

Software Development

Development Process

Design Principles

Design Patterns

Requirement Analysis

Design Quality

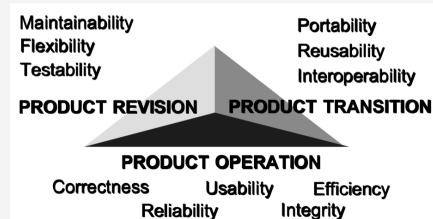
Quality Models

Design Quality Metrics

Design Quality Characteristics

O-O Metrics : C&K and MOOD

McCall's Triangle of Quality



Quality Characteristics

Modularity

Cohesion

Coupling

Understandability

Sufficiency

Robustness

Flexibility

Reusability

Efficiency

Reliability

Architectures

Software components

Key Factors

Architectural styles

Quality Attributes

Correctness

Maintainability

Usability

Program Representation

AST

CFG

Data Dependency Graph

Optimisations

Software Evolution

Evolution vs Maintenance

Laws of Software Evolution

Staged Model of Evolution

Legacy Software
Evolution

Wrapping,
Migration

Architectural Styles

Layered

MVC

Pipe-and-Filter

Client-Server

Peer-to-peer

Service-Oriented

Publish-Subscribe

Edge-dominant

3-Tier / Multi-tier

Implicit Invocation

Design Patterns

Input Control
Patterns

Front Controller, Page
Controller

Request
encapsulation
and execution
pattern

Command pattern, Applica-
tion controller, Command
processor

Output
Control
Patterns

Template View, Transform
View

Access
Control
Patterns

Firewall proxy, Author-
ization

Messaging
Patterns

Channel, Endpoint,
Translator, Router, scatte-
r-gather, aggregator,
splitter

Object Inter-
action Patterns

Observer, Mediator,
Facade, Memento, Data
Transfer Object, Double
dispatch

Design Principles

Information Hiding

Separation of Concerns

Open Close Principle

Interface Segregation Principle

Program to Interface

Dependency Inversion

Object composition over inheritance