SYSTEMS ENGINEERING GLOSSARY

Center for Innovation in Engineering and Science Education Stevens Institute of Technology

Abstraction	The ability of engineers to think of design concepts that are not dependent on specific solutions.
Boundary	A separation between the interior of a system and what lies outside.
Context	The users, other systems and other features of the environment of the system that the system will interact with.
Customer	The organization or individual that has requested (and will pay for) a product or service.
Engineering	The application of scientific principles to practical ends.
Feedback	Information about the output of a system that can be used to adjust it.
Gantt Chart	A project management tool in the form of a bar chart showing the start and finish dates of activities.
Input	A material, service or support item that is processed by the system.
Interdisciplinarity	People from different disciplines working together to design systems.
Lifecycle	Important phases in the development of a system from initial concept through design, testing, use, maintenance, to retirement.
Mission	An undertaking that is supported by the system to be designed to be successful (e.g. space mission).
Optimization	The process of choosing the best alternative that will satisfy the needs of the stakeholders under the constraints given (e.g. cost, schedule and available technology).
Output	What is produced by a system.
Process	A set of activities used to convert inputs into desired outputs.
Project	An activity having goals, objectives, a beginning and an end.
Requirement	A statement of required behavior, performance and other characteristics of the system to be developed.

Risk Management	A process of identifying what can go wrong and making plans that will enable a system to achieve its goals.
Specifications	The technical requirements for systems design.
Stakeholder	An individual or group affected in some way by the undertaking. Stakeholders are valuable sources for requirements.
System	A set of interrelated components working together to produce a desired result.
Systems Approach	The application of a systematic disciplined engineering approach that considers the system as a whole, its impact on its environment and continues throughout the lifecycle of a project.
System Design	The identification of all the necessary components, their role, and how they have to interact for the system to fulfill its purpose.
System Integration	The activity of integrating all the components of a system to make sure they work together as intended.
Systems Engineering	The orderly process of bringing a system into being using a systems approach.
Trade-off	losing one quality or aspect of something in return for gaining another quality or aspect.
Value	The benefit enjoyed by the stakeholders of the system when the system is in operation.
Validation	Testing to insure that the created system actually provides the value intended to its stakeholders. (Did we build the right system?).
Verification	The process of proving that a finished product meets specifications and requirements. (Did we build the system right?)