QUICK GUIDE TO LIFECYCLE

MaSEE
Management System for Engineering Education

Lifecycle Concept

Engineering work is conducted within a **lifecycle**. The lifecycle starts when someone has an idea or need for a new design (or design change). The lifecycle ends when the designed asset/product/system/equipment reaches its end-of-life and is taken out of service for re-use, recycling or disposal.

In an engineering context, each phase of a lifecycle is distinguished by the activities involved and outputs produced. Lifecycle phases are often segregated by decision gates or process reviews.

An engineering project typically follows the lifecycle shown in the diagram below.

Why use a Lifecycle Approach? It…

> Provides an overarching narrative of the total process.
> Assists people to know what has occurred prior to and subsequent to their involvement.
> Limits risk and orders progress through clearly defined phases (decision gates).
> Provides a useful framework and evolution path regarding what activities are performed, and identifies tasks required in the different phases.
> Helps to recognise how the selections or decisions made are part of a whole system of events.
> Promotes a long-term perspective for decision-making.
> Helps to identify both opportunities and risks of a project/product or technology.
> Provides a framework for planning, leading and managing the people involved with the work.

Engineering within a Lifecycle

Engineering activities impart characteristics which influence all subsequent lifecycle phases. For example: correct requirements maximise the likelihood a design will satisfy client needs, or conversely, hazards designed-in to a product can persist for the remainder of its life. Engineering activities should therefore be performed in consideration of the full lifecycle.

Design changes during all lifecycle phases must be controlled according to the original requirements and design.

Project Management within a Lifecycle

Project management staff should understand each lifecycle phase. Project management aims to ensure a project is completed within the constraints of schedule, budget, resources and specification. Each lifecycle phase differs in terms of these constraints and project management should consider them accordingly. Project management should also foresee and plan for subsequent phases of the lifecycle to keep the project progressing toward its goals.

Project management staff will deal not only with the engineering, design and construction aspects of a lifecycle, but also other processes such as: procurement, contracting, tendering, land acquisition, safety, sustainability and environmental compliance. It is a project management function to manage the interrelations between the disciplines.

Typical Engineering Activities within the Project Lifecycle