
0.2.4.1	Ash	Edward	James	Kristian
0.2.4.2	Ash	Edward	James	Kristian
0.2.5.1	Ash	James	Kristian	Ash
0.2.5.2	Ash	James	Kristian	Ash
0.2.6.1	James	Ash	Edward	James
0.2.6.2	James	Ash	Edward	James
0.2.7.1	James	Ash	Edward	James
0.2.7.2	James	Ash	Edward	James
0.2.8.1	James	Kristian	Ash	Edward
0.2.8.2	James	Kristian	Ash	Edward
0.2.9.1	Edward	Edward	James	Kristian
0.2.9.2	Edward	Edward	James	Kristian
0.2.10.1	Edward	Kristian	Ash	Edward
0.2.10.2	Edward	Kristian	Ash	Edward
0.2.11.1	James	Kristian	Ash	Edward
0.2.11.2	James	Kristian	Ash	Edward
0.2.12.1	Kristian	Edward	James	Kristian
0.2.12.2	Kristian	Edward	James	Kristian
0.2.13.1	Edward	James	Kristian	Ash
0.2.13.2	Edward	James	Kristian	Ash
0.2.14.1	Kristian	Edward	James	Kristian
0.2.14.2	Kristian	Edward	James	Kristian
0.2.15.1	Kristian	James	Kristian	Ash
0.2.15.2	Kristian	James	Kristian	Ash

Activity Identifier	Responsible	Accountable	Consult	Inform
0.2.16.1	Edward	Edward	James	Kristian
0.2.16.2	Edward	Edward	James	Kristian
0.2.17.1	Ash	Ash	Edward	James
0.2.17.2	Ash	Ash	Edward	James
0.2.18.1	James	Ash	Edward	James
0.2.18.2	James	Ash	Edward	James
0.2.19.1	James	Ash	Edward	James
0.2.19.2	James	Ash	Edward	James
0.2.20.1	Ash	James	Kristian	Ash
0.2.20.2	Ash	James	Kristian	Ash
0.2.21.1	Edward	Kristian	Ash	Edward
0.2.21.2	Edward	Kristian	Ash	Edward
0.2.22.1	Edward	Kristian	Ash	Edward
0.2.22.2	Edward	Kristian	Ash	Edward
0.2.23.1	Kristian	Ash	Edward	James
0.2.23.2	Ash	Ash	Edward	James
0.2.24.1	James	Kristian	Ash	Edward
0.2.24.2	Edward	Kristian	Ash	Edward

2.16.2 Section 1 – Preparation Work

Activity Identifier	Responsible	Accountable	Consult	Inform
1.1.1.1	Edward	James	Kristian	Ash
1.1.1.2	Edward	James	Kristian	Ash
1.1.1.3	Edward	James	Kristian	Ash
1.1.1.4	Edward	James	Kristian	Ash
1.1.1.5	Edward	James	Kristian	Ash
1.1.2.1	James	Edward	Kristian	Ash
1.1.2.2	James	Edward	Kristian	Ash
1.1.2.3	James	Edward	Kristian	Ash
1.1.2.4	James	Edward	Kristian	Ash
1.1.2.4	James	Edward	Kristian	Ash
1.1.3.1	Kristian	Ash	James	Edward
1.1.3.2	Kristian	Ash	James	Edward
1.1.3.3	Kristian	Ash	James	Edward
1.1.3.4	Kristian	Ash	James	Edward
1.1.3.5	Kristian	Ash	James	Edward
1.1.4.1	Ash	Kristian	James	Edward
1.1.4.2	Ash	Kristian	James	Edward
1.2.1.1	James	Ash	Edward	Kristian
1.2.1.2	James	Ash	Edward	Kristian

Activity Identifier	Responsible	Accountable	Consult	Inform
1.2.2.1	James	Edward	Kristian	Ash
1.2.2.2	James	Edward	Kristian	Ash
1.2.2.3	Edward	James	Ash	Kristian
1.2.2.4	Edward	James	Ash	Kristian
1.2.2.5	Ash	Edward	James	Kristian
1.2.2.6	Ash	Edward	James	Kristian
1.3.1.1	Ash	James	Edward	Kristian
1.3.1.2	Ash	James	Edward	Kristian
1.3.2.1	Kristian	Edward	Ash	James
1.3.2.2	Kristian	Edward	Ash	James
1.3.2.3	Kristian	Edward	Ash	James
1.3.2.4	Kristian	Edward	Ash	James
1.4.1.1	Ash	Kristian	James	Edward
1.4.1.2	Ash	Kristian	James	Edward
1.4.2.1	Edward	Ash	Kristian	James
1.4.2.2	Edward	Ash	Kristian	James

2.16.3 Section 2 - Development

Activity Identifier	Responsible	Accountable	Consult	Inform
2.1.1.1	Edward	James	Ash	Kristian
2.1.1.2	Edward	James	Ash	Kristian
2.1.1.3	Edward	James	Ash	Kristian
2.1.2.1	Ash	James	Edward	Kristian
2.1.2.2	Ash	James	Edward	Kristian
2.1.2.3	Ash	James	Edward	Kristian
2.1.3.1	James	Kristian	Ash	Edward
2.1.3.2	James	Kristian	Ash	Edward
2.1.3.3	James	Kristian	Ash	Edward
2.1.4.1	Kristian	James	Edward	Ash
2.1.4.2	Kristian	James	Edward	Ash
2.1.4.3	Kristian	James	Edward	Ash
2.1.5.1	Edward	Kristian	Ash	James
2.1.5.2	Edward	Kristian	Ash	James
2.1.5.3	Edward	Kristian	Ash	James
2.2.1.1	James	Edward	Kristian	Ash
2.2.1.2	James	Edward	Kristian	Ash
2.2.2.1	Kristian	Edward	James	Ash
2.2.2.2	Kristian	Edward	James	Ash
2.2.3.1	James	Ash	Kristian	Edward
2.2.3.2	James	Ash	Kristian	Edward
2.2.3.3	James	Ash	Kristian	Edward
2.2.3.4	James	Ash	Kristian	Edward
2.2.4.1	Kristian	Ash	James	Edward
2.2.4.2	Kristian	Ash	James	Edward

