Elective Course
Course Title: Topics in Computer Science V
Course Code ICCS 495

Undergraduate Program
Mahidol University International College
Science Division

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TQF 3 Course Specifications

Section 1 General Information
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1. Course code and course title

      Thai   **ICCS 495   หัวข้อทางวิทยาการคอมพิวเตอร์ 5**

      English   ICCS 495 Topics in Computer Science V

2. Number of credits   4 (4-0-8)
3. Program and type of subject

          3.1 Program   <u>Undergraduate Degree (International Program)</u>

          3.2 Type of Subject   <u>Elective course</u>

4. Course Coordinator and Course Lecturer

          4.1   Course Coordinator   Kritya Bunchongchit

          4.2   Course Lecturer   Kritya Bunchongchit

5. Trimester/ Year of Study

          5.1 Trimester <u>Once per year / Junior or senior</u>

          5.2 Course Capacity   Approximately 30 students

6. Pre-requisite   <u>None</u>
7. Co-requisites   <u>N/A</u>
8. Venue of Study   Mahidol University, Salaya campus

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Section 2 Goals and Objectives
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1. Course Goals
   - Create linkage between theory and practice by covering trending topics and emerging knowledge in the field
   - Encourage complex problem solving in practical situations
   - Motivate life-long learning by exploring deeper into a specific area of computer science

2. Objectives of Course Development/Revision

   2.1 Course Objectives

       Offering adaptability of course contents to respond to new knowledge and emerging trends in the field

   2.2 Course-level Learning Outcomes: CLOs

       By the end of the course, students will be able to (CLOs)

      1.   CLO1   Identify features that make these special topics distinctive from the general computer science knowledge and skills.

      2.   CLO2   Differentiate sub-problems that need additional knowledge from the parts that can be solved with common knowledge and techniques.

      3.   CLO3 Create a feasible solution for a non-trivial problem in the field.

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Section 3 Course Management

1. Course Description
   Topic(s) from areas of computer science chosen according to current research and industrial trends
   หัวข้อในวิทยาศาสตร์คอมพิวเตอร์ ซึ่งกำลังเป็นกระแสในงานวิจัยและภาคอุตสาหกรรมปัจจุบัน

2. Credit hours per trimester

Lecture (Hour(s))	Laboratory/field trip/internship (Hour(s))	Self-study (Hour(s))
48	0	96

3. Number of hours that the lecturer provides individual counseling and guidance.
   1 hour/week

Section 4 Development of Students' Learning Outcome

1. Short summary on the knowledge or skills that the course intends to develop in students (CLOs)
   By the end of the course, students will be able to
   1. CLO1 Identify features that make these special topics distinctive from the general computer science knowledge and skills.
   2. CLO2 Differentiate sub-problems that need additional knowledge from the parts that can be solved with common knowledge and techniques.
   3. CLO3 Create a feasible solution for a non-trivial problem in the field.

2. Teaching methods for developing the knowledge or skills specified in item 1 and evaluation methods of the course learning outcomes

Course Code	Teaching methods	Evaluation Methods
CLO1	Lecture, reading assignment, class discussion	Written assignment, quiz, written examination
CLO2	Lecture, reading assignment, in-class exercise, class discussion	Written assignment, quiz, written examination
CLO3	Case study, solution sharing, SWOT analysis	Term project

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Section 5 Teaching and Evaluation Plans

1. Teaching plan

Week	Topic	Number of Hours		Teaching Activities / Media	Lecturer
		Lecture Hours	Lab/ Field Trip/ Internship Hours		
1	Course introduction	4	0		
2	Topic 1	4	0		
3		4	0		
4		4	0		
5	Topic 2	4	0		
6		4	0		Kritya Bunchongchit
7		4	0		
8	Progress report on term project	4	0		
9	Topic 3	4	0		
10		4	0		
11		4	0		
12	Term project presentation	4	0		
	Total	48	0		

