澳 門 理 工 學 院
Instituto Politécnico de Macau
Macao Polytechnic Institute

COMP223: Software Engineering

Course Introduction

Dr. Kim, Song-Kyoo (Amang)
Associate Professor,

Computer Science Program
MACAO POLYTECHNIC INSTITUTE
Macau, SAR

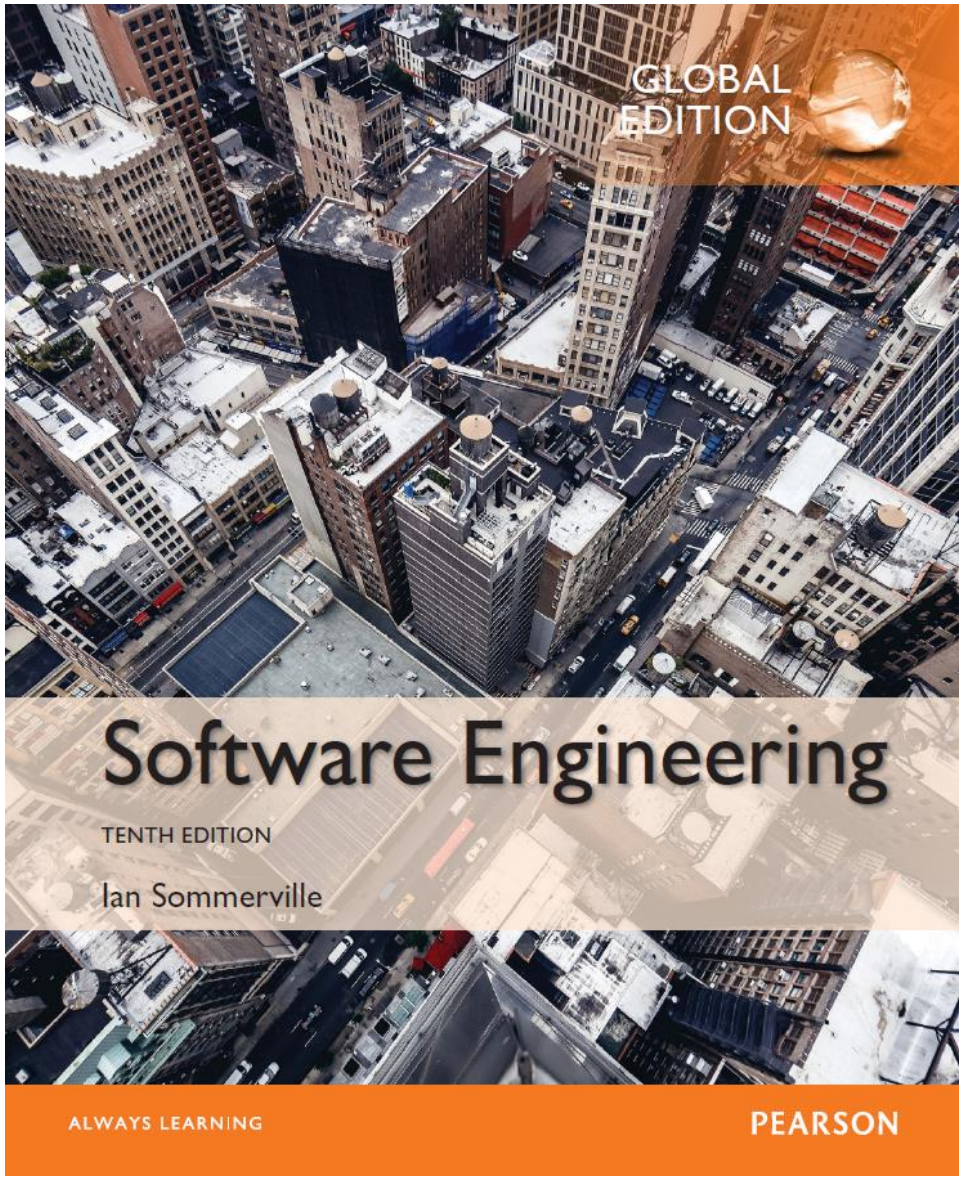
Course Descriptions

- This course introduces the concepts of software development.
- Emphasis will be put on understanding the processes, techniques and methods used to develop application software.
- Besides, students are exposed to various software development approaches.
- Upon completion, students will be able to understand the major software development methodologies and techniques, appreciate their relative merits and their limitations.

Course Outlets

- Introduction to software engineering & process
- Requirement engineering
- System modeling
- Architecture design
- Design and implementation
- Software evolution
- Agile software development
- Project planning
- Software Development Practice (SDP)*
- Quality management

Textbook



Ian Sommerville (2015), *Software Engineering,* 10th Edition, Pearson, Boston, MA.

