Syllabus of Software Engineering Management and Economics

Course No.42041301

No.42041302

This course is provided by School of Software Engineering at Tongji University in the 2nd Semester of 2021 ~ 2022 teaching year.

Part A. Outline

Course description

This course is one of the required courses in the curriculum of software engineering discipline. The content of the course consists of knowledge of software engineering management, software process management and software engineering economics.

The course consists of two parts. In first part, we will discuss and learn the knowledge of software engineering management and software process management, including but not limited, project management, communication with stakeholders, resource allocation, conflict management, contract management and risk management etc.. In second part, software engineering economics will be studied, including the following contents, software industry and market, business decision-making, software effort and cost estimation, software pricing and income estimation, software project financial analysis and evaluation etc..

Teaching type

Hybrid method, including offline course，online course (智慧树MOOC) and experimental practices in-class.

Prerequisites

Software Engineering.

Textbooks

- Robert K. Wysocki. Effective Project Management: Traditional, Agile, Extreme, Hybrid, 8th ed., John Wiley & Sons, 2019. (Required).
- Roger Pressman, Bruce R. Maxim. Software Engineering A Practitioner's Approach, 9th ed., McGrawHill Education, 2020. (Required).
- Dan Remenyi, Frank Bannister, Arthur Money. The Effective Measurement and Management of ICT Costs and Benefits,3rd ed., Elsevier,2007. (Required).
- Chan S. Park. Fundamentals of Engineering Economics. 4th ed,. Pearson Education, 2020. (Required).

Reference Materials

- Harold Kerzner, *Project management: a system approach to planning, scheduling and controlling,* 10th ed., John Wiley & Sons, 2010.
- Pedro Belli, *Economic Analysis of Investment Operations,* The World Bank, 2001.
- Peter Buxmann, et al, *The Software Industry Economic Principles, Strategies, Perspectives,* Springer, 2013.

Course objectives

1. Introduce students to fundamental knowledge of software projects management and software engineering economics.
2. Enable students to understand and practice the basic economical skills, management skills and tools in the course project, including but not limited the usage of techniques, for example, project planning, risk management, software effort estimating, software process monitoring and control, software costing and project financial risk analysis.
3. Enable students to understand the relevant concepts of software management and engineering economics, exercise these concepts in the course project.

Schedule

Week	No.	Topic(s)	In-class	Out of class
1	1	What is software project management	3 hours	3 hours
2	2	Project management process	3 hours	3 hours
3	3	How to scope a TPM project	3 hours	3 hours
4	4	How to plan a TPM project	3 hours	3 hours
5	5	How to launch a TPM project	3 hours	3 hours
6	6	How to execute a TPM project	3 hours	3 hours
7	7	Hybrid project management framework	3 hours	3 hours
8	8	Risk management	3 hours	3 hours
9	9	Mid Examination - Presentation	TBD	-
10	10	Nature of software engineering economics	3 hours	6 hours
11	11	Software industry & market	3 hours	6 hours
12	12	Software effort and cost estimation	3 hours	6 hours
13	13	Software pricing and income estimation	3 hours	6 hours
14	14	Economic analysis method I – proposal comparison	3 hours	6 hours
15	15	Economic analysis method II – financial evaluation	3 hours	6 hours
16	16	Final Examination - Presentation	TBD	-
17	17	Final Examination - Presentation	TBD	-
		Total: 111 Hours	**42+9**	**60**

Part B. General Information and Course Policies (2021～2022 2nd Semester)

Instructor: HUANG Jie 黄杰
Instructor's Office: Room 514, Jishi Building. JiaDing Campus, Tongji University.
Instructor's Open Hour: Mon. to Wed. 14pm～15pm in office, or an appointment beforehand.
Emailbox: Huangjie@tongji.edu.cn
Wechat Group: 软件工程管理与经济-2022-1班(Course No.42041301)
软件工程管理与经济-2022-2班(Course No.42041302)

Time and Venue

7:00 – 9:25 pm, Monday, Course **No.42041301**.
7:00 – 9:25 pm, Wednesday, Course **No.42041302**.
Room 210, A building安楼, Jiading Campus, Tongji University.

Scoring assessment

Scoring assessment will be determined on the following bases,

1. Course attendance, Q&A and MOOC attendance: **20%**.
2. Assignment and Experiments in-class: **30%**.
3. Documentation of Course Project: **30%**.
4. Presentation of Course Project: **20%**.

Grading Distribution

Percentage Grade	Final Grade
100 ～ 90(included)	A (优)
89 ～ 80(included)	B (良)
79 ～ 70(included)	C (中)
69 ～ 60(included)	D (及格)
below 59	E (不及格)

Comment

The objectives of the lectures are to explain and to supplement the text material. Students are responsible for reading the content in the required textbooks or assigned materials whether or not covered in the classes. Students who wish to succeed in this course should read the textbooks and reference materials **prior to** the lecture and should work hard and do best in all tasks of course project, experiments in-class, exercises and assignments. You are encouraged to look at other sources (reference books, papers etc.) to complement the lectures and primary text.

Course Policy

The completion and correction of the assignments, experiments and exercises is a powerful learning experience, the assignment, experiment reports and exercises shall be submitted within one week after the arrangement, unless otherwise noted. The late submission will not be accepted.

Note

Check **Wechat** group and **Canvas** for announcements, assignments and lecture notes.
The lectures and experiments are important parts of this course and attendance is compulsory.
No absence in-class is allowed, except for **Clear** proof in documentation.
No examination right is given, if you are at or over **30% absence** during the whole class period.
Cheating is strictly prohibited by the university and will be severely punished.