Activity Identifier	Responsible	Accountable	Consult	Inform
2.2.5.1	James	Edward	Kristian	Ash
2.2.5.2	James	Edward	Kristian	Ash
2.2.6.1	Kristian	Edward	James	Ash
2.2.6.2	Kristian	Edward	James	Ash
2.2.6.3	Kristian	Edward	James	Ash
2.2.6.4	Kristian	Edward	James	Ash
2.2.7.1	James	Ash	Kristian	Edward
2.2.7.2	James	Ash	Kristian	Edward
2.2.7.3	James	Ash	Kristian	Edward
2.2.7.4	James	Ash	Kristian	Edward
2.2.8.1	Kristian	Ash	James	Edward
2.2.8.2	Kristian	Ash	James	Edward
2.2.8.3	Kristian	Ash	James	Edward
2.3.1.1	Edward	Kristian	James	Ash
2.3.1.2	Edward	Kristian	James	Ash
2.3.2.1	Ash	Kristian	James	Edward
2.3.2.2	Ash	Kristian	James	Edward
2.4.1.1	James	Edward	Ash	Kristian
2.4.1.2	James	Edward	Ash	Kristian
2.4.2.1	Edward	James	Kristian	Ash
2.4.2.2	Edward	James	Kristian	Ash
2.4.3.1	Ash	Kristian	James	Edward
2.4.3.2	Ash	Kristian	James	Edward
2.4.4.1	Kristian	Ash	Edward	James
2.4.4.2	Kristian	Ash	Edward	James

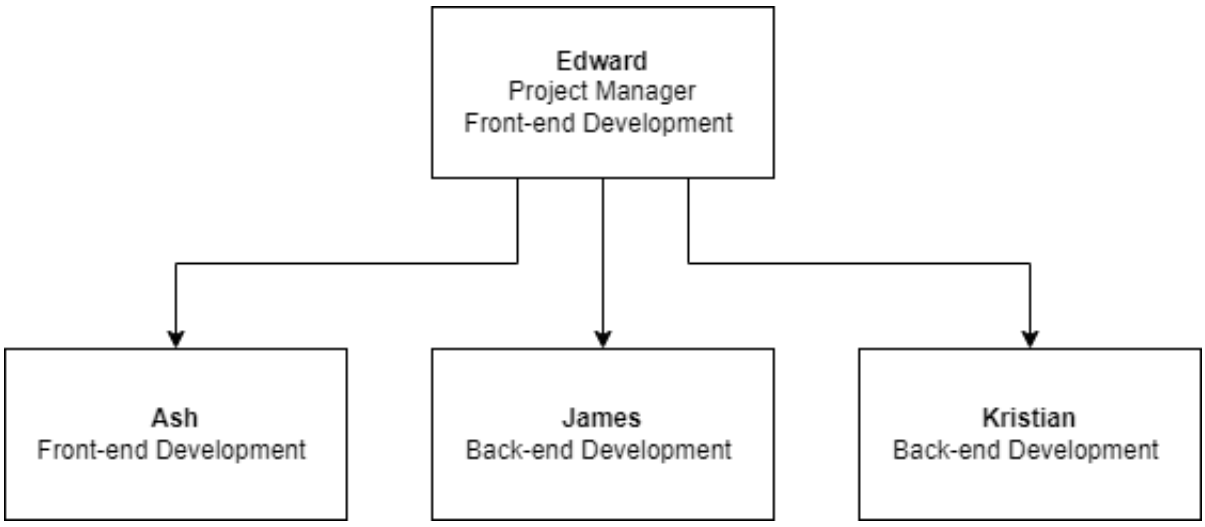
2.16.4 Section 3 - Handover

Activity Identifier	Responsible	Accountable	Consult	Inform
3.1.1.1	James	Edward	Ash	Kristian
3.1.1.2	James	Edward	Ash	Kristian
3.1.2.1	Ash	Kristian	James	Edward
3.1.2.2	Ash	Kristian	James	Edward
3.1.3.1	Kristian	James	Edward	Ash
3.2.1.1	James	Ash	Kristian	Edward
3.2.1.2	Ash	Kristian	Edward	James
3.2.1.3	Kristian	Edward	James	Ash
3.2.1.4	Edward	James	Ash	Kristian
3.2.1.5	James	Ash	Kristian	Edward
3.3.1.1	James	Ash	Edward	Kristian
3.3.2.1	Edward	Kristian	James	Ash
3.3.2.2	Edward	Kristian	James	Ash
3.3.3.1	Kristian	James	Ash	Edward
3.3.3.2	Kristian	James	Ash	Edward
3.3.4.1	Ash	Edward	Kristian	James
3.3.4.2	Ash	Edward	Kristian	James