Class Schedule (1/x)

Week	Sessio	Date	Contents	Submission Requirement
1	1	**1/21**	Introduction & Professional software development Software process models (2.1)	
2	3	**1/26**	Process activities (2.2 & 2.3)	
	4	**1/29**	Process improvement (2.4)	
3	5	**2/2**	(Ch 4) Functional and non-functional requirements; The software requirements document	
	6	**2/5**	(Ch 4) Requirements specification; Requirements engineering processes	
4	7	**2/19**	(Ch 4) Requirements elicitation and analysis; Requirements validation	
	8	**2/23**	(Ch 4) Requirements management	
5	9	**2/24**	(Ch 5) Context models; Interaction models	
	10		(Ch 5) Structural models; Behavioral models	
6	11	**2/26**	(Ch 5) Model-driven engineering	
	12	**3/2**	(Ch 6) Architectural design decisions	
7	13	**3/3**	(Ch 6) Architectural views; Architectural patterns	
	14		(Ch 6) Application architectures	
8	15	**3/5**	**MID-TERM EXAM**	
	16	**3/9**	(Ch 7) Object-oriented design using UML; Design patterns; Implementation issues; Open source	

Class Schedule (2/2)

Week	Session	Date	Contents	Submission Requirement
9	17	3/10	(Ch 7) Evolution processes; Program evolution dynamics;	
	18		(Ch 7) Software maintenance; Legacy system management	
10	19	3/12	(Ch 3) Agile method & Capability Maturity Model; Agile development techniques	
	20	3/16	(Ch 3) Agile project management; Continuous Development	
11	21	3/17	(Ch 23) Software pricing; Plan-driven development; Project scheduling	
	22		(Ch 23) Agile planning; Estimation technique	
12	23	3/19	Software development in Internet era	
	24	3/23	Case study: Com2uS mobile game development	
13	25	3/24	Group Activity: SW development startups	
	26			
14	27	3/26	(Ch 24) Software quality; Software standards	
	28	3/30	(Ch 24) Review and inspections; Software measurement and metrics	
15			Fianl Exam	

Grading System (1/2)

- **Popup Quiz ..... 5 %**
  - (Almost) every session will have a quiz.
  - Based on the previous session.
- **Take-home assignments ..... 15 %**
  - 1 case + 2 literature (research) review.
- **Group Project ..... 15 %**
  - Presentation (10 %) + Report (5 %)
- **Group Activity (SDP) ..... 10 %**
  - Group activity in the classroom
- **Exams ..... 55 %**
  - Mid-term (15 %) + Final (40 %)

Grading System (2/2)

- Popup Quiz
  - Couple of questions that students have leant on the last session.
- Take-home assignments
  - 1 Cases – Case review report (assigned by professor)
  - 2 Research papers – Literature review (freely selected)
  - 5 % per each assignment.
  - The forms will be provided.
- Group Project
  - **Software development** project which adapts Software Engineering techniques.

Student Conduct

- Facebook Pages:
  - https://www.facebook.com/amang.mpi.7
  - https://www.facebook.com/groups/1317830651906834

COMP223-202021-2nd

Private group · 1 member

SCAN ME

Condensed Schedule (1/2) – Section 1

- Current Course Schedule

Week	Session	Date	Contents	Submission Requirement	Remarks
1	1	1/21	Introduction & Professional software development Software process models (2.1)		
2	3	1/26	Process activities (2.2 & 2.3)		
	4	1/29	Process improvement (2.4)		
3	5	2/2	(Ch 4) Functional and non-functional requirements; The software requirements document		
	6	2/5	(Ch 4) Requirements specification; Requirements engineering processes		
4	7	2/19	(Ch 4) Requirements elicitation and analysis; Requirements validation		
	8	2/23	(Ch 4) Requirements management		
5	9	2/24	(Ch 5) Context models; Interaction models		makeup
	10		(Ch 5) Structural models; Behavioral models		(3 hours)
6	11	2/26	(Ch 5) Model-driven engineering		
	12	3/2	(Ch 6) Architectural design decisions		
7	13	3/1	(Ch 6) Architectural views; Architectural patterns		makeup
	14		(Ch 6) Application architectures		(3 hours)
8	15	3/5	**MID-TERM EXAM**		
	16	3/9	(Ch 7) Object-oriented design using UML; Design patterns; Implementation issues; Open source		
9	17	3/10	(Ch 7) Evolution processes; Program evolution dynamics;		makeup
	18		(Ch 7) Software maintenance; Legacy system management		(3 hours)
10	19	3/12	(Ch 3) Agile method & Capability Maturity Model; Agile development techniques		
	20	3/16	(Ch 3) Agile project management; Continuous Development		
11	21	3/17	(Ch 23) Software pricing; Plan-driven development; Project scheduling		makeup
	22		(Ch 23) Agile planning; Estimation technique		(3 hours)
12	23	3/19	Software development in Internet era		
	24	3/23	Case study: Com2uS mobile game development		
13	25	3/24	Group Activity: SW development startups		makeup
	26				(3 hours)
14	27	3/26	(Ch 24) Software quality; Software standards		
	28	3/30	(Ch 24) Review and inspections; Software measurement and metrics		
15			**Fianl Exam**		

