



## Lecture 23

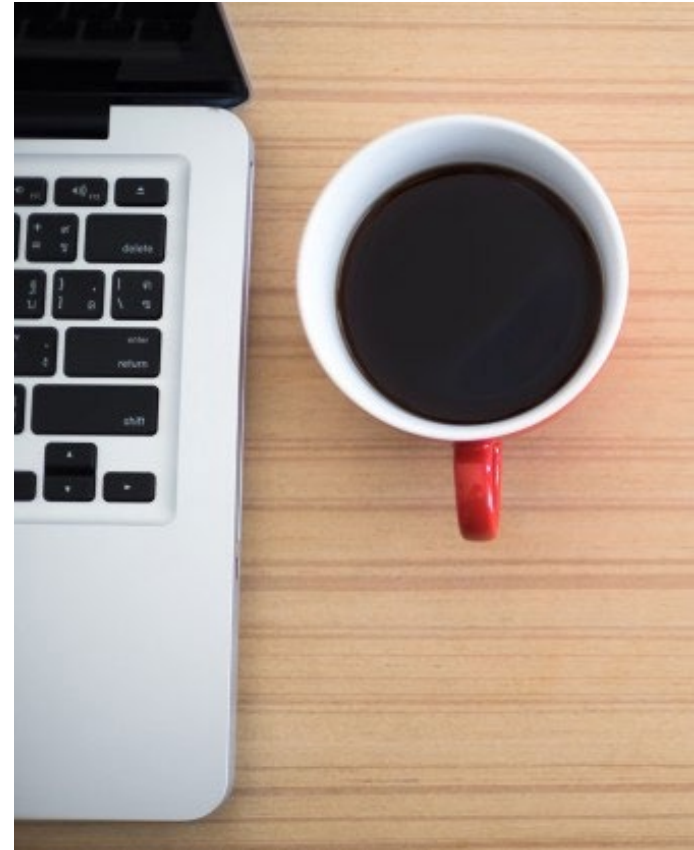
## Ethical Issues

# Course Topics

- Introduction
- Software Process Models
- Requirements Engineering
- Modeling
- Software Construction Techniques
- Testing
- Project Management
- Refactoring
- Ethical Issues


## Lecture Objectives

- ✓ To learn about ethical issues of software engineering



# Lecture Outline



- What key characteristics distinguish a professional from other kinds of workers, and what is the role of a Software professional?
  - What relationships must a Software professional manage, and what key ethical issues can arise in each?
  - How do codes of ethics, professional organizations, certification, and licensing affect the ethical behaviour of software engineers?
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# Are IT Workers Professionals?



- Partial list of IT specialists
  - Programmers
  - Systems analysts
  - Software engineers
  - Database administrators
  - Local area network (LAN) administrators
  - Chief information officers (CIOs)

# The Business Software Alliance (BSA)



- The Business Software Alliance (BSA) is a trade group that represents the world's largest software and hardware manufacturers
  - Its mission is to stop the unauthorized copying of software produced by its members

[www.bsa.org](http://www.bsa.org)



# Members of Business Software Alliance

**McAfee**

**QUEST  
SOFTWARE**

RosettaStone

**KASPERSKY**  
lab  
www.kaspersky.com

**Acronis**  
COMPUTE WITH CONFIDENCE  
WWW.ACRONIS.EU



Quark

**DELL**



**AVG**

**ca**

**SAP**

**The MathWorks**

**cadence**

**intel**

**intuit**

**Autodesk**



**COREL**



**Adobe**

**Compuware**  
THE TECHNOLOGY  
PERFORMANCE COMPANY

**Microsoft**

**AVEVA**  
CONTINUAL PROGRESSION

**PROGRESS  
SOFTWARE**

**TEKLA**  
Structures

**Minitab**



**Mastercam**

**SIEMENS**

**NedGraphics**  
Software for Textile & Fashion

**Bentley**

**SYBASE**

**Symantec**

**DBA LAB**

**ASECO  
POLAND**

**PTC**

**SOLIDWORKS**

# Professional Relationships That Must Be Managed



- Software Engineers have many different relationships with:
  - Employers
  - Clients
  - Suppliers
  - Other professionals
  - IT users
  - Society at large