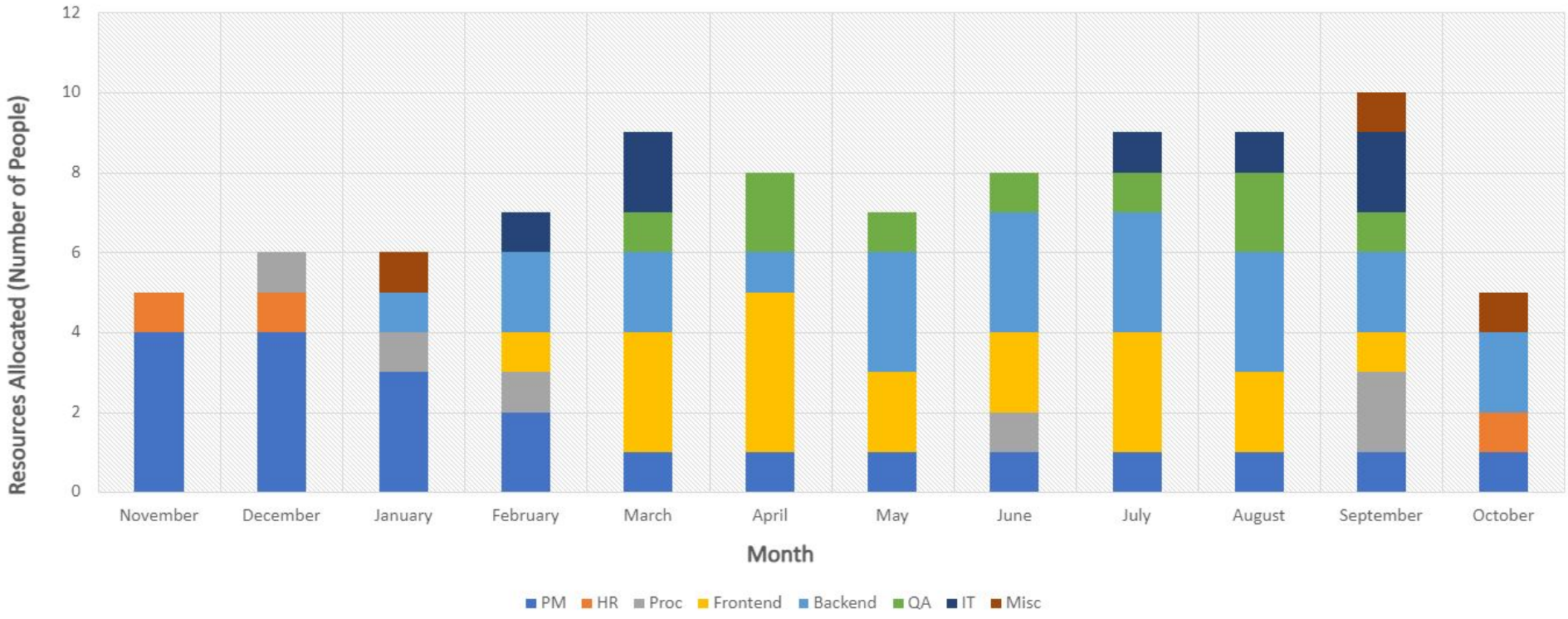
2.16.5 Section 4 – Closing Tasks

Activity Identifier	Responsible	Accountable	Consult	Inform
4.1.1.1	James	Kristian	Edward	Ash
4.1.1.2	Edward	Kristian	James	Ash
4.1.2.1	Kristian	Ash	Edward	James
4.2.1.1	James	Edward	Ash	Kristian
4.2.1.2	Edward	James	Kristian	Ash
4.2.1.3	Ash	Kristian	James	Edward
4.2.1.4	Kristian	Ash	Edward	James

2.17 Combined Organizational Breakdown Structure & Resource Breakdown Structure



2.18 Resource Histogram



2.19 Risk Register

Risk ID	Risk	Description	Category	Triggers	Mitigating Response	Risk Owner	Probability	Impact	Severity
1	Illness, Emergencies or unapproved team member absence	Extended team member illness or emergencies could delay the project and its milestones. With only four members of the team any illness or emergency time off work would likely affect productivity of the whole team and delay deliverable significantly.	Human Resources	Mental health deterioration affected by high workload or outside of work events. Serious accidents, unapproved holiday/absence.	Make sure there is support available for staff to enable a return to work quickly through therapy, medical help and an accessible workplace. Enforce a stay-home policy for ill employees to try and reduce spread and impact on other employees. Employees should be aware they need approval for absences outside of special emergencies.	Edward Joyce (PM)	Medium	Medium	Medium
2	Project requirement change	If the project requirements are seriously altered during the execution process a lot of progress may need to be changed and a greater workload placed on the team to complete the product to the new scope in time.	Project Management	ECS/University of Southampton or other shareholders change their needs post-planning phase.	Make sure requirements are agreed with all major stakeholders and if changes are requested make sure adjustments are possible in terms of deliverable data, scale or cost.	Edward Joyce (PM)	Low	High	High

3	Project schedule delays	If the project schedule underestimates the workload for certain milestones then workload could overflow and delay the entire product.	Project Management	Project planning team lack of research into workload requirements, team members lacking technical ability for certain tasks may take more time than expected.	Project planning team should be fully informed of the technical requirements of the project, the capabilities of the team and build in reasonable flexibility to the project miletones so the deliverable can be successful.	Edward Joyce (PM)	Low	Medium	Medium
4	iSolutions lack resources to maintain product	iSolutions may lack the resources to mantain, host and provide access for all the projects in the archive through the product.	Technical	The product is created to be too technically demanding and inefficient with resource allocation.	Ensure the correct technologies are utilized by team members to make sure the product is scalable and efficient.	James Muir	Low	Medium	Medium
5	Exceeding the Budget	The budget overruns and the product must either be delivered unfinished or further funding be found by cutting other costs.	Finance	Unexpected increases in costs of technical equipment, software packages, team member wages or other requirements for the project to function.	Keep a reasonable section from the budget available as an emergency fund to meet any reasonable increases in costs and prevent running over budget.	Edward Joyce (PM)	Medium	High	High

