

## Course Specification

<b>Name of Institution</b>	Mahidol University
<b>Campus/faculty/department</b>	Salaya campus Mahidol University International College Science Division

### Section 1 General Information

#### 1. Course Code and course title

(Thai)	EGCI 100	แนะนำวิศวกรรมคอมพิวเตอร์
(English)	EGCI 100	Introduction to Computer Engineering

**2. Number of Credits** 1(0-2-1) (Lecture/Lab/Self-study)

#### 3. Curriculum and type of subject

3.1 Curriculum	Bachelor of Engineering (Computer Engineering)
3.2 Type of subject	Required course

#### 4. Responsible faculty member

Dr. Ruj Akavipat

#### 5. Trimester / year of study

5.1 Trimester	1 <sup>st</sup> and 3 <sup>rd</sup> / year of study	1 <sup>st</sup> year
5.2 Number of students		5-20 students

**6. Pre-requisite(s)** none

**7. Co-requisite(s)** none

**8. Venue of study** Mahidol University, Salaya campus

**9. Date of latest revision** October 2011

## Section 2 Goals and Objectives

### 1. Goal

1. Students should explain basic principle of data communication and computer network.
2. Students should be able to clearly understand communication protocols and the standard of computer network.
3. Students should be able to analyze and design computer network system.

### 2. Objective of development revision

To up-date the knowledge content of the course

## Section 3 Course Management

### 1. Course Description

(Thai) แนะนำวิศวกรรมคอมพิวเตอร์ ระบบคอมพิวเตอร์ ฮาร์ดแวร์และซอฟต์แวร์ ระบบปฏิบัติการ เทคโนโลยีโอเพ่นซอร์ส: ลินุกซ์ พื้นฐานของระบบเครือข่ายคอมพิวเตอร์ ระบบอินเทอร์เน็ตและเว็ลด์ไวด์เว็บ ฝึกปฏิบัติด้วยโปรแกรมประยุกต์ทางด้านจัดการเอกสาร พื้นฐานการเขียนโปรแกรมคอมพิวเตอร์

(English) Introduction to computer engineering. Computer systems. Hardware and Software. Operating System. Opensource technology: Linux. Fundamental of computer network. Internet and World Wide Web (WWW). Practical exercises with Office application. Introduction to computer programming.

### 2. Credit hours / trimester

Lecture (hours)	Additio nal Class (hours)	Laboratory/field trip/internship (hours)	Self-study (hours)
22 hours (2 hours x 11 weeks)	-	-	11 hours (1 hours x 11 weeks)

### 3. Numbers of hours that the lecturer provides individual counseling and guidance

1 hour/week

## Section 4 Development of Students' Learning Outcome

### 1. Expected outcome on students' skill and knowledge

Student will be able to apply the knowledge from lecturer and additional research with the ideas received from analysis and synthesis to set up solutions / precautions to benefit individuals and their community.

### 2. Teaching Methods

- Lecture
- Self-study
- Practical laboratory exercises.

### 3. Evaluation methods

#### 1. Morality and Ethics

##### 1.1 *Expected outcome on morality and ethics:*

- 1.1.1 To be aware of values and morality, ethics, scarification and honesty.
- 1.1.2 To process self-discipline, punctuality, self-responsibility and social responsibility
- 1.1.3 To process leadership and supporter skills and be able to work in a team with integrity and cooperation.
- 1.1.4 To demonstrate good listening behavior and have respect for the rights and value of others.
- 1.1.5 To pay respect to the rule of organization and social.
- 1.1.6 To demonstrate the ability to analyze ethical impacts of computer usage to personals, organizations and social.
- 1.1.7 To demonstrate good academic ethical behaviors.

##### 1.2 *Teaching methods:*

Learning Centered Education: Emphasis on knowledge development, important skills in career development and living, encourage students to use their full potentials

- 1.2.1 Lecture and Practical exercises
- 1.2.2 Emphasis on morality and ethics
- 1.2.3 Group assignments
- 1.2.4 Group discussion

##### 1.3 *Evaluation methods:*

- 1.3.1 Written examination
- 1.3.2 Presentation
- 1.3.3 Class attendance, class participation and behavior in class
- 1.3.4 Practical exercises in a classroom

### 1.3.5 On-time submission of reports and assignments and their quality

## 2 Knowledge development

### 1.2 *Expected outcome on knowledge development:*

- 2.1.1 To process the knowledge related to principles, theories and practice in the course
- 2.1.2 To be able to analyze, understand and explain the basic knowledge of topics explained in a class and be able to apply knowledge and skills using the appropriate tools to solve a problem.
- 2.1.3 To have the ability to remain current in research, and pursue new knowledge and perform ability to apply the knowledge.
- 2.1.4 To know, understand and perform eagerness to develop computer knowledge and skills continuously.
- 2.1.5 To have a breadth knowledge in order to oversee the changes and understand the impact of new technology.
- 2.1.6 To demonstrate knowledge integration with other related sciences.

