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 LSC: App 9/4/14  
 UWUCC: App 9/16/14  
 Senate: App 10/7/14

REVISION APPROVAL COVER SHEET FOR CONTINUATION OF W-DESIGNATION

TYPE II DEPARTMENT COMMITMENT

Professor Dr. Terrence Fries  
 Department Computer Science  
 Email t.fries@iup.edu  
 Course COSC 319W Software Engineering Concepts

Please provide answers to these questions on the next page:

1. Include the most recent syllabus for the Type II course.

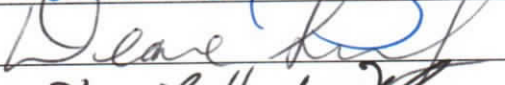
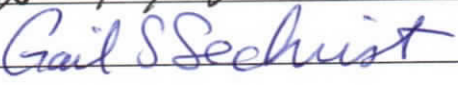
The syllabus is attached. A major writing component is contained in the group project which requires three large milestone documents to be produced during the software engineering process:

1. Project Proposal
2. Software Requirements Specification
3. Design Specification.

Grading for each of the milestone documents includes grammar, style, and a cogent presentation. Students are required to address recommendations by the instructor and make the appropriate modification in subsequent documents.

In addition, students write several critical analyses of research papers and/or opinion papers in software engineering as class assignments. Grading these analysis papers includes grammar, style, and a cogent presentation.

2. The Computer Science Department "Statement Concerning Departmental Responsibility" is attached.

Approvals:	Signature	Date
Professor (s)		4/11/14
Department Chair		4/11/2014
College Dean		4/24/14
Director of Liberal Studies		9/4/14
UWUCC Co-chair(s)		9/16/14

Received  
 MAY 2 2014  
 Liberal Studies

## COSC 319

## Software Engineering Concepts

Spring 2014

**Time/Room** 9:30 – 10:45 a.m. Tues STRGT 331 / Thurs STRGT 320

**Professor** Dr. Terry Fries  
**Office** Stright 317  
**Phone** (724) 357-4492  
**E-Mail** t.fries@iup.edu

**Office Hours** M-T-W-R-F 11:00 a.m. – 12:00 p.m.  
Other times available by appointment.

**Prerequisites** COSC 310 (Data Structures and Algorithms)

**Required Text** *Object-Oriented and Classical Software Engineering, 8<sup>th</sup> Edition*, Stephen Schach, McGraw-Hill, 2011. [ISBN-10: 0-07-337618-3 / ISBN-13: 978-0-07-337678-9]

**Reference Text** *UML 2 and the Unified Process, 2<sup>nd</sup> Edition*, Jim Arlow and Ila Neustandt, Addison Wesley, 2005. [ISBN-10: 0-321-32127-8 / ISBN-13: 978-0-321-32127-5]

### Course Description

Software engineering concepts include the collection of tools, procedures, methodologies, and accumulated knowledge about the development and maintenance of software-based systems. This course is strongly suggested for any student planning to take an internship in Computer Science. After an overview of the phases of the software lifecycle, current methodologies, tools, and techniques being applied to each phase will be discussed in depth with localized exercises given to reinforce learning of concepts.

### Course Objectives

Upon successful completion of this course, the students will be able to:

1. Define the current state of software development and maintenance characterized as "the software crisis."
2. Understand the multidimensional aspect of software engineering, which is the current best attempt at solving the software crisis.
3. Become familiar with popular models of the software development and maintenance process.
4. Using the waterfall model, study the inputs, outputs, and processes present in each phase.
5. Study the core concepts present in several popular methodologies and be able to identify strengths and weaknesses of each.
6. Study existing CASE tools to be able to identify opportunities to automate tasks through the use of such tools.
7. Consider the issues and techniques present in confidence gaining measures residing in each phase of the software lifecycle.
8. Briefly investigate problems present in project management.

## Course Outline

A. Course Introduction and Administration	0.5 hrs.
B. The Software Crisis and Software Engineering	3.0 hrs.
C. The Software Life Cycle - A Model of Software Development	1.5 hrs.
D. Requirements Analysis	1.5 hrs.
E. Design Issues	3.0 hrs.
F. Design Methodologies	6.0 hrs.
G. Implementation Techniques	3.0 hrs.
H. Development Tools	3.0 hrs.
I. Software Quality	6.0 hrs.
J. Generic Code and Automatic Code Generation	6.0 hrs.
K. Programming Environments	3.0 hrs.
L. Management of Software Development	3.0 hrs.
M. Maintenance	3.0 hrs.
Exams (2)	2.0 hrs.