6	Unexcepted Feature Reliance	A feature may be discovered to require a different feature to be completed first which was not originally expected.	Technical	Mistakes or lack of technical knowledge from project planning team could lead to failures planning which workloads are carried out when.	Ensure project planning team utilize critical path analysis and have technical expertise on hand to help design the feature execution order so that the project isn't held back by other team members work.	Edward Joyce (PM)	Low	Medium	Medium
7	Code base failure/loss	The codebase may be lost, accidentally written over/destroyed or compromised and withheld/altered.	Technical	Malicious attackers could target the code base, attempt to place malicious code in the codebase. The codebase could be accidentally overwritten or destroyed and progress lost.	Store backups remotely and offline to make sure the codebase can be restored quickly so the project is not delayed significantly. Ensure the project is protected against accidental or malicious attacks/access.	James Muir	Low	High	High
8	iSolutions fail to provide testing architecture/environment	iSolutions don't provide the testing structure and dummy project data for the product to be tested thoroughly during development.	Technical	University staff strikes, iSolutions major incident, iSolutions occupied with emergencies or low staff availability.	Ensure some testing can be done in house, allow iSolutions plenty of notice to deliver testing structure.	James Muir	Low	Low	Low

2.20 Risk Management Report

Risk Management Report

Date: 2/12/2023
Methodology:
Risks were gathered by consulting the project planning and project execution teams as well as stakeholders, the team also brainstormed ideas for potential risks together and researched risks in other similar projects to create our risk register. Those risks were then explored - assigned a responsible individual to manage and potentially mitigate that risk. Each risk was determine to have a low/medium/high probability and impact based on the stakeholder and project teams attitude towards risks and their overall impact on the project if they were to occur. These were combined and a severity value given to rank the risks.

Roles and Responsibilities:
Edward Joyce - Project Management Risks
James Muir - Technical Risks
Arash Hushyar - HR Risks
Kristian Ivanov - Financial Risks

Budget and Schedule:
Total budget: £200,000.00
Contingency Reserve: £21,054.00
Cost Baseline: £126,324.00
Management Reserve: £12,632.40

Start date: 06/11/2023
End Date: 30/08/2024

Risk Categories:
Project Management Risks
Technical Risks
HR Risks
Financial Risks

Risk Probability and Impact:

Risk	Probability	Impact
Illness and Emergencies	Medium	Medium
Project requirement change	Low	High
Project schedule delays	Low	Medium
iSolutions lack resources to maintain product	Low	Medium
Exceeding the Budget	Medium	High
Unexcepted Feature Reliance	Low	Medium

Table 15: Risks, Probabilities and Impact

2.21 Cost Estimates

2.21.1 Activity Cost Breakdown

Activity ID	Activity Name	Hours	Total Cost
0.1.1.1	Create project charter	8	£440.00
0.1.1.2	Sign-off document	2	£110.00
0.1.2.1	Create scope statement	8	£440.00
0.1.2.2	Sign-off scope statement	2	£110.00
0.1.3.1	Create stakeholder register	4	£220.00
0.1.3.2	Sign-off stakeholder register	2	£110.00
0.1.4.1	Hold kick-off meeting	4	£220.00
0.2.1.1	Create assumption log	4	£220.00
0.2.1.2	Sign-off assumption log	2	£110.00
0.2.2.1	Create stakeholder analysis	8	£440.00
0.2.2.2	Sign-off stakeholder analysis	2	£110.00
0.2.3.1	Create stakeholder management strategy	8	£440.00
0.2.3.2	Sign-off stakeholder management strategy	2	£110.00
0.2.4.1	Create requirements document	16	£880.00
0.2.4.2	Sign-off requirements document	4	£220.00
0.2.5.1	Create requirements traceability matrix	8	£440.00
0.2.5.2	Sign-off requirements traceability matrix	2	£110.00
0.2.6.1	Create work breakdown structure	8	£440.00
0.2.6.2	Sign-off work breakdown structure	2	£110.00
0.2.7.1	Create activity list	16	£880.00
0.2.7.2	Sign-off activity list	2	£110.00
0.2.8.1	Create activity attributes	8	£440.00
0.2.8.2	Sign-off activity attributes	2	£110.00
0.2.9.1	Create milestone list	4	£220.00
0.2.9.2	Sign-off milestone list	2	£110.00
0.2.10.1	Create change request template	4	£220.00
0.2.10.2	Sign-off change request template	2	£110.00
0.2.11.1	Create network diagram	8	£440.00
0.2.11.2	Sign-off Network diagram	2	£110.00
0.2.12.1	Create Critical path analysis	8	£440.00
0.2.12.2	Sign-off critical path analysis	2	£110.00
0.2.13.1	Create basis of estimates	8	£440.00
0.2.13.2	Sign-off basis of estimates	2	£110.00
0.2.14.1	Create activity duration estimates	16	£880.00
0.2.14.2	Sign-off activity duration estimates	2	£110.00
0.2.15.1	Create Gantt chart	8	£440.00
0.2.15.2	Sign-off Gantt chart	2	£110.00
0.2.16.1	Create Schedule Update Table Template	4	£220.00
0.2.16.2	Sign-off Schedule Update Table Template	2	£110.00
0.2.17.1	Create project monitoring template	8	£440.00
0.2.17.2	Sign-off Project monitoring template	2	£110.00

