# Course Syllabus

1. **Program of Study** Bachelor of Science (Computer Science)
   **Faculty/Institute/College** Mahidol University International College

2. **Course Code** ICCS431 **Course Title** Software Design and Development

3. **Number of Credits** 4(Lecture/Lab) (3-2)

4. **Prerequisite(s)** ICCS 365

5. **Type of Course** Elective

6. **Trimester/ Academic Year** First trimester / every academic year

7. **Course Description**

This course provides an introduction to software engineering as it is practiced in industry. The course focuses on the characteristics of planning a software project, Software cost estimation, Software requirement definition, structured system analysis, Software design, Software implementation verification and validation techniques, Software maintenance. Problems and solutions manifest in real software development and modification projects. Different models of software engineering processes are compared and contrasted. Current best practices in software engineering are emphasized. Practical exercises are included.

8. **Course Objective(s)**

1. Students will be able to describe the social and ethical implications of software design
2. Students will be able to describe the components of the software development lifecycle
3. Students will be able to create a requirements document for a software package.
4. Students will be able to write a formal specification for a software package
5. Students will be able to perform a cost analysis for a proposed software package
6. Students will be able to participate in a software development team

7. Students will be able to describe methods for testing and assuring the quality of software

## 9. Course Outline

| Week | Lecture Topic | Hour |
|---|---|---|
| 1 | Introduction to Software Engineering | 4 |
| 2 | Software Processes and Lifecycle Models | 4 |
| 3 | Requirements Engineering | 4 |
| 4 | Software Project Management | 4 |
| 5 | Software Design Concepts and Techniques | 4 |
| 6 | Design and Implementation | 4 |
| 7 | Software Verification and Validation | 4 |
| 8 | Software Evolution and Supporting Processes | 4 |
| 9 | Software Process Improvement | 4 |
| 10 | Best Practices, Ethics, and Professionalism | 4 |
| 11 | Project Presentation | 4 |
| | **Total** | **44** |

## 10. Teaching Methods

Lecturing, Laboratory practices and presentations

## 11. Teaching Media

Slides, handouts

## 12. Course Achievement

Assessment made from the set-forward criteria according to the MUIC's grading policy.

## 13. Course Evaluation

| | |
|---|---|
| Midterm Examination | 30 % |
| Final Examination | 35 % |
| Term Project | 30 % |
| Quizzes | 5 % |

## 14. References

Ian Sommerville, *Software Engineering (7th Ed)*, Addison Wesley; ISBN: 0-321-21026-3

## 15. Instructors

Mr.Poramin Bheganan