

## Project Scope

The project's scope is to investigate and upgrade the existing Networking Academy Laboratory at the Faculty of Science and Engineering, Macquarie University, Australia, and to design another similar Networking Academy Laboratory within the School's premises. This includes soliciting feedback from teaching staff, analysing the feedback, identifying areas of improvement, assessing the current laboratory infrastructure, determining necessary upgrades and laboratory requirements, acquiring equipment and materials, installing and testing upgrades and laboratory infrastructure, and obtaining project approval and sign-off. The project aims to be completed within 14 weeks, using optimal resources and team members. The project's sponsor is Macquarie University Australia, Faculty of Science and Engineering.

## SWOT Analysis

### ***Strengths:***

- State-of-the-art networking laboratories at the Faculty of Science and Engineering, Macquarie University
- Experienced teaching staff who can provide valuable feedback on laboratory upgrades
- The existing Networking Academy Laboratory provides a blueprint for designing the new laboratory

### ***Weaknesses:***

- Limited budget and resources
- Tight timeline for completion of the project
- Technical challenges associated with upgrading and installing new laboratory equipment

### ***Opportunities:***

- Potential to attract more students to the School of Computing with modern laboratory facilities
- Collaboration opportunities with industry partners to obtain additional resources and support
- Potential to develop new and innovative laboratory programs and courses

### ***Threats:***

- Potential for unexpected delays due to technical issues or unforeseen circumstances
- Competition from other universities with modern laboratory facilities
- Possible changes in technology or industry standards that could make the laboratory equipment obsolete in the near future.

## Quality Management Plan

A quality management plan will be developed to ensure that project deliverables are met and/or exceed the specified requirements. The plan will include quality assurance activities such as regular inspections, testing, and verification and quality control measures to ensure that any identified issues are addressed promptly. Finally, a continuous improvement process will be implemented to identify opportunities for improvement throughout the project lifecycle. All quality standards for said project and software updates will be based on the ISO and IEEE standards (IEEE SA, 2022) (ISO - Standards, no date).

### Detailed Work Breakdown Structure

#### *Task 1: Collect feedback from teaching staff*

Duration: 5 days

Start date: 16/04/2023

Finish date: 22/04/2023

Gathering feedback from teaching staff. Using the experience of previous projects, 5 days is a reasonable amount of time in order to allow all staff to provide feedback.

#### *Task 2: Analyse feedback and develop recommendations for upgrades*

Duration: 7 days

Start date: 23/04/2023

Finish date: 01/05/2023

Involves analysing the feedback gathered from teaching staff, identifying patterns and trends, and developing recommendations for upgrades. To carry out this analysis effectively, 7 days is a suitable amount of time based on the volume of feedback collected.

#### *Task 3: Develop a plan for upgrading the existing laboratory*

Duration: 10 days

Start date: 02/05/2023

Finish date: 13/05/2023

Using the feedback analysis to develop a comprehensive upgrade plan for the existing laboratory. This process requires sufficient time because of the complexity of the plan and the number of stakeholders involved. A reasonable time frame is 10 days.

***Task 4: Procure necessary equipment and resources***

Duration: 5 days

Start date: 14/05/2023

Finish date: 20/05/2023

Procuring necessary equipment and resources to implement the upgrade plan. For adequate time to procure the equipment and resources, 5 days are a suitable duration.

***Task 5: Upgrade the existing laboratory***

Duration: 15 days

Start date: 21/05/2023

Finish date: 10/06/2023

To provide sufficient time for the upgrade process, 15 days is a reasonable duration considering the scope of upgrades and the estimated number of hours needed.

***Task 6: Develop a plan for the new laboratory***

Duration: 10 days

Start date: 11/06/2023

Finish date: 22/06/2023

Involves developing a comprehensive plan for the new laboratory. Considering the complexity of the plan and the number of stakeholders involved, 10 days is a reasonable amount of time to allow the process to proceed smoothly.

***Task 7: Procure necessary equipment and resources for the new laboratory***

Duration: 5 days

Start date: 23/06/2023

Finish date: 29/06/2023

This task involves procuring necessary equipment and resources to implement the new laboratory plan. Appointed on the amount of equipment and resources needed, 5 days will allow sufficient time for procurement.