0.2.18.1	Create RACI responsibility assignment matrix	8	£440.00
0.2.18.2	Sign off RACI responsibility assignment matrix	2	£110.00
0.2.19.1	Create combined RBS and OBS	8	£440.00
0.2.19.2	Sign-off combined RBS OBS	2	£110.00
0.2.20.1	Create resource histogram	8	£440.00
0.2.20.2	Sign-off resource histogram	2	£110.00
0.2.21.1	Create risk register	8	£440.00
0.2.21.2	Sign-off risk register	2	£110.00
0.2.22.1	Create risk management plan	8	£440.00
0.2.22.2	Sign-off risk management plan	2	£110.00
0.2.23.1	Create activity cost estimate	8	£440.00
0.2.23.2	Sign-off activity cost estimate	2	£110.00
0.2.24.1	Create cost baseline	8	£440.00
0.2.24.2	Sign-off cost baseline	2	£110.00
1.1.1.1	Create survey	8	£440.00
1.1.1.2	Secure ethical approval	4	£220.00
1.1.1.3	Send out survey	2	£110.00
1.1.1.4	Analyse survey results	16	£880.00
1.1.1.5	Create acceptance criteria	8	£440.00
1.1.2.1	Create survey	8	£440.00
1.1.2.2	Secure ethical approval	4	£220.00
1.1.2.3	Send out survey	2	£110.00
1.1.2.4	Analyse survey results	16	£880.00
1.1.2.5	Create acceptance criteria	8	£440.00
1.1.3.1	Create survey	8	£440.00
1.1.3.2	Secure ethical approval	4	£220.00
1.1.3.3	Send out survey	2	£110.00
1.1.3.4	Analyse survey results	16	£880.00
1.1.3.5	Create acceptance criteria	8	£440.00
1.1.4.1	Identify non-function requirements	16	£880.00
1.1.4.2	Create acceptance criteria	8	£440.00
1.2.1.1	Set up repository for code	4	£220.00
1.2.1.2	Identify code review plan	4	£220.00
1.2.2.1	Agree on language for backend	4	£220.00
1.2.2.2	Agree on framework for backend	8	£440.00
1.2.2.3	Agree of language for frontend	4	£220.00
1.2.2.4	Agree on framework for frontend	8	£440.00
1.2.2.5	Agree on API structure for Handin to Archive System	16	£880.00
1.2.2.6	Agree on API structure for frontend to backend	8	£440.00
1.3.1.1	Analyse suitability for data migration	16	£880.00
1.3.1.2	Design tools required to migrate data to new system	16	£880.00

1.3.2.1	Analyse suitability for API access to pull projects and Handin details	16	£880.00
1.3.2.2	Assess if access to Handin source code is possible	4	£220.00
1.3.2.3	Assess if Handin can be modified within project constraints	8	£440.00
1.3.2.4	Assess if previous years projects for MSc and MEng reports can be pulled from Handin system	8	£440.00
1.4.1.1	Agree software to be used with project stakeholders	8	£440.00
1.4.1.2	Arrange for suitably configured test hardware provision from iSolutions including database for new Archive System	8	£440.00
1.4.2.1	Arrange for suitably configured test hardware provision from iSolutions including database for Handing System	8	£440.00
1.4.2.2	Arrange for copy of Handin system and dependencies to be set up on provisioned hardware	16	£880.00
2.1.1.1	Design login UI mock-ups	8	£440.00
2.1.1.2	Agree on login mock-ups with stakeholders	4	£220.00
2.1.1.3	Implement chosen login mock-up	16	£880.00
2.1.2.1	Design user UI mock-ups	16	£880.00
2.1.2.2	Agree on user mock-ups with stakeholders	4	£220.00
2.1.2.3	Implement chosen user mock-up	32	£1,760.00
2.1.3.1	Design search UI mock-ups	16	£880.00
2.1.3.2	Agree on search mock-ups with stakeholders	4	£220.00
2.1.3.3	Implement chosen search mock-up	32	£1,760.00
2.1.4.1	Design viewer UI mock-ups	16	£880.00
2.1.4.2	Agree on viewer mock-ups with stakeholders	4	£220.00
2.1.4.3	Implement chosen viewer mock-up	32	£1,760.00
2.1.5.1	Design admin UI mock-ups	16	£880.00
2.1.5.2	Agree on admin mock-ups with stakeholders	4	£220.00
2.1.5.3	Implement chosen admin mock-up	40	£2,200.00
2.2.1.1	Design database structure	16	£880.00
2.2.1.2	Implement database	24	£1,320.00
2.2.2.1	Implement API for front-end to back-end	16	£880.00
2.2.2.2	Implement API to request report pages	24	£1,320.00
2.2.3.1	Create user account types	16	£880.00
2.2.3.2	Create user account levels	16	£880.00
2.2.3.3	Create login logic	24	£1,320.00
2.2.3.4	Add checks on API to enforce permissions	8	£440.00
2.2.4.1	Identify format of report storage	8	£440.00
2.2.4.2	Configure backend storage mechanism	16	£880.00
2.2.5.1	Implement user page functionality	16	£880.00
2.2.5.2	Implement API to serve user page to front end	8	£440.00

