CHÀO CÁC EM 2018!

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- 1996..1998: Master IT, Melbourne University, Australia
- 2000: Ph.D, Institute of IT, Vietnam
- 2001: invited lecturer, Calgary University, Canada
- Research Interests: AI, machine/data Mining, social computing

F: X.....> Y

x.....y F(x) 2*x

Module 1: Introduction to A&D software agent

float F(float x){
return 2*x}

def f(x):
return 2*x

Cup cốc

Majors of IT

- Computer Engineering?
- Computer Science?
- Artificial Intelligence?
- Machine Learning?
- Software Engineering?
- Information System?

https://www.floridatechonline.com/blog/information-technology/information-systems-vs-information-technology/

- Data Science?

- Information Systems && Software Systems??

Examples of IS

https://www.nrdcompanies.com/en/stories/creation-and-maintenance-of-registry-information-systems-/30

https://plextrac.com/2020/06/16/what-is-an-information-system-defined-and-outlined/

https://courses.lumenlearning.com/santaana-informationsystems/chapter/definition-and-components-of-information-systems/

https://www.mastersindatascience.org/learning/what-is-an-information-system/

https://www.managementstudyguide.com/types-of-information-systems.htm

Contents

- Why do you study IT at PTIT?
- Jobs from IT?
- What do you need to study?
- How to study?
- Demands of the A&D subject
- References

- Why study Information Technology at PTIT?

  - IT: hot

    easy to get jobs, high salary,

    love, colorful future…

  - PTIT: fantastic (= very good) environment??

- What jobs I can do? Upon your (knowledge, skills, goal, experience…)

- Tôi không thích học IT mà chỉ vào PTIT do bắt buộc? không có chỗ nào khác?….
- Tôi chỉ muốn kiếm nhiều tiền?
- Tôi chẳng muốn gì cả???
- Tôi chẳng biết học để làm gì?
- Thất vọng với PTIT với Thầy/Cô IT?
- Yêu PTIT?

Which jobs for you?

Table 1.1
Information Technology Jobs

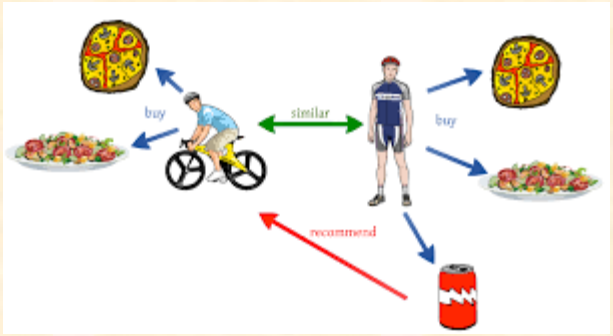
Position	Job Description
Chief Information Officer	Highest-ranking IS manager; is responsible for all strategic planning in the organization
IS Director	Manages all systems throughout the organization and the day-to-day operations of the entire IS organization
Information Center Manager	Manages IS services such as help desks, hot lines, training, and consulting
Applications Development Manager	Coordinates and manages new systems development projects
Project Manager	Manages a particular new systems development project
Systems Manager	Manages a particular existing system
Operations Manager	Supervises the day-to-day operations of the data and/or computer center
Programming Manager	Coordinates all applications programming efforts
Systems Analyst	Interfaces between users and programmers; determines information requirements and technical specifications for new applications
Business Analyst	Focuses on designing solutions for business problems; interfaces closely with users to demonstrate how IT can be used innovatively
Systems Programmer	Creates the computer code for developing new systems software or maintaining existing systems software
Applications Programmer	Creates the computer code for developing new applications or maintaining existing applications
Emerging Technologies Manager	Forecasts technology trends; evaluates and experiments with new technologies
Network Manager	Coordinates and manages the organization's voice and data networks
Database Administrator	Manages the organization's databases and oversees the use of database-management software
Auditing or Computer Security Manager	Oversees the ethical and legal use of information systems
Webmaster	Manages the organization's World Wide Web site
Web Designer	Creates World Wide Web sites and pages

Jobs

- https://www.cio.com/article/3235944/hiring-the-most-in-demand-tech-jobs-for-2018.html


tasks
need
Java
will
analytical
new
typically
software
lifecycle
average
level
object-oriented
variety
project
computer
algorithm
solutions
areas
different
able
Python
software
engineer
work
industries
operating
organization
SDLC
developing
Engineer
management
role
issues
well
programming
day
code
plans


class CenterDisplay
public void


buy
similar
buy
recommend

OK ----- chọn nghề IT!