Condensed Schedule (2/2) – Section 1

- The course will be **finished Week 9 (April 1st, 2021)**
- Make-up classes are required.
- The day (**Wednesday & Monday**) is fixed but we all shall be agreed.
- The time for make-up needs to be agreed.
  - 10:00 – 13:00 : 2/24, 3/10, 3/24 (Wed)
  - 14:00 – 17:00 : 3/1, 3/15 (Mon)

Week	Session	Date	Contents	Remarks
5	9	**2/24**	(Ch 5) Context models; Interaction models	makeup
	10		(Ch 5) Structural models; Behavioral models	(3 hours)
7	13	**3/1**	(Ch 6) Architectural views; Architectural patterns	makeup
	14		(Ch 6) Application architectures	(3 hours)
9	17	**3/10**	(Ch 7) Evolution processes; Program evolution dynamics;	makeup
	18		(Ch 7) Software maintenance; Legacy system management	(3 hours)
11	21	**3/15**	(Ch 23) Software pricing; Plan-driven development; Project scheduling	makeup
	22		(Ch 23) Agile planning; Estimation technique	(3 hours)
13	25	**3/24**	Group Activity: SW development startups	makeup
	26			(3 hours)

Condensed Schedule (1/2) – Section 2

- Current Course Schedule

Week	Session	Date	Contents	Submission Requirement	Remarks
1	1	1/21	Introduction & Professional software development Software process models (2.1)		
2	3	1/26	Process activities (2.2 & 2.3)		
	4	1/29	Process improvement (2.4)		
3	5	2/2	(Ch 4) Functional and non-functional requirements; The software requirements document		
	6	2/5	(Ch 4) Requirements specification; Requirements engineering processes		
4	7	2/19	(Ch 4) Requirements elicitation and analysis; Requirements validation		
	8	2/23	(Ch 4) Requirements management		
5	9	2/24	(Ch 5) Context models; Interaction models		makeup
	10		(Ch 5) Structural models; Behavioral models		(3 hours)
6	11	2/26	(Ch 5) Model-driven engineering		
	12	3/2	(Ch 6) Architectural design decisions		
7	13	3/3	(Ch 6) Architectural views; Architectural patterns		makeup
	14		(Ch 6) Application architectures		(3 hours)
8	15	3/5	**MID-TERM EXAM**		
	16	3/9	(Ch 7) Object-oriented design using UML; Design patterns; Implementation issues; Open source		
9	17	3/10	(Ch 7) Evolution processes; Program evolution dynamics;		makeup
	18		(Ch 7) Software maintenance; Legacy system management		(3 hours)
10	19	3/12	(Ch 3) Agile method & Capability Maturity Model; Agile development techniques		
	20	3/16	(Ch 3) Agile project management; Continuous Development		
11	21	3/17	(Ch 23) Software pricing; Plan-driven development; Project scheduling		makeup
	22		(Ch 23) Agile planning; Estimation technique		(3 hours)
12	23	3/19	Software development in Internet era		
	24	3/23	Case study: Com2uS mobile game development		
13	25	3/24	Group Activity: SW development startups		makeup
	26				(3 hours)
14	27	3/26	(Ch 24) Software quality; Software standards		
	28	3/30	(Ch 24) Review and inspections; Software measurement and metrics		
15			**Fianl Exam**		

Condensed Schedule (2/2) – Section 2

- The course will be **finished Week 9 (April 1st, 2021)**
- Make-up classes are required.
- The day (**Wednesday**) is fixed but we all shall be agreed.
- The time for make-up needs to be agreed.
  - 10:00 – 13:00 : 3/3, 3/17
  - 14:00 – 17:00 : 2/24, 3/10, 3/24

Week	Sessio	Date	Contents	Remarks
5	9	2/24	(Ch 5) Context models; Interaction models	makeup
	10		(Ch 5) Structural models; Behavioral models	(3 hours)
7	13	3/3	(Ch 6) Architectural views; Architectural patterns	makeup
	14		(Ch 6) Application architectures	(3 hours)
9	17	3/10	(Ch 7) Evolution processes; Program evolution dynamics;	makeup
	18		(Ch 7) Software maintenance; Legacy system management	(3 hours)
11	21	3/17	(Ch 23) Software pricing; Plan-driven development; Project scheduling	makeup
	22		(Ch 23) Agile planning; Estimation technique	(3 hours)
13	25	3/24	Group Activity: SW development startups	makeup
	26			(3 hours)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