2.2.6.1	Implement ability of search results by title or module	16	£880.00
2.2.6.2	Implement advance search functionality	24	£1,320.00
2.2.6.3	Implement the ability to generate reports on common searched items	16	£880.00
2.2.6.4	Implement API to serve search page to front end	8	£440.00
2.2.7.1	Implement ability to generate viewer page	16	£880.00
2.2.7.2	Implement ability to save pages	16	£880.00
2.2.7.3	Implement ability to export pages	16	£880.00
2.2.7.4	Implement API to serve view functionality to front end	8	£440.00
2.2.8.1	Implement the ability for admin staff to manually upload reports and report information	24	£1,320.00
2.2.8.2	Implement the ability for admin staff to block certain modules from public search	16	£880.00
2.2.8.3	Implement the ability for admin staff to manual edit information	24	£1,320.00
2.3.1.1	Implement request via API the reports and their details	40	£2,200.00
2.3.1.2	Implement request via API the module information	16	£880.00
2.3.2.1	Create tool to transfer Part III projects to new system	40	£2,200.00
2.3.2.2	Create tool to transfer MSc and GDP projects to new system	40	£2,200.00
2.4.1.1	Confirm student requirements met with the acceptance criteria	24	£1,320.00
2.4.1.2	Implement corrective action	40	£2,200.00
2.4.2.1	Confirm lecturer requirements met with the acceptance criteria	24	£1,320.00
2.4.2.2	Implement corrective action	40	£2,200.00
2.4.3.1	Confirm admin requirements met with the acceptance criteria	24	£1,320.00
2.4.3.2	Implement corrective action	40	£2,200.00
2.4.4.1	Confirm non-functional requirements have been met	40	£2,200.00
2.4.4.2	Implement corrective action	40	£2,200.00
3.1.1.1	Create a staff training guide	16	£880.00
3.1.1.2	Create a schedule for staff training	8	£440.00
3.1.2.1	Create an installation guide	16	£880.00
3.1.2.2	Secure iSolutions sign off	4	£220.00
3.1.3.1	Create a document outlining software requirements	8	£440.00
3.2.1.1	Arrange for iSolutions to set up the production hardware configuration	4	£220.00
3.2.1.2	Arrange for iSolutions to set up database	4	£220.00

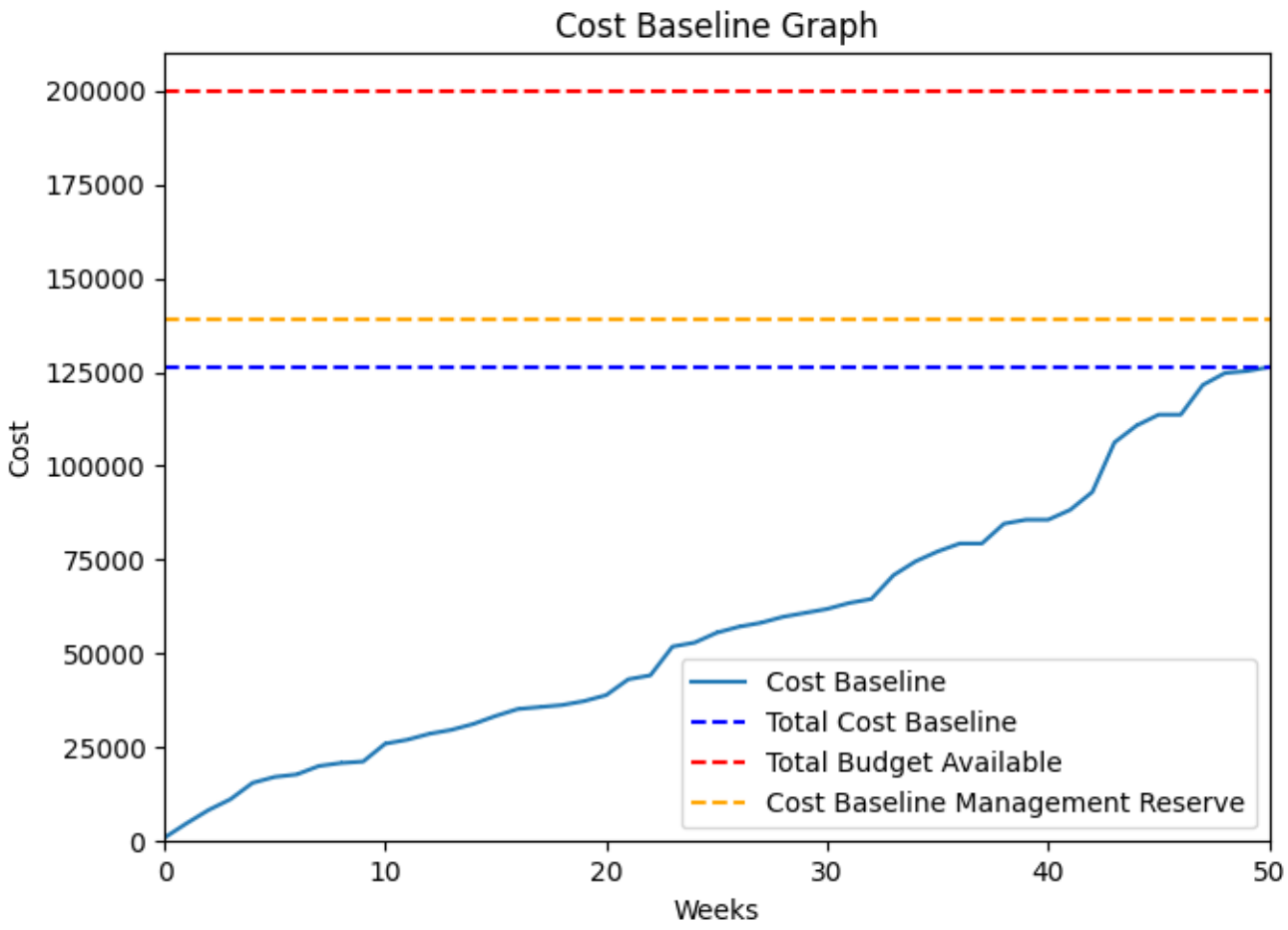
3.2.1.3	Arrange for iSolutions to provision necessary storage	4	£220.00
3.2.1.4	Arrange for iSolutions to update Handin system if required	8	£440.00
3.2.1.5	Arrange for iSolutions to install new archive system	8	£440.00
3.3.1.1	Use tool to migrate Part III projects from the current production system and transfer them to the new one	40	£2,200.00
3.3.2.1	Confirm if it is feasible to add past MSc projects to the system	8	£440.00
3.3.2.2	Transfer MSc projects to the new system	40	£2,200.00
3.3.3.1	Confirm if it is feasible to add past GDP projects to the system	8	£440.00
3.3.3.2	Transfer GDP projects to the new system	40	£2,200.00
3.3.4.1	Obtain list of admin staff from ECS and their required permissions	8	£440.00
3.3.4.2	Add admin staff with appropriate permissions	8	£440.00
4.1.1.1	Ensure the source code for the new archive system is stored and available	8	£440.00
4.1.1.2	Ensure any code changes or API module for the Handin system is stored and available	8	£440.00
4.1.2.1	Ensure all documentation is stored and available	16	£880.00
4.2.1.1	Have the team reflect on what went well for the preparation phase	8	£440.00
4.2.1.2	Have the team reflect on what went well for the development phase	8	£440.00
4.2.1.3	Have the team reflect on what went well for the migration phase	8	£440.00
4.2.1.4	Document all reflections for future learning	16	£880.00

