

**Software Engineering**  
**Suradet Jitprapaikulsarn**

---

---

---

---

---

---

---

---

**What is Enigeering?**

*"The profession in which a knowledge of the mathematical or physical sciences gained by study, experience and practice is applied with judgement to develop ways to utilize, economically, the materials and forces of nature for the benefit of mankind."*

ABET  
(Accreditation Board of Engineering and Technology)

ภาคการศึกษานี้มี ๓ ปีการศึกษา ๒๕๖๔      สถาบันการศึกษาที่ ๑๐๑      สาขาวิชา วิศวกรรมศาสตร์

2

---

---

---

---

---

---

---

---

**What is Software?**

**"Computer programs together with all associated documentation and configuration data that are needed to make these programs operate correctly"**

Ian Sommerville  
Software Engineering, 7<sup>th</sup> Edition

ภาคการศึกษานี้มี ๓ ปีการศึกษา ๒๕๖๔      สถาบันการศึกษาที่ ๑๐๑      สาขาวิชา วิศวกรรมศาสตร์

3

---

---

---

---

---

---

---

---

## What is Software Engineering?

- 1) *"The application of a systematic disciplined, quantifiable approach to the development, operation, and maintenance of software, that is, the application of engineering to software.*
- 2) *The study of approach in 1."*

IEEE Standard 610.12

---

---

---

---

---

---

---

---

## Software Engineering vs Computer Science

Practical, usefulness	Theories, Methods, Eternal truths
Working applications	Complexity, Correctness
Application evolves	Once solved, no change
Domain knowledge	Mathematics

---

---

---

---

---

---

---

---

## Software Engineering vs Systems Engineering

- Systems Engineering deals with all aspects of complex systems: hardware, software, policy, process, architecture, integration, etc.
- Software Engineering deals with the software components of the system.

---

---

---

---

---

---

---

---

## Four "P" One "Q" in Software Engineering

- People
- Product
- Process
- Project
- Quality

---

---

---

---

---

---

---

---

## Software Engineering's Impacts

- Economic
- Social
- Health

---

---

---

---

---

---

---

---

## Software Process

All activities involved in software development

- Specification
- Development
- Verification & Validation
- Evolution

---

---

---

---

---

---

---

---

## Software Process

- Development Sequences or Software Process Models
  - Waterfall
  - Evolutionary
  - Agile
  - Component-based
- Process Frameworks
  - Personal Software Process (PSP)
  - Team Software Process (TSP)
  - Capacity Maturity Model Integration (CMMI)
- Standards
  - Institute of Electrical and Electronic Engineers (IEEE)
  - International Standards Organization (ISO)

---

---

---

---

---

---

---

---

## Software Engineering Method

An organized approach to develop software

- Structured Analysis
- Objected-Oriented (OO) methods
- Agile methods
- Computer-Aided Software Engineering (CASE)
- etc

---

---

---

---

---

---

---

---

## Challenges

- Heterogeneity
- Delivery
- Trust

---

---

---

---

---

---

---

---

## Professional & Ethical Responsibility

1. Public
2. Client and Employer
3. Product
4. Judgement
5. Management
6. Profession
7. Colleagues
8. Self

สภาวิชาชีพบัญชี \* ปีที่ ๒๕๖๓

คณะกรรมการวิชาชีพบัญชี

13

---

---

---

---

---

---

---

---