Design Engineering

1

Overview

- What is design engineering?
- How to do software design?
- Principles, concepts and practices

2

Design Engineering

- The process of making decisions about HOW to implement software solutions to meet requirements
- Encompasses the set of concepts, principles, and practices that lead to the development of high-quality systems

Concepts in Software Design

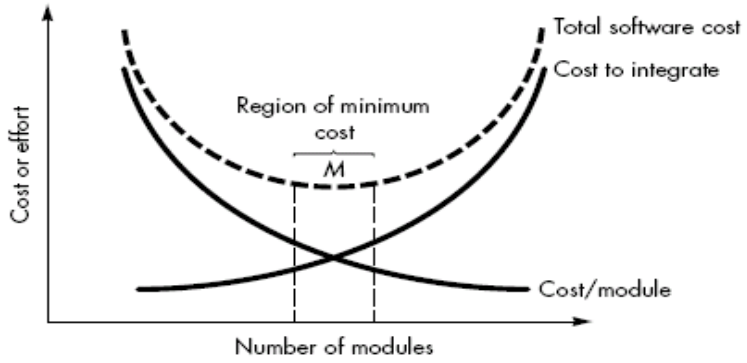
- Modularity
- Cohesion & Coupling
- Information Hiding
- Abstraction & Refinement
- Refactoring

Modularity

- Software is divided into separately named and addressable components, sometimes called modules, that are integrated to satisfy problem requirements
- Divide-and-conquer

5

Modularity and Software Cost



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Cohesion & Coupling

- Cohesion
  - The degree to which the elements of a module belong together
  - A cohesive module performs a single task requiring little interaction with other modules
- Coupling
  - The degree of interdependence between modules
- High cohesion and low coupling