

**Lane Department of Computer Science and Electrical Engineering**  
**CS 430**  
**Advanced Software Engineering**

Spring, 2014  
Time: T R 9:30 AM – 11:00 PM  
Room: ESB-E 449  
[www.csee.wvu.edu/~cukic/CS430](http://www.csee.wvu.edu/~cukic/CS430)

**Instructor:** Bojan Cukic  
**Office:** ESB 731  
**Office Hours:** T R 11:00 – 12:00 PM or by appointment  
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**Prerequisite**  
CS 230 Introduction to Software Engineering or equivalent

**Textbooks:**

Required

- Roger S. Pressman, “Software Engineering: A Practitioner’s Approach,” 7<sup>th</sup> edition, McGraw Hill, 2010.

**1. Class Objectives**

A software project succeeds when it meets the expectations of the people who use it over a long period of time. The objective of the class is to explain software development as an engineering discipline. The course will describe modern methods of software development, process models, assessment methodologies and tools. These methods are to be applied in a comprehensive development project.

**2. Expected Learning Outcomes**

Upon successful completion of this course, students should have:

1. Ability to apply disciplined approach to detailed software design and implementation.
2. Ability to apply modern approaches to software testing.
3. Ability to apply modern techniques of software measurement and analysis.
4. Ability to evaluate project economics and organize configuration management.

**3. Topics Covered**

WEEK #	TOPIC
1	Introduction, engineering ethics, process, system and requirements engineering
2, 3	Software process, agile engineering
4	Ubiquitous computing and programming environments
5,6	Software project economics: estimation and scheduling. Project management.
7,8	Software design, architectural design and component level design, interface design
9,10	Software testing strategies and techniques
11,12	Software metrics, process metrics
13, 14	Risk and quality management
15	Change management

#### 4. Tests

The course will include a midterm test and a final exam.

#### 5. Project

Comprehensive project is the cornerstone of this class. Class participants will organize 3-5 person project teams. The project could be a continuation of the one you developed in CS 230, although most students select more exciting topics. You are advised to start working on the project early, in order to avoid delayed submission. Project deliverables will follow the software development lifecycle dynamics. Each day of delay will cost you 5% of the grade. Detailed project description will be distributed in class and made available on the class Web page.

#### 6. Grading

Test and the final exam will count approximately 40% of the final grade. The remaining 60% will be derived from programming assignments. **You must obtain a passing grade (60% or higher average) in both parts (tests and assignments) in order to pass the course. THERE WILL BE NO EXCEPTIPONS TO THIS RULE.**

Please, note that this is an intended grading framework. The final weights may be slightly different. Adjustments, if any, will have to be announced and approved by all the students in class.

#### 7. Academic Honesty

Students are encouraged to discuss class topics between themselves. **However, collaboration during the implementation of programming assignments, homeworks and tests is strictly forbidden. Also forbidden is downloading of solution programs from Internet. Please, be aware that your programs/homeworks/tests will be AUTOMATICALLY compared with each other during the evaluation. Assignments with non-accidental similarities will receive the grade zero (0%). Repeated offense will lead to an F in the class.**

#### 8. Social Justice Statement

West Virginia University is committed to social justice. I concur with that commitment and expect to foster a nurturing learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with Disability Services (293-6700).