### 2.2 *Teaching methods:*

Learning Centered Education: Emphasis on knowledge development, important skills in career development and living, encourage students to use their full potentials

- 2.2.1 Lecture and in-class participation
- 2.2.2 Case studies with past experiences and current events
- 2.2.3 Self study

### 2.3 *Evaluation methods:*

- 2.3.1 Written and Practical examination
- 2.3.2 Quality of reports and assignments

## 3. Intellectual development

### 3.1 *Expected outcome on intellectual development:*

- 3.1.1 To have discretionary and systematic thinking skill.
- 3.1.2 To have the ability to search, consolidate and evaluate ideas and evidence for problem solving.
- 3.1.3 To be able to apply knowledge and experience to analyze and creatively solve problems both in general and in academic contexts.
- 3.1.4 To be able to apply knowledge and experience to synthesize solution and precautions



### 3.2 *Teaching method:*

- 3.2.1 Systematic problem solving examples and case studies with past experiences and current events
- 3.2.2 Self Study

### 3.3 *Evaluation methods:*

- 3.3.1 Written and Practical examination
- 3.3.2 Presentation
- 3.3.3 Quality of reports and assignments

## 4. **Interpersonal relationship and responsibility**

### 4.1 *Expected outcome on interpersonal relationship and responsibility:*

- 4.1.1 To perform good communication skills with various groups of people.
- 4.1.2 To be a constructive team member (in various roles).
- 4.1.3 To process the knowledge of the course to identify social problems.
- 4.1.4 To demonstrate self and team responsibility.
- 4.1.5 To have initiative in problem solving.
- 4.1.6 To demonstrate leadership qualities in uncertain situations.
- 4.1.7 To take responsibility in a life-long learning.

### 4.2 *Teaching methods:*

- 4.2.1 Group discussion in case studies
- 4.2.2 Group discussion
- 4.2.3 Group assignment

### 4.3 *Evaluation methods:*

- 4.3.1 Presentation
- 4.3.2 Class attendance, class participation and behavior in class
- 4.3.3 On-time submission of reports and assignments and their quality

## 5. **Mathematical analytical thinking, communication skills and information technology skills**

### 5.1 *Expected outcome on mathematical analytical thinking, communication skills and information technology skills:*

- 5.1.1 To be able to select and apply existing tools for computer related work.
- 5.1.2 To possess the ability to apply information technology for data gathering, processing, interpreting and presenting information/results.
- 5.1.3 To have the ability to communicate effectively and select appropriate methods for presentation.

- 5.1.4 To use information technology appropriately.

### 5.2 *Teaching methods:*

- 5.1.5 Individual exercises
- 5.1.6 Case studies with past experiences and current events
- 5.1.7 Group discussion
- 5.1.8 Group assignment
- 5.1.9 Self Study

### 5.2 *Evaluation methods:*

- 5.2.1 Written examination
- 5.2.2 Presentation with appropriate technology
- 5.2.3 Class attendance, class participation and behavior in class
- 5.2.4 On-time submission of reports and assignments and their quality

## Section 5 Teaching and Evaluation Plans

### 1. Teaching plan

week	Topics	Hours			Teaching methods/multi media	Instructor
		Lecture	Lab	Self-Study		
1	Introduction: Hardware & Software	0	2	1	Lecture	Dr. Suratose Tritilanunt
2	PC Setup & Configuration	0	2	1	Lecture and exercises	
3	BIOS Configuration and Windows Installation	0	2	1	Lecture and exercises	
4	Linux Installation and VM Ware	0	2	1	Lecture and exercises	
5	Linux: Basic Command	0	2	1	Lecture and exercises	
6	Individual Presentation I	0	2	1		
7	Diagram & Flowchart:	0	2	1	Lecture and	

week	Topics	Hours			Teaching methods/multi media	Instructor
		Lecture	Lab	Self-Study		
	Visio				exercises	
8	LAN Cable Wiring	0	2	1	Lecture and exercises	
9	Network Configuration: ADSL & Wireless	0	2	1	Lecture and exercises	
10	Visual Studio: C++	0	2	1	Lecture and exercises	
11	Individual Presentation II	0	2	1	Lecture and exercises	
12	Final Examination					
	Total	0	22	11		

## 2. Evaluation Plan

Expected outcomes	Methods / activities	Week	Percentage
1.1.1, 1.1.2, 1.1.7, 4.1.1, 4.1.4, 4.1.5, 5.1.4	Attendance and in class behavior	1-11	10%
2.1.1, 2.1.2, 3.1.1, 3.1.4, 5.1.2	Presentation	6, 11	20%
	Final examination	12	30%
2.1.7, 2.1.8, 3.1.3, 5.1.1	Practical exercises	1-11	40%

## Section 6 Teaching Materials and Resources

### 1. Texts and main documents

G. B. Shelly, T. J. Cashman, and M. E. Vermaat, “Discovering Computers: A Gateway to Information”, Thomson Course Technology, 2008

Lecture notes and/or text by the instructor will be provided in the classroom

**2. Documents and important information**

none

**3. Documents and recommended information**

Will be provided in the classroom

**Section 7 Evaluation and Improvement of Course Management**

**1. Strategies for effective course evaluation by students**

1.1 Evaluation of peers by students

1.2 Student evaluation

1.2.1 Course content

1.2.2 Course management

1.2.3 Suggestions

1.2.4 Overall opinion

**2. Evaluation strategies in teaching methods**

2.1 Student evaluation

2.2 Presentation

**3. Improvement of teaching methods**

Workshop on course improvement with the participation of all instructors in the course

**4. Evaluation of students' learning outcome**

Analysis of students' learning outcomes using scores from class attendance, group activity and presentation of project and poster presentation

**5. Review and improvement for better outcome**

Review the course before trimester starts and before each teaching period



Symbol ● represents main responsibility / Symbol ○ represents minor responsibility / Space represent no responsibility

These symbols will appear in Curriculum Mapping