- Cần học những gì? Học thế nào?
  Học là qúa trình KHÁM PHÁ
- Có cần tiếng Anh?Có cần tiếng Nhật….
  có cả 2 càng tốt
- Có việc làm khi ra trường? Nhiều việc
- Ra trường lương bao nhiêu? Khủng ☺
- Con trai IT dễ có người yêu? Rất dễ!

//vì thông minh, đẹp trai, mạnh mẽ ☺

- Con gái IT có ế không? Rất cao giá!

//vì thông minh, xinh đẹp, dịu dàng ☺

Terms

- Computer engineering (hardware!)
- Software engineering
- Computer network
- Computer science

Terms

- Software systems
- Information systems
- Data-based systems

Terms

- Knowledge-based systems
- Expert systems
- Recommender systems…
- Robot
- …….

called

Intelligent systems

Terms

- Computer engineering (hardware!)
- Software engineering
- Computer network (software network???)
- Software systems
- Information systems
- Data-based systems
- Knowledge-based systems
- Expert systems
- Recommender systems…
- Robot
- Intelligent systems
- Data =/= Information =/=knowledge=/=wisdom

Terms

- Data
- Information
- Knowledge
- Wisdom

Data Information and Knowledge.ppt

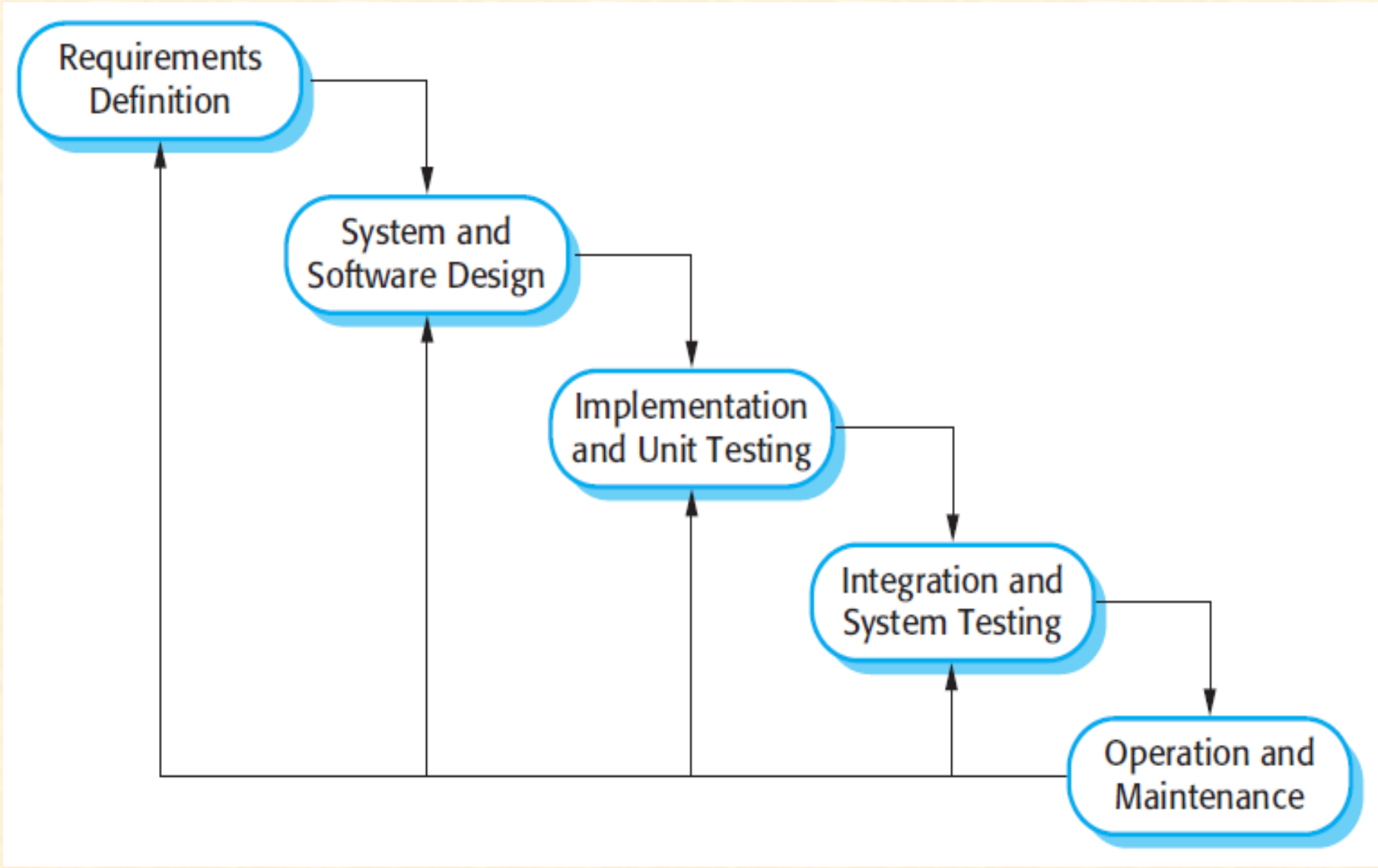
Data-Information-Knowledge-Wisdom

Data is viewed as collection of *disconnected facts.*	:	Example : It is raining.
