Course Specification

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

Section 1 General Information

1. **Course Code and course title**
   (Thai)   EGCI492   โครงการวิศวกรรมคอมพิวเตอร์

   (English)   EGCI 492   Computer Engineering Project

2. **Number of Credits**   2(0-4-2) (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**
         Kanat Poolsawasd, or lecturers from department of computer engineering, or guest lecturers.

5. **Trimester / year of study**
   5.1 Trimester 3st / year of study   4th year
   5.2 Number of students   5-30 students

6. **Pre-requisite(s)**   EGCI491

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 understand research methodology.
   2. Students should be able to analysis, discover the reasons, and proposed project topic in computer engineering.

2. **Objective of development revision**
       To up-date the knowledge content of the course

Section 3 Course Management

1. **Course Description**

(Thai)　　　โครงงานทางวิศวกรรมคอมพิวเตอร์ซึ่งควบคุมโดยอาจารย์ในภาควิชา โครงงานจะต้องทำ

ให้เสร็จสมบูรณ์ และนักศึกษาต้องส่งรายงานฉบับสมบูรณ์และสอบปากเปล่าเมื่อทำโครงงานเสร็จแล้ว

(English)　　　The computer engineering project supervised by the faculty. Students complete the project. A complete project report and an oral examination is required.

2. Credit hours / trimester

Lecture (hours)	Additional Class (hours)	Laboratory/field trip/internship (hours)	Self-study (hours)
-	-	44 hours (4 hours x 11 weeks)	22 hours (2 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 receive d from analysis and synthesis to set up solutions / precautions to benefit individuals and their community.

2. Teaching Methods
- Lecture
- Self-study
- Practical exercises in the classroom.

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　Self-study
　　　1.2.2　Lecture

      1.2.3 Emphasis on morality and ethics

      1.2.4 Group assignments

      1.2.5 Group discussion

1.3   *Evaluation methods:*

      1.3.1 Presentation

      1.3.2 Class attendance, class participation and behavior in class

      1.3.3 On-time submission of reports and assignments and their quality

2   Knowledge development

2.1   *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 computer requirements and be able to apply knowledge and skills using the appropriate tools to solve a problem.

      2.1.3 To be able analyze, design and install and/or evaluate computer components to meet the requirements of the users

●   2.1.4 To have the ability to remain current in research, and pursue new knowledge and   perform ability to apply the knowledge.

●   2.1.5 To know, understand and perform eagerness to develop computer knowledge and skills continuously.

●   2.1.6 To have a breadth knowledge in order to oversee the changes and understand the impact of new technology.

      2.1.7 To have a hand-on experience in software development and/or software applications.

●   2.1.8 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 Quality of reports and assignments

      2.3.2 Class participation and behavior in class

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 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 take responsibility in a life-long learning.

4.2 *Teaching methods:*
    4.2.1   Group discussion
    4.2.2   Self study

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   Computer programming with 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		
1-6	Self studies and group discussions in advances in Computer Engineering	0	12	1	Lecture and programming exercises	Kanat Poolsawasd
7-11	Seminar and discussions using case studies and experiments	0	10	1	Lecture and programming exercises	
12	Class conclusion and presentation.	0	2	1	Lecture and programming exercises	
	Total	0	24	3		

2. Evaluation Plan

Expected outcomes	Methods / activities	Week	Percentage
1.1.1, 1.1.3, 1.1.4, 1.1.6, 1.1.7, 2.1.2, 3.1.2, 3.1.3, 4.1.7, 5.1.3	Attendance and in class behavior	1-12	30%
1.1.6, 2.1.2, 2.1.4, 2.1.5, 2.1.6, 2.1.8, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 4.1.1, 4.1.4, 4.1.6	Quality of reports and assignments	1-12	50%
5.1.3, 5.1.4	Presentation using appropriate technology	1-12	20%

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Section 6 Teaching Materials and Resources

1. Texts and main documents

Electronic journals provided Library and Knowledge Center, Mahidol University subscribes such as

- IEEE. http://ieeexplore.ieee.org/Xplor
- ScienceDirect. http://www.sciencedirect.com

2. Documents and important information

None.

3. Documents and recommended information

None.

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