2. Plan for Assessing Course Learning Outcomes

    2.1 Assessing and Evaluating Learning Achievement

        a. Formative Assessment
- Class discussion
- Reflective question
- Answer comparison
- In-class exercise

        b. Summative Assessment

        (1) Tools and Percentage Weight in Assessment and Evaluation

Learning Outcomes	Assessment Methods	Assessment Ratio (Percentage)	
CLO1 Identify features that make these special topics distinctive from the general computer science knowledge and skills.	Written assignment	5	35
	Quiz	10	
	Examination	15	
CLO2 Differentiate sub-problems that need additional knowledge from the parts that can be solved with common knowledge and techniques.	Written assignment	5	25
	Quiz	10	
	Examination	10	
CLO3 Create a feasible solution for a non-trivial problem in the field.	Term project	30	40
	Examination	10	
Total			100

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(2) Grading System

Grade	Achievement	Final Score (% range)	GPA
A	Excellent	90-100	4.0
B+	Very good	85-89	3.5
B	Good	80-84	3.0
C+	Fairly good	75-79	2.5
C	Fair	70-74	2.0
D+	Poor	65-69	1.5
D	Very poor	60-64	1.0
F	Fail	Less than 60	0.0

(3) Re-examination (If course lecturer allows a re-examination)
   N/A - (Not applicable with MUIC)

3. Student Appeals
   N/A

Section 6 Teaching Materials and Resources

1. Textbooks and/or other documents/materials
   ● Assigned reading set by the instructor in the designated e-learning website

2. Recommended textbooks and/or other documents/materials
As posted on the course's e-learning site

3. Other Resources (If any)
   As posted on the course's e-learning site

Section 7 Evaluation and Improvement of Course Management

1. Strategies for evaluating course effectiveness by students
   1.1. Student feedback of instructors, teaching methods and materials, and course content through MUIC student evaluation forms

2. Strategies for evaluating teaching methods
   2.1. Evaluation of effectiveness based on student evaluation scores and comments
   2.2. Evaluation through peer observations by co-instructor or other Division faculty
3. Improvement of teaching methods
   3.1. Adjustments based on student feedback, personal observations, comments from peer observations and discussions with supervisor and/or other Division faculty in

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one-on-one and/or group meetings as specified by MUIC guidelines

4. Verification process for evaluating students' standard achievement outcomes in the course
   4.1. Verification through student performance on assessments based on MUIC/Division standards

5. Review and plan for improving the effectiveness of the course
   5.1. Course instructors (and coordinator/supervisor) will meet to discuss results of student evaluations and student performance based on learning outcomes in order to identify point for improvement
   5.2. Strategy for improvement set according to MUIC/Division guidelines

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Appendix
Alignment between Courses and General Education courses

Table 1 The relationship between course and Program Learning Outcomes (PLOs)

	Program Learning Outcomes (PLOs)					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
ICCS 495				M	M	P

Table 2 The relationship between CLOs and Program LOs (Number in table = Sub LOs)

(Course Code)	Learning Outcomes in Computer Science (CS-LOs)					
	1	2	3	4	5	6
CLO1 Identify features that make these special topics distinctive from the general computer science knowledge and skills.					✓	✓
CLO2 Differentiate sub-problems that need additional knowledge from the parts that can be solved with common knowledge and techniques.					✓	
CLO3 Create a feasible solution for a non-trivial problem in the field.				✓	✓	✓

Table 3 The description of CS LOs and Sub LOs of the course

CS LOs	Sub LOs
PLO4 Use a teamwork mindset in the context of computing.	
PLO5 Execute common computing methodologies appropriate for a problem scenario.	5.4 Select common computing techniques (e.g., standard algorithms, data structures, design patterns, programing style, and computing paradigms) appropriate for a given problem scenario.
PLO6 Formulate computational solutions to novel situations grounded on the foundation of computer science.	6.1 Model a given problem using suitable abstractions, including problem decomposition, in the context of computing.
	6.2 Compare the relative strengths and weaknesses among multiple designs or implementations.
	6.3 Assess the feasibility and efficacy of a computational solution based on its design and implementation.
	6.4 Devise computational solutions to novel situations using knowledge and experience in computer science.