2.21.2 WBS Item Cost Breakdown

WBS	Item	Hours	Cost
0	**Initiation and Planning Work**	**-**	**-**
0.1	Initiation	30	£1,650.00
0.2	Planning	250	£13,750.00
1	**Preparation Work**	**-**	**-**
1.1	Requirements Gathering	138	£7,590
1.2	Development Set-Up	56	£3,080
1.3	Existing Systems	68	£3,740
1.4	Hardware Provision	40	£2,200
2	**Development**	**-**	**-**
2.1	Front-End New Archive System	244	£13,420
2.2	Back-End New Archive System	378	£20,680
2.3	Other Systems	136	£7,480
2.4	Testing and Confirmation	272	£14,960
3	**Handover**	**-**	**-**
3.1	Documentation	52	£2,860
3.2	Hardware	28	£1,540
3.3	Migration and Setup-Up	152	£8,360
4	**Closing Tasks**	**-**	**-**
4.1	Project Outputs	32	£1,760
4.2	Retrospective	40	£2,200
Subtotal	-	1626	£105,270
Contingency	**20%**	**-**	£21,050
Cost Baseline	**-**	**-**	**£126,320**
Management	**10%**	**-**	**£12,630**
Total		**1626**	**£138,950**

2.21.3 Justification

All materials and space were out of scope of the £200,000 project budget with the University providing space and standard IT equipment and iSolutions providing all testing and production hardware out of their own budgets. To calculate the costs and hourly labour rate of £55 was used.


Cost Baseline Graph
200000
175000
150000
125000
100000
75000
50000
25000
0
Cost
0
10
20
30
40
50
Weeks
Cost Baseline
Total Cost Baseline
Total Budget Available
Cost Baseline Management Reserve

3 Retrospective

3.1 Planning Approach

At the start of the project planning the entire team got together in person to identify the work that was required and identify what sections of work were dependent on each other. At this stage we also estimated the amount of work each section would require. We decided to divide up the work into 4 sprints, the first three were focused on getting the documents done with the final week was focus on getting everything reviewed and added to a single cohesive report.

Each week the team had two meetings a Tuesday meeting to update the team on everyone's progress and make sure that there was no work dependent upon another and a Friday meeting where tasks were assigned for the following week with care taken to avoid assigning people documents dependent on each other. As you can see in the table below each document is assigned a team member and at the sprint planning meaning each task was also assigned a sprint number.

In order to coordinate the work done a SharePoint folder was created, where team members added draft documents created in word and excel to allow other team members to see how work was progressing and be able to reference other documents if needed. At the end these documents were added to the overleaf and reviewed by the team.

