THIS GUIDE IS TO BE READ IN CONJUNCTION WITH THE QUICK GUIDE TO PROJECT PLANNING

Pedagogical advantages

Project planning is an essential exercise in delivering the desired outcomes of a project within its constraints. To be effective and efficient engineers and managers, students should understand the need for project planning and the processes and tools used in project planning.

Students should be aware that project planning is not a substitute for other plans, for example:

- Engineering Management Plan
- Design Change Control Plan
- Design Safety Management (safe design) Plan
- Design Verification and Validation Plan
- Construction Plan
- Environmental Management Plan

Project planning skills enable engineers to consider both the requirements for the project as a whole and for each of the phases. They can develop standard operating procedures and documents that enable effective tracking and review of progress and performance against intentions and requirements. In turn this enables effective and efficient allocation of resources and improves chances of replicating success and learning from challenges. It also provides a foundation for effective communication with all stakeholders within and external to the project team, including clients, project sponsors and suppliers.

The success of any project can usually be traced back to good early planning, smart use of expertise and a flexible approach in the case of the unforeseen need for changes.

Assessment

Ideally the assessment of project planning should be in the context of undertaking a complex project over time. In this way students will have time to develop all aspects of the project plan, review progress, make adjustments as required and ultimately review the usefulness of the plan in enabling the project requirements to be met. In this context students should also have the capacity to allocate resources, assign roles, communicate with stakeholders and close out the project.

The honours project will provide the appropriate scope for assessing project planning.

Students should be assessed on their ability to define and plan the project, identifying the necessary interim activities and their dependencies, as well as their execution of the project according to the plan. Adherence to the plan should be one of the criteria when assessing the project deliverables.

Implementation

Students may be introduced to the foundations of project planning by educators presenting assignments or on-going projects in the format of a project plan. This may necessitate only a few modifications and additions to the way assignments are presented such that they include:

- Project Brief
  - List of project activities
- Project Scope, including
  - Project Team
  - Work breakdown structure, detailing required deliverables for each activity
- Project Schedule, including
  - Deadlines
  - Timing of interim activities and review points
- Communication Plan, including
  - Methods of communicating with educator
  - Dates of key lectures, or handover of further resources
  - Methods of submitting project deliverables
  - Platforms available for student collaboration
- Risk Management Plan, including
  - How project risks will be identified and managed
- Safety Management Plan, including
  - How safety and hazards will be identified and managed

As students advance and the complexity of their projects increases, students should be allowed and supported to plan more aspects of the project, deciding their team structures, defining their work breakdown and timelines, and taking on risk and safety management activities. The students should develop and submit the entire project plan for their honours project, enabling coherent assessment of the range of interdependent skills and knowledge required for effective project planning.

Students should also be assessed on their execution of the project in accordance with the plan, which includes whether the deliverables are submitted on time and of the required quality. For long term projects, students should review their progress against the plan (at least once at approximately 30% completion), issuing a progress report with metrics, and may be given the opportunity to update the plan if circumstances change.

Indicative assessment

For their honours project, students develop and document the project plan, implement the plan and monitor progress against the plan.

As needed, and with consultation with their supervisor, the plan can be adjusted during the life of the project based on a review of progress and performance at 30% completion.

Within the plan students will allocate responsibilities and roles, allocate resources, plan for communication with stakeholders, and plan to manage risk and safety.

Sample instructions

Develop a project plan for your project including the following elements:

- Project Brief, including
  - List of project activities
- Project Scope, including
  - Project Team
  - Work breakdown structure, detailing required deliverables for each activity
- Project Schedule, including
  - Deadlines
  - Timing of interim activities and review points

- Communication Plan, including
  - Methods for team communication and collaboration
  - Methods of communicating with supervisor
  - Methods of communicating with vendors or industry partners
  - Schedule of stakeholder meetings
- Risk Management Plan, including
  - How project risks will be identified and managed
- Safety Management Plan, including
  - How safety and hazards will be managed

Teams are required to submit the first revision of their project plan by the prescribed date and will be assessed on their adherence to the plan.

Indicative Rubric

	Not Satisfactory	Satisfactory	Very Good - meets Satisfactory criteria plus…
Project Plan	No project plan submitted Some essential elements of the plan not included	Project plan addresses each of the essential elements – Project Brief, Project Scope, Project Schedule, Communications Plan, Risk Management Plan, Safety Management Plan Project plan sets realistic targets and deadlines	Project plan allocates responsibilities for all activities Project plan includes mechanisms for effective and timely communication within the team and with other stakeholders such as project sponsor, client and/or suppliers Project plan presented in clear, easily followed format Project plan presented using industry-standard templates
Project Execution	Project deliverables not submitted Submitted project deliverables are not those in the plan	Project deliverables submitted in accordance with plan	All project deliverables committed in plan submitted on schedule Project deliverables meet the aim of the project brief Meeting minutes show evidence of reviewing progress against plan Progress tracked against plan

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Frequently asked questions

1. What is project creep?

Scope creep refers to the, often small and incremental, changes to the time, resources and specifications of the project that affect the ability of the project to achieve the goals set. The client/sponsor may change the details or nature of the commissioned outputs. Resources may not be available or available in sufficient quantities or when needed. Aspects of the project may take longer than planned. All these contribute to scope creep. It is a major risk for all projects.

Realistic detailed project plans, that include contingencies for foreseeable risks mitigate scope creep. Practices that track, monitor and review progress against the project plan in a timely and critical way also mitigate scope creep.

2. Where does cooperation and collaboration among the project team fit with project planning and implementation of plans?

Development of teamwork skills should be an integral learning intention for all engineering degrees, as these skills are critical to effective professional practice.

While collaboration and cooperation are essential for the effective implementation of the project plan this is not the focus of the assessment of project planning competencies.

It is expected that by the time students are undertaking their honours project they will have already developed the necessary competencies to work effectively as a team. However, it may be appropriate for the supervisor to remind students of the expectations concerning how they will operate as a team.

Guidance can be provided on:
- the difference between groups and teams (teams have a specific focus of their activities and only exist to achieve that)
- how to deal with differing points of view
- how to deal with different levels of contribution
- how to leverage strengths and develop areas for improvement
- how to deal with conflict and differing expectations or intentions
- appropriate forms of communication
- how to make appropriate informed and action focussed decisions
- how to allocate tasks and responsibilities appropriately and fairly

Further Reading & References

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