# Relationships

## (software Professionals – Employers)

- Software professionals must set an example and enforce policies regarding the ethical use of software.
- Software piracy is the act of illegally making copies of software or enabling others to access software to which they are not entitled
- Software piracy is an area in which software professionals can be tempted to violate laws and policies



# Relationships

## (software Professionals – Employers)




- Conceal trade secrets
  - Information used in business
  - Generally unknown to the public
  - Company has taken strong measures to keep confidential
  
- Whistle-blowing improper conduct
  - Attract attention to a negligent, illegal, unethical, abusive, or dangerous act that threatens the public interest

# The Ethical Behaviour of software Professionals



Corporations are taking actions to ensure good business ethics  
among employees



# Relationships

## (software Professionals - Clients)



- Software professional provides
  - Hardware, software, or services at a certain cost and within a given time frame
- Client provides
  - Compensation
  - Access to key contacts
  - Work space
- Relationship is usually documented in contractual terms

# Relationships

## (software Professionals - Clients)



- Ethical problems arise if a company recommends its own products and services to remedy problems they have caused
- A company is unable to provide full and accurate reporting of a project's status

# Fraud, Misrepresentation, and Breach of Contract



- Fraud and Misrepresentation
  - Crime of obtaining goods, services, or property through deception or trickery
  - Fraud is proven in court
  
- Breach of contract
  - One party fails to meet the terms of a contract
  - Software projects are joint efforts in which vendors and customers work together
  - Difficult to assign blame

# Relationships (software Professionals - Suppliers)

- Develop good relationships with suppliers
  - Deal fairly with them
  - Do not make unreasonable demands
- Bribery
  - Providing money, property, or favours to someone in business or government to obtain a business advantage
  - U.S. Foreign Corrupt Practices Act (FCPA) makes it a crime to bribe a foreign official, a foreign political party official, or a candidate for foreign political office



# Relationships (software Professionals – Suppliers)



- Bribery
  - At what point does a gift become a bribe?
  - No gift should be hidden
  - Perceptions of donor and recipient can differ



# Bribe Vs. Gift

**TABLE 2-3** Distinguishing between a bribe and a gift

Bribes	Gifts
Are made in secret, as they are neither legally nor morally acceptable	Are made openly and publicly as a gesture of friendship or goodwill
Are often made indirectly through a third party	Are made directly from donor to recipient
Encourage an obligation for the recipient to act favorably toward the donor	Come with no expectation of a future favor for the donor

# Relationships

## (software Professionals - Other Professionals)



- Professionals owe each other adherence to a profession's code of conduct
- Ethical problems between members of the software profession
  - Résumé inflation
  - Inappropriate sharing of corporate information

# Relationships

## (software Professionals - IT Users)




- IT user is a person for whom a hardware or software product is designed
- Software professionals' duty
  - Understand users' needs and capabilities
  - Deliver products and services that best meet those needs
  - Establish an environment that supports ethical behavior by users

# Relationships (software Professionals - Society)




Actions of an IT professional can affect society



# Certification



- Indicates a professional possesses a particular set of skills, knowledge, or abilities in the opinion of a certifying organization
  - Can also apply to products
  - Can also apply to companies and institutes
  - Generally voluntary
  - Carries no requirement to adhere to a code of ethics
- 


# Key Points



- A professional from a legal standpoint
  - Has passed the state licensing requirements
  - Has earned the right to practice there
- Software professionals have many different relationships
  - Each with its own set of ethical issues and potential problems
- Professional code of ethics
  - States the principles and core values essential to the work of an occupational group

# References



- Ian Sommerville, “Software Engineering”, 10<sup>th</sup> Edition, Addison-Wesley, 2015.
  - Timothy C. Lethbridge and Robert Laganière, “Object-Oriented Software Engineering: Practical Software Development using UML and Java”, 2<sup>nd</sup> Edition, McGraw Hill, 2001.
  - R. S. Pressman, Software Engineering: A Practitioner’s Approach, 10th Edition, McGraw-Hill, 2005.
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- Software Process Models
- Requirements Engineering
- Modeling
- Software Construction Techniques
- Testing
- Project Management
- Refactoring
- Ethical Issues





## End of SWE205

I hope you enjoyed the course

Good luck in your **Final Exam**  
and **Future Courses**