Information emerges when *relationships among facts* are established and understood; Provides answers to *"who", "what", "where", and "when".*	:	Example : The temperature dropped 15 degrees and then it started raining.
Knowledge emerges when *relationships among patterns* are identified and understood; Provides answers as *"how"* .	:	Example : If the humidity is very high and the temperature drops substantially, then atmospheres is unlikely to hold the moisture, so it rains.
Wisdom is the pinnacle of understanding, uncovers the *principles of relationships that describe patterns.* Provides answers as *"why"* .	:	Example : Encompasses understanding of all the interactions that happen between raining, evaporation, air currents, temperature gradients and changes.

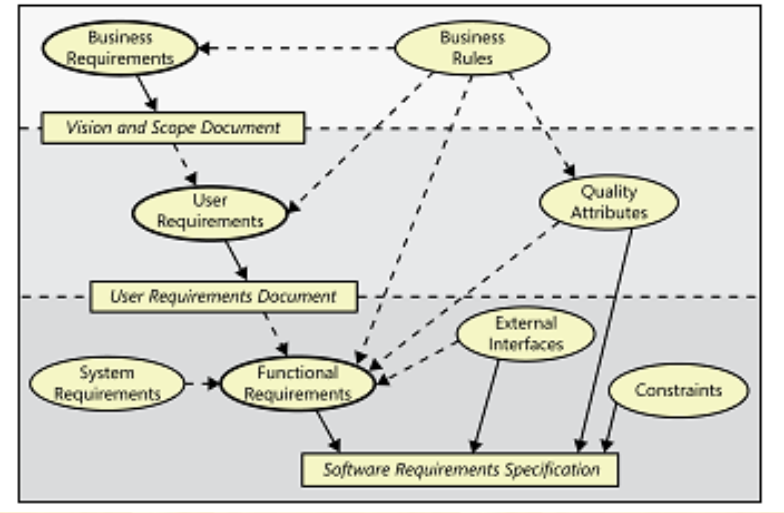
Software Engineering

- Purpose of SE?
- Management (project, product)
- Software process/life cycle/methodology
- Language/technology for model & development: java, python, PHP, mySQL, C++, **UML**...
- Requirement process: what activities in req?
- Design: what activities in Design?
- Implementation: what activities in Implement?
- Testing: what activities in Testing?
- Maintenance: what activities in maintenance

Software process



Software requirement



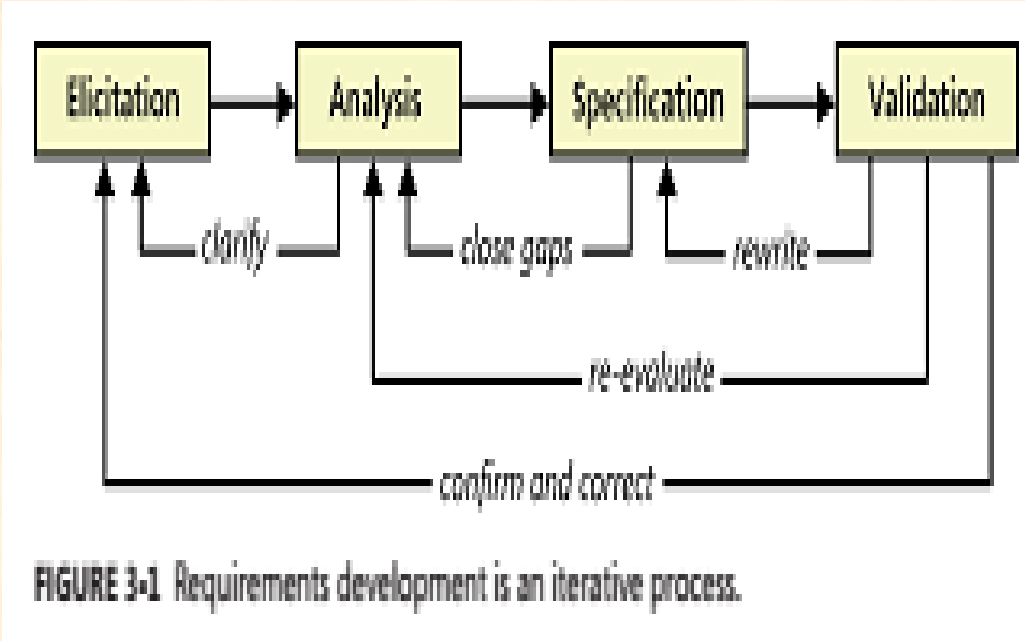


FIGURE 3-1 Requirements development is an iterative process.