Document Name	**Estimated Size (1 to 5)**	**Assignee (Sprint)**
Project Charter	2	Everyone (1)
Assumption Log	3	Edward (1)
Stakeholder Register	2	Kristian (1)
Stakeholder Analysis Power/Interest Grid	1	Kristian (1)
Stakeholder management strategy	2	Kristian (1)
Scope Statement	2	Edward (1)
Requirements Document	3.5	Ash (1)
Requirements traceability matrix	2	Ash (2)
Work Breakdown Structure	4	James (1)
Activity List	2	James (1)
Activity Attributes	3	James (2)
Milestone List	1	Edward (2)
Change Request Template	1	Edward (2)
Network Diagram - Activity on Node (AoN)	2	James (2)
Critical Path Analysis	1	Kristian (3)
Basis of estimates	2	Edward (2)
Activity Duration Estimates	2	Kristian (2)
Gantt Chart	3	Kristian (2)
Schedule Upkeep Table Template	1	Kristian (2)
Project monitoring template (spreadsheet)	1	Ash (3)
RACI Responsibility Assignment Matrix	2	James (3)
Organizational Breakdown Structure	1	James (2)
Resource Breakdown Structure	1	James (3)
Combined OBS and RBS	1	James (3)
Resource Histogram	2	Ash (4)
Risk Register	2	Edward (3)
Risk Management Plan	1	Edward (3)
Activity Cost Estimates	2	Everyone (4)

Cost Baseline / Time-phased budget	2	Everyone (4)
TOTAL	56.5	

3.1.1 Updated Work Estimates

As part of the retrospective an updated version of the table above was produced with sizes redone based on the experience of the actual effort involved, and the assignee changed to who performed the work.

Document Name	**Estimated Size (1 to 5)**	**Actual Size**	**Assignee (Sprint)**	**Notes**
Project Charter	2	2	Everyone (1)	
Assumption Log	3	1.5	Edward (1)	
Stakeholder Register	2	1	Kristian (1)	
Stakeholder Analysis Power/Interest Grid	1	1	Kristian (1)	
Stakeholder management strategy	2	2	Kristian (1)	
Scope Statement	2	1	Edward (1)	
Requirements Document	3.5	2	Ash (1)	
Requirements traceability matrix	2	3.5	Ash (2)	
Work Breakdown Structure	4	3	James (1)	
Activity List	2	4	James (1)	
Activity Attributes	3	5	James (2)	
Milestone List	1	1.5	Edward (2)	
Change Request Template	1	1.5	Edward (2)	
Network Diagram - Activity on Node (AoN)	2	3.5	James (2)	
Critical Path Analysis	1	2	Kristian (3)	
Basis of estimates	2	2	Edward (2)	
Activity Duration Estimates	2	3.5	Kristian (2)	
Gantt Chart	3	4	Kristian (2)	
Schedule Upkeep Table Template	1	1.5	Edward (2)	Assignee changed: ”Kristian” to ”Edward”
Project monitoring template (spreadsheet)	1	2.5	Ash (3)	

RACI Responsibility Assignment Matrix	2	2.5	James (3)	
Organizational Breakdown Structure	1	0.33	James (2)	Combined into one document with RBS and "Combined OBS and RBS"
Resource Breakdown Structure	1	0.33	James (3)	Combined into one document with RBS and "Combined OBS and RBS"
Combined OBS and RBS	1	0.33	James (3)	Combined into one document with RBS and "Combined OBS and RBS"
Resource Histogram	2	2	Ash (4)	
Risk Register	2	2.5	Edward (3)	
Risk Management Plan	1	1.5	Edward (3)	
Activity Cost Estimates	2	2.5	Everyone (4)	Assignee changed: "Everyone" to "Edward and James"
Cost Baseline / Time-phased budget	2	2	Everyone (4)	Assignee changed: "Everyone" to "Edward and James"
TOTAL	56.5	62		

Of key note was the work related to the activity list and attributes alongside the AoN, we'd massively underestimated the amount of work required for them. We'd also overestimated the work required for the breakdown structure. But again most were within 0.5 work units of the estimate.

We also calculated the effort per person relating to the document work itself. Note these don't include time spent in group meetings, planning work or reviewing the final document, which when possible were done with all members present.

Person	**Units of Work**	**Percentage of Work**
Ash	10.5	16.9
Edward	15.75	25.4
James	21.75	35.1
Kristian	14	22.6

3.1.2 Conclusion

Overall our approach worked well, we generally did a good job dividing up the work so that people weren't blocked by other documents. The approach of working on draft documents in a SharePoint folder before adding them to the overleaf also worked well as it was useful for other team members to be able to check documents whilst working on other documents and have a clear separation between draft files and finalised documents that were subject to review by other team members.

There was however some notable challenges, firstly scheduling meetings that didn't clash with GDP meetings. The second issue related to estimates of work, our initial estimates in the table above weren't fully accurate, they were a good indication of time but certain tasks took much longer than planned, and some took less. Notably the activity attributes took far longer than planned. The estimates also failed to account for rework that was required as the documents were updated and activities changed. We did attempt to fix the activity list as soon as possible as several sections were dependent on it and whilst we were mostly successful it did require some changes which led to a cascade of changes being required.

The final challenge related to availability, one team member had issues with their GDP project which lowered the amount time they could spend on it one week, and also was on holiday for another week. As the documents were dependent on each other they couldn't be done later and led to them doing less work. In addition there were the general challenges of scheduling around each team members GDP meetings and work and other commitments. This led to document work being pushed into the 4th sprint and a slight overrun on the target date of completion of the 8/12/2023 with the actual date of completion being the 12/12/2023.

If we were to plan this project again we'd make several changes.

- Firstly, although not a change we'd be able to make more accurate effort estimations as a result of the experience gathered during this project.
- We'd use project planning software such as Microsoft Project, this would cut down on the rework which involved manually editing AoNs and Gantt Charts as well as automatically perform project related calculations.
- We'd ensure to take a longer term view of team members schedules and workloads to be able to assign them non-blocking tasks.
- Make extra effort in ensuring the Activity List and AoN was finalised earlier as changes made to them resulted in a large amount of rework.
- Ensure time for rework and review alongside final document creation is explicitly declared and that team members are assigned to it.