

Core Concept: Project Management

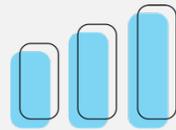
Engineering Literacy Dimension: Engineering Practices

Practice: Engineering Design

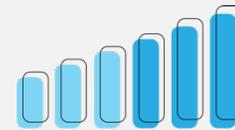
Overview: *Project Management* is the process of scoping a project and planning, organizing, and managing resources to complete the project within defined constraints. Sophistication in this process requires knowledge related to project management strategies, techniques, and tools for (a) *initiating and planning project activities*, (b) *scoping the project and managing timelines and costs*, (c) *tracking and evaluating risks, quality, teams, and procurement*, and (d) *managing product lifecycles*. This core concept is important to the practice of Engineering Design as design projects are carried out within dynamic environments involving a variety of limitations.

Performance Goal for High School Learners

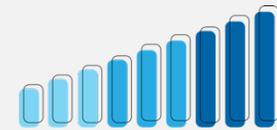
I can successfully plan and manage a design project to achieve the desired goals within the established constraints through the application of appropriate project management strategies and techniques (e.g. team charters, Gantt charts).



Basic



Proficient



Advanced

INITIATING AND PLANNING

I can identify goals and considerations for a design project.

I can analyze and prioritize potential issues for a design project.

I can develop a project charter in consideration of internal and external contexts of a design project.

SCOPE, TIME, AND COST MANAGEMENT

I can identify the constraints of project scope, time, and cost for a design project.

I can analyze the relationships of project scope, time, and cost in a certain situation in order to establish reasonable and achievable project phases, timelines, and budgets.

I can refine project phases, timelines, and budgets in order to successfully complete my design project within the defined constraints.

RISK, QUALITY, TEAMS, AND PROCUREMENT

I can identify potential issues concerning risk, quality, teams, and procurement for a design project.

I can analyze and develop plans for issues concerning risk, quality, teams, and procurement throughout a design project.

I can track and respond to issues involving risk, quality, teams, and procurement during a design project.

PRODUCT LIFE (e.g. PLM)

I can explain the generic lifecycle of products by identifying the phases involved in its design, manufacture, use, and disposal.

I can analyze the lifecycle (design conception, through manufacturing and use, to disposal) of a certain product in order to identify the factors that one should consider when designing the product, including how each consideration would impact the product and its connected environment.

I can develop a plan to produce a product that considers the entire lifecycle (from design conception, through manufacturing and use, to disposal) of the product itself.