TABLE 3-1 Requirements engineering good practices

Elicitation	Analysis	Specification	Validation
■ Define vision and scope ■ Identify user classes ■ Select product champions ■ Conduct focus groups ■ Identify user requirements ■ Identify system events and responses ■ Hold elicitation interviews ■ Hold facilitated elicitation workshops ■ Observe users performing their jobs ■ Distribute questionnaires ■ Perform document analysis ■ Examine problem reports ■ Reuse existing requirements	■ Model the application environment ■ Create prototypes ■ Analyze feasibility ■ Prioritize requirements ■ Create a data dictionary ■ Model the requirements ■ Analyze interfaces ■ Allocate requirements to subsystems	■ Adopt requirement document templates ■ Identify requirement origins ■ Uniquely label each requirement ■ Record business rules ■ Specify nonfunctional requirements	■ Review the requirements ■ Test the requirements ■ Define acceptance criteria ■ Simulate the requirements

WHAT to study?
A&D

Requirement

- collection
- analysis -*analyst*
- determination
- model
- specification
- business modeling
- system modeling
- *business analyst (BA)*

Design

- *designer*
- architecture
  architect
- detail design
- data base
- interface
- technology
- model

WHAT to study?
A&D

- **Implement**
  - coding - *coder*
  - integration
  - programming
  - module
  - algorithm
  - data structure/type

WHAT to study?
A&D - NO

- **Testing**

  - Tester

  - QA: Quality Assurance

  - QC: Quality Control

HOW to study?

Demands of the A&D subject

- Laptop: **BẮT BUỘC/**not laptop = absent
- No phone-No chat in class.

  //You should use Internet **ONLY** for studying
- Self-study, Self-study & Self-study
- Question? Question? & Question??????
- Working at class is the same as in some Company

HOW to study?

- **Team working** for discussing/referring and improving your soft skills

  Describe: VP, English, body…

  Explain: Example, why you select this technology?

  Persuade: The benefit you can get from this application…

  Negotiate: we should use this technology instead of that technology….

HOW to study?

- **Workbook**: Making for yourself to do exercises on A4 pages.

//Teacher will sign/mark your work **ONLY within this workbook**

- **Implement:** VP tool, mySQL/SQLServer/…, netbean/eclipse

Content & mark

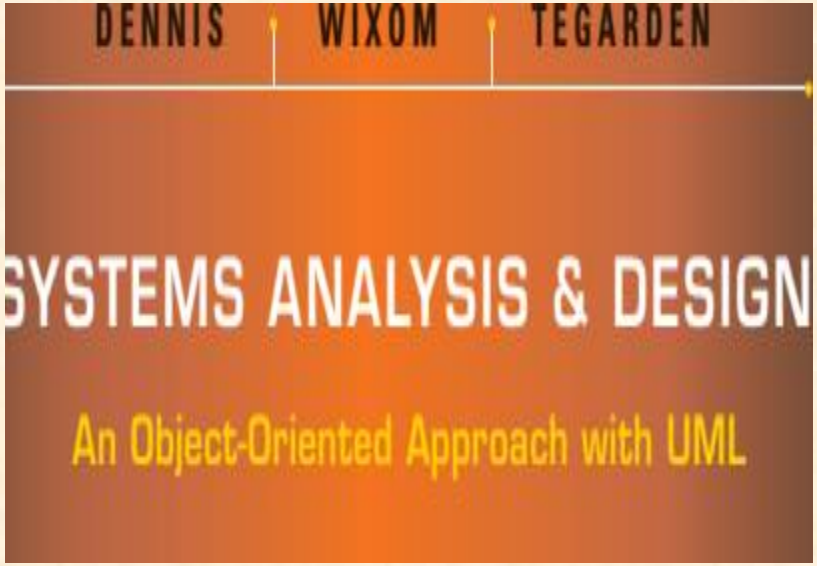
- Introduction
- Module 1: coding/programming
- Module 2: UML language for modeling
- Module 3: Requirement
- Module 4: Design

Tài liệu được cung cấp cập nhật tại lớp!

Mark
======
10%
10%
20%

Final testing
====
Writing
60%

Reference


DENNIS
WIXOM
TEGARDEN
SYSTEMS ANALYSIS & DESIGN
An Object-Oriented Approach with UML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Tài liệu dùng cho sinh viên D15-CNTT
Năm học 2018-2019


Object-Oriented
Analysis & Design
Understanding System Development with UML 2.0