CS390 Introduction to Software Engineering
Spring 2018

Department of Computer Science and Information Systems
Bradley University

Basic Course Information:

- **Course Number:** CS390
- **Course Name:** Introduction to Software Engineering
- **Section Number:** 01
- **Number of Credits:** 3 credits
- **Catalog Description:** Software engineering; software product; prescriptive process models; system engineering; analysis modeling; design engineering; architectural design; user interface design; testing strategies and techniques; software systems' implementation; software systems' maintenance.
- **Course Prerequisites:** A grade of C or better in CS 390 or equivalent.
- **Course Web Page:** https://sakai.bradley.edu/

Course Objective & Description:

The objective of this course is to present an introduction to Software Engineering, which is the discipline concerned with the application of theory, knowledge, and practice for effectively and efficiently building small, medium, and large-scale software systems that satisfy the requirements of users and customers.

This course covers topics including the concept of software as an engineered product, the concept of software process, all phases of the life cycle (process) of a software system (including software requirement analysis and specification, software design, software construction, software testing, and software operation and maintenance), the software project management and the software tools and environments.

Instructor:

- **Name & Title:** Young Park, Professor of Computer Science
- **Office Location:** Bradley Hall 175
- **Office Hours:** M, T, W & T, 10:15 a.m. – 11:00 a.m. or by appointment. Walk-ins with short questions are encouraged anytime!
- **Contact Information:** Telephone: (309) 677-2457, Fax: (309) 677-4504, E-mail: young@bradley.edu, Homepage: http://hilltop.bradley.edu/~young, Mailing address: Dept. of Computer Science and Information Systems, Bradley University, 1501 West Bradley Avenue, Peoria, Illinois 61625

Class Meeting Location, Days & Times:

BR 150, T & T, 9:00 – 10:15 a.m.

Course Materials:

- **Lecture Notes**
- **Textbook (Recommended): *Software Engineering: A Practitioner's Approach*, Roger Pressman, McGraw-Hill, 2010. [Resources at WWW: http://www.mhhe.com/pressman]**
- **SWEBOK (*Software Engineering Body of Knowledge*), IEEE CS**

- **Research Project Resources: ACM Proceedings Templates**
  http://www.acm.org/chapters/policy/toolkit/template.html

- **Recommended Books**:
  - *Software Engineering: Theory and Practice,* Shari Pfleeger, Prentice Hall, 1998.
  - *Software Engineering*, Ian Sommerville, 6th edition, Addison-Wesley, 2000.
  - *An Integrated Approach to Software Engineering,* Pankaj Jalote, 2nd edition, Springer, 1997.
  - *Classical and Object-Oriented Software Engineering,* Stephen R. Schach, 5th edition, McGraw-Hill, 2001.
  - *The Mythical-Man Month, Anniversary Edition: Essays on Software Engineering,* Frederick Brooks, 2nd edition, Addison-Wesley, 1995.
  - *Introduction to the Personal Software Process,* Watts Humphrey, Addison-Wesley, 1997.
- **Recommended Journals & Conferences**:
  - IEEE Software
  - ACM SIGSOFT (Special Interest Group on Software engineering) Software Engineering Notes
  - IEEE Transactions on Software Engineering (TSE)
  - ACM Transaction on Software Engineering Methodology (TOSEM)
  - Information and Software Technology (IST)
  - Journal of Systems and Software (JSS)
  - Software Engineering Journal (SEJ)
  - Software: Practice and Experience (SP&E)
  - International Conference on Software Engineering (ICSE)

Course Requirements:

The course work consists of

- Class attendance & participation (presentation, discussion & evaluation)
- Research project
- Software Development project
- Midterm exam
- Final exam

Grading:

The raw score (total: 1000 points) will be based on

- Class attendance & participation: 50 points
- Research Project: 150 points
- Software Development project: 400 points
- Midterm exam: 100 points
- Final exam: 300 points

The final letter grade will be given from the raw score based on the following conversion rule *(Tentative and subject to be adjusted depending on the distribution of the raw scores of the class)*:

Letter Grade	Raw Score Range
A	900 < raw-score ≤ 1000
B	800 < raw-score ≤ 900
C	700 < raw-score ≤ 800
D	600 < raw-score ≤ 700
F	0 ≤ raw-score ≤ 600

