

Nowadays, it is necessary to think about every situation in order to produce a product. Because developing technologies together with a product to bring out not only to make that product but also interacts with that product every situation, every detail requires thinking.

In the recent past, the majority of major software systems had difficulty meeting the balance between meeting consumer demands and calculating the cost of the program. Therefore, the “Software Crisis” has emerged. I had to try new methods to overcome this situation. In this respect, a new field emerged under the name of “System Engineering”. This technique is related to a project developed; The resources used are focused on solving milestones such as milestones that make Project development more regular, requirements to be met. Briefly, System Engineering is the practical application of the scientific, engineering and management skills required to transform an operational need into a description of a system configuration that best meets this need.

System Engineering produces documentation, not hardware. For these documents, we can call the life cycle model of the software process. In this cycle, the problem requirements are defined first. According to this problem definition, various solutions are searched and the most profitable ones in terms of time and cost are chosen from these solutions. Depending on the solution analysis, the processes to be carried out throughout the process are arranged in order to meet the minimum risk in this process. After that, the process is controlled; “Which level are we in the project? How much progress have we made? In the event of errors, how can we deal with them?” answers to such questions are sought. Finally, the necessary tests, analyze, and evaluations of the Project are checked to see if they are ready.

This was the concept of System Engineering. What is Software System Engineering?

Software System Engineering is not actually a job description. The role of the project development process; System Engineers, Managers, Software Engineers and Programmers, including a formation, a group can be called. That is, it has a definition that blends both software and documentation.

We can summarize these 3 definitions as follows:

- ✓ System engineering aims to realize the design, production, and maintenance of complex systems or sub-systems that constitute these systems, taking into consideration the time and cost constraints.
- ✓ Software engineering is a branch of science that deals with software development.
- ✓ And Software System Engineering, which seems to be a combination of these two types, is responsible for all technical management of the system and verification of the final system product.

A little bit of the terms of the job definition of Software Systems Engineering:

- ✓ Analyzing Requirements is the first step in developing a project. “What do we need? Or what systems do we need to use against what we need? Is it safe to use and maintain the system we set?” It is necessary to find the answers to such problems.
- ✓ Software Design, selecting the most effective and efficient system components that can be used in conjunction with the selected software system, performing a general user interface and integrating system components connected to this interface.
- ✓ Process Control is the total of the management activities used to ensure that the project is carried out in accordance with the plan. In this context, the following questions are sought in the following stages of the project:
  - Are there any potential problems that can cause delays?
  - Has any risk caused any problems?
  - Is it right to maintain a design approach?
- ✓ Verification-Validation-Testing is a way of determining whether the engineering process is correct and whether the products are suitable for their needs.

Finally, disregarding the system aspects of any software project may result in the emergence of software that will not work on the selected hardware or will not be integrated with other software systems.