Syllabus

CSC 144: Software Architecture

Department of Compute Science

Fall 2019 – Block 1

Instructor:
Ajit Chavan (West Science Hall 210, achavan@cornellcollege.edu)

Office Hours:
Monday – Friday 3:00 PM – 4:00 PM (West Science Hall 210)

TA :
Angel Fabila (afabila21@cornellcollege.edu)

Class Sessions:
9:00 – 11:00 am   Monday to Friday (West Science Hall 200)
1:00 – 3:00 pm   Monday to Friday (West Science Hall 200)

Course Description:
The main goal of this course is to give you a good amount of practice writing programs and developing software. We will work in teams most of the time on different problems and cover following topics:

1. **Object Oriented Programming (OOP)**
   We will cover fundamentals of Object-Oriented Programming and study OOP principles in detail. We will also solve few example problems to practice applying OOP principles in real world scenario.

2. **Java Basics**
   Throughout this course, we will use the Java programming language. We will start from an elementary "Hello world" program and go on to write complex java code. We will also learn more about java collections and Java swing library.

3. **Software Development Cycle**
   We will learn different phases of software development. We will learn a set of requirements can be transformed into working software. We will do a case study about one of the existing software to see how these phases apply to the software construction.

4. **Software Testing**
   Testing your program to make sure that it is correct is one of the most important phase of software development. We will see the definition of correctness. How to create different test cases and how to test and debug your program to find and fix the errors in your program.

5. **Software Architecture Patterns**
   We will learn what is the meaning of software architecture. What do we mean by software architecture pattern? We will also see different software architecture patterns and see some real-life examples of these patterns.

Assessment:

Your final grades will be based on your performance in different activities. I will also assess your progress throughout the semester. At any time in the course if you think that you are falling behind or not performing as good as you would like, please immediately contact me so that we can setup some plan for your success. The activities you will be assessed on are as follows:

1. **Daily Work:**
   This includes many things starting with your attendance. If you are miss many classes without any genuine reasons, you will lose most of these points. When you are present in the class, I will be continuously monitoring your attention, how well you participate in the group discussion, your attitude towards your colleagues etc. This does not mean that "you have to forcefully ask questions to earn these points" or "if you cannot answer questions you will lose a lot of points". We will discuss this in more detail during our first class session.

2. **Assignments:**
   There will be at least five assignments (each for 6%) in this course. These assignments are small and will mostly aimed towards providing you more practice to apply the concepts you will learn in the class. The secondary goal of these assignments is to for me to assess what direction the class is going, what concepts most of the students are struggling with and how to improve overall learning of the students in the class.

3. **Projects:**
   There will be two major projects (each for 15%) in this course. You will work in groups on both the projects. Your performance will be assessed on the basis of your involvement in team discussion, completion of each phase on time, quality of each phase, your contribution towards the project. We will discuss more about the projects as we progress through the block.

Grades:

Total grades will be divided as follows:

Daily work	40 %
Assignments	30 %
Projects	30 %

Letter grades will be allocated using following table:

Letter Grade	Percentage
A+	[97-100]
A	[94-97)
A-	[90-94)
B+	[87-90)
B	[84-87)
B-	[80-84)
C+	[77-80)
C	[74-77)
C-	[70-74)
D+	[67-70)
D	[64-67)
D-	[60-64)
F	[0-59]

Grades will not be curved, which means your grades depend upon your performance and your performance only.

Policies

Cornell College is committed to providing equal education opportunities to all students. If you have a documented learning disability and will need any accommodation in this course, you *must* request the accommodation(s) form the instructor of the course no later than the third day of the term. Additional information about the policies and procedures for accommodation of learning disabilities is available on Cornell College's Web Site.

Please also familiarize yourself with the college's statement on academic honesty and its policies for dropping courses.

Piazza

This block we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. We will discuss more about this during our first class.

Goals

After successfully completing this course, you will become a more confident programmer. This course will prepare you for a study of algorithms and data structures.

We will give special attention to three of Cornell College's Educational Priorities and Outcomes:

- Reasoning- You will learn how to apply reason in the design, development, and testing of software.

- Communication- You will learn how to communicate with clients and teammates.

- Ethical Behavior- You will learn how ethical conduct helps define professional practice in software engineering.

Key to Success

To succeed in the course and to get maximum out of the course, you can follow few tips:

1. **Ask questions:** *Do not hesitate to ask questions.* I would prefer you asking questions in the class, but if you are not comfortable asking questions in the class, feel free to stop by my office after the class.

2. **Take notes:** Please take notes during the class. You can ask me to take a break so that you can complete taking down notes. Many times, you may think that you have complete understanding of a concept only to realize that you don't actually remember many details when you want to apply the concept to solve problem.

3. **Start Early:** Do not wait until the last day to start working on the assignments and project. Running against the deadline will most likely limit your learning process as you will be more motivated to finish the assignment rather enjoying the problem-solving part.

4. **Ask for help:** If you do not understand certain concepts, want more explanation or more examples feel free to reach out to me at any time. You can ask for help from your classmates, tutor or from me. You are highly encouraged to use piazza to ask for help. You can also post a question anonymously. Your classmate, TA and I can answer the questions.