### *Task 8: Design and construct the new laboratory*

Duration: 20 days

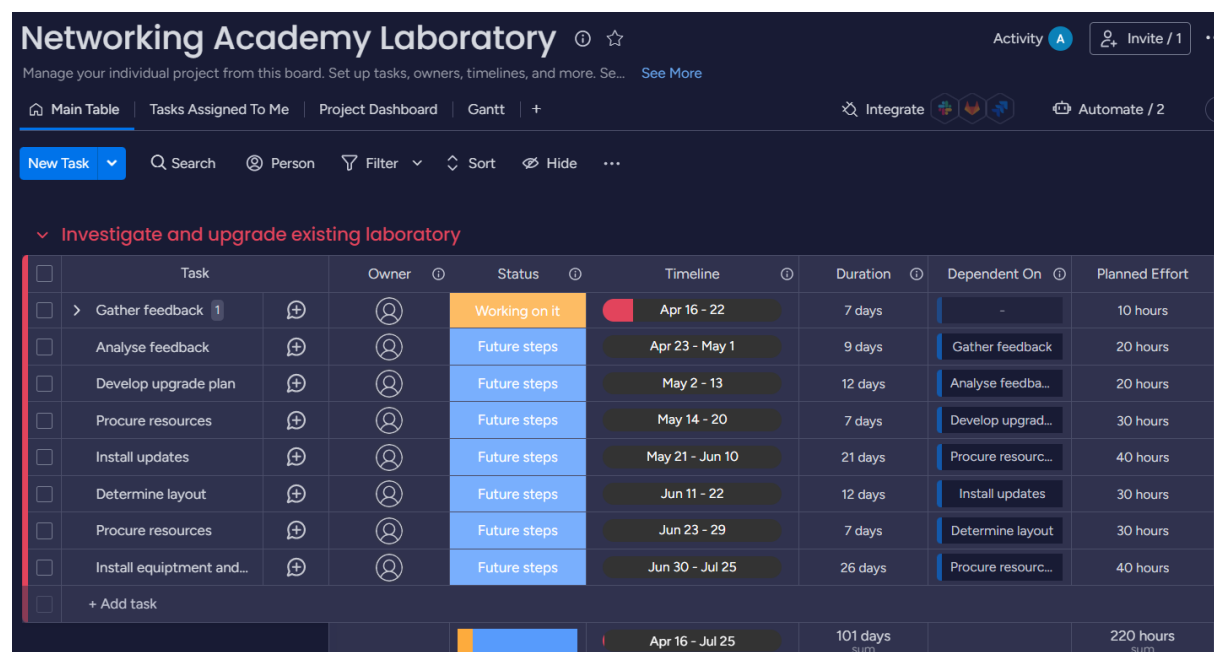
Start date: 30/06/2023

Finish date: 25/07/2023

This task implicates designing and constructing the new laboratory. The design and construction process should be completed in 20 days due to the size and complexity of the new lab and the estimated hours required.

Overall, the durations for each task/subtask were estimated based on the complexity, scope, and estimated hours required for each.

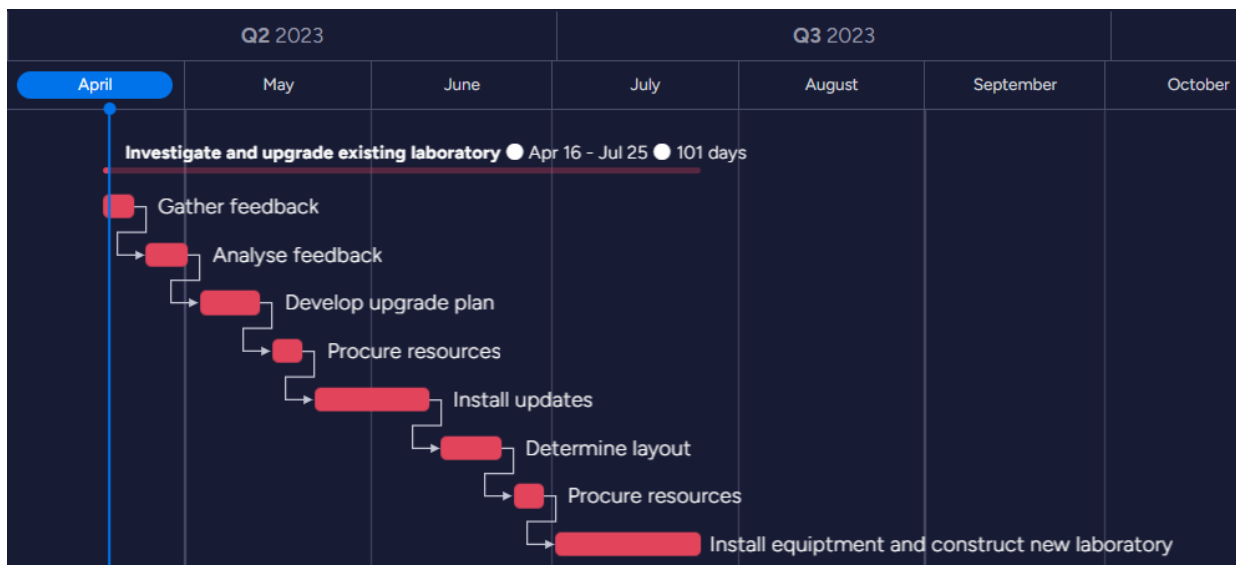
## Work Breakdown Structure



The screenshot shows a project management interface for 'Networking Academy Laboratory'. It displays a list of tasks under the heading 'Investigate and upgrade existing laboratory'. The tasks are organized in a table with columns for Task, Owner, Status, Timeline, Duration, Dependent On, and Planned Effort. The tasks are as follows:

| Task                     | Owner       | Status        | Timeline        | Duration     | Dependent On       | Planned Effort |
|--------------------------|-------------|---------------|-----------------|--------------|--------------------|----------------|
| Gather feedback          | [User Icon] | Working on it | Apr 16 - 22     | 7 days       | -                  | 10 hours       |
| Analyse feedback         | [User Icon] | Future steps  | Apr 23 - May 1  | 9 days       | Gather feedback    | 20 hours       |
| Develop upgrade plan     | [User Icon] | Future steps  | May 2 - 13      | 12 days      | Analyse feedba...  | 20 hours       |
| Procure resources        | [User Icon] | Future steps  | May 14 - 20     | 7 days       | Develop upgrad...  | 30 hours       |
| Install updates          | [User Icon] | Future steps  | May 21 - Jun 10 | 21 days      | Procure resourc... | 40 hours       |
| Determine layout         | [User Icon] | Future steps  | Jun 11 - 22     | 12 days      | Install updates    | 30 hours       |
| Procure resources        | [User Icon] | Future steps  | Jun 23 - 29     | 7 days       | Determine layout   | 30 hours       |
| Install equipment and... | [User Icon] | Future steps  | Jun 30 - Jul 25 | 26 days      | Procure resourc... | 40 hours       |
| + Add task               |             |               |                 |              |                    |                |
|                          |             |               |                 | 101 days sum |                    | 220 hours sum  |

## Gantt Chart



Corresponding Gantt chart based on above WBS

## Resources

### Staff Allocation

The triple constraint project management principle determines the project's success by monitoring and managing the "iron triangle" of project management.

Respectively, the Gantt table presented above can be used to justify the triple constraint by showing how the three factors are interrelated and how changes in one factor can impact the other two. For example, if the project scope were to increase, this could result in an increase in time and cost to complete the project. Similarly, if the time frame for completing the project were to be shortened, this could lead to a decrease in scope or an increase in cost. Thus, by using the Gantt table to plan and monitor the project, the project manager can identify potential conflicts between the triple constraint factors and maintain the project's progress by taking corrective measures. For example, suppose it is determined that the project is running behind schedule. In that case, the project manager can look for ways to reduce the scope or allocate additional resources to the project to bring it back on track. In summary, the Gantt table can help the project manager manage the triple constraint of scope, time, and cost and ensure that the project is completed successfully.

### Salaries

Salaries were estimated using Australian payment standards (*Network Engineer Salary in Australia* | PayScale, 2023), (*Network Technician Salary in Australia* | PayScale, 2023), (*Project Manager, Information Technology (IT) Salary in Australia* | PayScale, 2023), (*Project Manager, Information Technology (IT) Salary in Australia* | PayScale, 2021). Salary totals were overestimated to create a buffer which accounts for the lack of equipment and material costs.

| Role                | Rate per Hour (AUD) | Hours per Day | Number of Days | Total Cost (AUD) |
|---------------------|---------------------|---------------|----------------|------------------|
| Project Manager     | 150                 | 8             | 85             | \$ 102,000.00    |
| Network Engineer    | 90                  | 8             | 85             | \$ 61,200.00     |
| Network Technician  | 60                  | 8             | 85             | \$ 40,800.00     |
| Technical Writer    | 80                  | 8             | 30             | \$ 19,200.00     |
| Training Specialist | 100                 | 8             | 10             | \$ 8,000.00      |
| Support Specialist  | 80                  | 8             | 20             | \$ 12,800.00     |
| Total               |                     |               |                | \$ 244,000.00    |

| Budget Category      | Budget Allocation |
|----------------------|-------------------|
| Staff Allocation     | \$ 244,000.00     |
| Hardware             | \$ 50,000.00      |
| Software             | \$ 20,000.00      |
| Testing              | \$ 10,000.00      |
| Training and Support | \$ 15,000.00      |
| Contingency          | \$ 33,900.00      |
| Total                | \$ 372,900.00     |

Corresponding staff and resource allocation based on Gantt Chart and WBS.

## Referencing

IEEE SA (2022) Developing Standards - IEEE Standards Association. Available at: <https://standards.ieee.org/develop/>.

ISO - Standards (no date). Available at: <https://www.iso.org/standards.html>.

Network Engineer Salary in Australia | PayScale (2023). Available at: [https://www.payscale.com/research/AU/Job=Network\\_Engineer/Salary](https://www.payscale.com/research/AU/Job=Network_Engineer/Salary).

Network Technician Salary in Australia | PayScale (2023). Available at: [https://www.payscale.com/research/AU/Job=Network\\_Technician/Salary](https://www.payscale.com/research/AU/Job=Network_Technician/Salary).

Project Manager, Information Technology (IT) Salary in Australia | PayScale (2023). Available at: [https://www.payscale.com/research/AU/Job=Project\\_Manager%2C\\_Information\\_Technology\\_\(IT\)/Salary](https://www.payscale.com/research/AU/Job=Project_Manager%2C_Information_Technology_(IT)/Salary).

Talent Services Beyond Expectations | Morgan McKinley Australia (2021). Available at: <https://www.morganmckinley.com.au/article/it-salary-guide-2021-australia>.