- **Academic Honesty:** *Anyone found cheating on any graded project and examination will receive an F for this course and other further action will be taken.*

Course Policies:

- **Attendance & Preparation:** Lecture attendance is mandatory and students are expected to come well prepared for every class. Note-taking is highly encouraged to help understand ideas more deeply.
- **Assignment Submission:** All project deliverables must be handed in at the beginning of the class on the due date and in envelopes.
- **Late Policy:** No late submission of project deliverables will be accepted.
- **Makeup & Incomplete:** Makeup work and incompletes are only given in unusual circumstances, and only when work has been completely satisfactorily up to the point when the incomplete was requested.

Course Content & Schedule:

(Tentative and subject to change)

DATE	TOPICS	READINGS
1/18 1/23 1/25	Course Information Software Software Engineering Software Process *In-Class Project Activity*	• **Topic 1** (Software Engineering & The Software Product) • **Topic 2** (Software Process – Models & Improvement) • SWEBOK: Chapter 8 • SEPA: Chapters 1, 2, 3, 4, 5, 6 & 37 • Research Project Description • Software Development Project Description
1/30	**Software Development Project:** Presentation, & Discussion – Customer (Client/Consumer) Business Need	
2/1	**Software Development Project:** Presentation, & Discussion –Developer Company Profile/Overview	

2/6 2/8	Software Project Management Software Quality Assurance Software Configuration Management *In-Class Project Activity*	• **Topic 3** (Software Project Management - Concepts, Cost Estimation & Scheduling) • **Topic 4** (Software Project Management - Risk Analysis & Metrics) • **Topic 5** (Software Quality & Software Configuration Management) • SWEBOK: Chapter 7 and Chapters 6 & 10 • SEPA: Chapters 31, 32, 33, 34 & 35 and Chapters 21 & 29 • Research Project Description • Software Development Project Description
2/13 2/15	**Software Development Project:** Presentation & Discussion - Software Project Management Plan (SPMP)	
2/20 2/22	Software Requirements Software Models and Methods *In-Class Project Activity*	• **Topic 6** (Systems Requirements & Requirements Engineering) • **Topic 7** (Software Requirements Engineering) • **Topic 8** (Software Models & Methods) • SWEBOK: Chapter 1 • SEPA: Chapters 7, 8, 9, 10 & 11 • Research Project Description • Software Development Project Description
2/27 3/1	**Software Development Project:** Presentation & Discussion - Software Requirements Specification (SRS)	
3/6 3/8	Software Design (& Software Construction) *In-Class Project Activity*	• **Topic 9** (Software Design - Concepts & Software Architecture) • **Topic 10** (Software Design - UID, Component Design) • SWEBOK: Chapter 2 • SEPA: Chapters 12, 13, 14, 15, 16, 17 & 18 • Research Project Description • Software Development Project Description
3/20 3/22	**Software Development Project:** Presentation & Discussion – Software Design Document (SDD)	
3/27	**Research Project:** Presentation & Discussion - UML & Tools	

3/29	**Midterm Exam**	
4/3 4/5	(Software Construction &) Software Testing *In-Class Project Activity*	• **Topic 11** (Software Testing - V & V, Testing Strategies) • **Topic 12**(Software Testing - Techniques & OO Testing) • SWEBOK: Chapters 4 & 10 • SEPA: Chapters 19, 20, 21, 22, 23, 24 & 25 • Research Project Description • Software Development Project Description
4/10 **4/12**	**Software Development Project:** Presentation & Discussion – Software Testing Document (STD)	
4/17	**Research Project:** Presentation & Discussion - UP & Agile Process	
4/19	**Research Project:** Presentation & Discussion - PSP, TSP & CMMI	
4/24 **4/26**	**Software Development Project:** Presentation, Discussion & Evaluation – Software Construction Demo with Acceptance Test	
5/1	Software Maintenance	• **Topic 13** (Software Maintenance) • SWEBOK: Chapter 5 • SEPA: Chapter 36
5/1	Course Review & Topics to Study for Final Exam	
TBA	**Final Exam**	

*** End of CS390 Course Information ***