## Evaluation Method

### Grade Distribution

Exams (2)	40%
Group Project	30%
Assignments	30%

### Grading Scale

90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
< 60%	F

## Classroom Policies

### Attendance

Attendance is expected for all scheduled class meetings. Students are responsible for registering their attendance by signing in on the attendance sheet each class. Students are responsible for all material covered in class and in the textbook readings. All lecture slides and assignments will be posted on Moodle. In the event that you must miss class, please do not contact me asking what you missed. It is your responsibility to acquire any handouts or assignments from Moodle or classmates. Please note that Moodle is not a substitute for class attendance. The lecture slides contain only an outline of the complete material discussed in class.

You are allowed 3 unexcused absences without penalty. After these first 3 unexcused absences, 3% will be deducted from your overall grade average per absence. I start class on time and expect students in class when it starts. Late arrivals are disruptive and inconsiderate to your classmates. Persistent tardiness will be counted as absences. To obtain an excused absence, students must present written/electronic notification, preferably before the event. (Events include: illness—written excuse from a doctor or Health Center; university activities—letter from faculty member; funerals of relatives; religious observances—letter from your religious leader.) If arrangements are needed to make up missed course work, please notify the professor **by e-mail** (not in person!) as soon as possible. NOTE: Excused absences do not automatically waive or eliminate late penalties.

## **Exams**

No make-up exams will be given unless you have obtained the instructor's permission *prior* to the exam time. Permission will only be granted for valid reasons such as a documented illness. Students who arrive late for an exam or a quiz will not be allowed additional time.

## **Late Assignments**

Late assignments will receive a 10% per day penalty. No assignments will be accepted later than one week after the due date.

## **Group Project**

A major group project will allow each team to design and implement a real world project using the software engineering techniques covered in the course. Students will be divided into teams of 4. The project will consist of a set of milestones with corresponding document and a presentation:

1. Project Proposal
2. Software Requirements Specification
3. Design Specification
4. Delivery of Final Product

The members of each team will evaluate the extent to which their fellow team members contributed to the team. A student who contributes little or nothing to the team project may receive a grade of F for the course.

## **Grade Appeals**

An appeal of a grade must be submitted to the professor in writing within one week of the return of the graded item to the student. The appeal must clearly state the reason you believe that the grade should be changed and include the original graded item in question. The instructor reserves the right to re-grade the entire assignment.

## **Student Conduct in Class**

Any behavior that becomes disruptive to the class will not be tolerated and dealt with according to the Academic Code of Conduct in the Student Handbook. Do not use e-mail, Instant Messenger, any social network (Facebook, MySpace, etc.) or surf the Internet while I am lecturing.

## **Electronic Devices in Class**

Cell phones, pagers, CD players, radios, and similar devices are prohibited in the classroom and laboratory facilities.

## **E-mail Communication**

I will normally respond to e-mails within one day. I do not guarantee a response to student e-mails on weekends. To ensure confidentiality, all e-mail communication by students regarding class issues should be conducted via their IUP e-mail address. E-mail from other addresses will not be answered. Always provide the course number and section number in the subject of an email. Never send me email without a subject or with a null body. E-mails violating any of these requirements will very likely be discarded as spam. I regret any inconvenience arising from these restrictions; however, they are necessary due to the high volume of junk mail I receive.

## **Academic Integrity**

You are expected to uphold the school's standard of conduct relating to academic honesty. You are responsible for the content and integrity of the academic work submitted. **VIOLATION OF THE HONOR CODE CAN INCLUDE ZERO FOR THE ASSIGNMENT (AT MINIMUM), FAILURE FOR THE COURSE, AND A REPORT FILED WITH THE OFFICE OF STUDENT AFFAIRS.**

A student is considered to be in violation of the honor code if he/she:

1. Provides or receive unauthorized assistance in coursework, with lab work, or during examinations or quizzes.
2. Plagiarizes reports, assignments, presentations, or other academic work by representing the work of another person as his/her own.
3. Uses the same paper or work more than once without my prior authorization.
4. Modifies an examination paper, assignment, or report for the purpose of obtaining additional credit.
5. Possesses course examination materials before the administration of the exam, without my prior knowledge or consent.
6. Commits computer dishonesty, including: tampering with or making unauthorized change to another person's or the university's computer system, illegally copying computer software, personal use of another individual's computer account, unauthorized activity involving another individual's personal computer system or any system belonging to the university, and other unauthorized use of violations involving computer use.

## **Final Exam**

The final exam is comprehensive and according to the schedule established by IUP will be:

Thursday, May 8

8:00a.m. – 10:00 a.m.

## **Computer Science Department Statement of Responsibility for Writing Intensive Courses**

1. The chair shall provide a copy of this agreement to each faculty member assigned to teach a Writing Intensive course.
2. Each faculty member assigned to teach a Writing Intensive course agrees to the following criteria:
  - a. Writing assignments are an integral component of the course which will be designed to enhance student learning.
  - b. Writing assignments may take the form of case studies, reports, research papers, essays, project documents, etc.
  - c. A clear objective of the course will be the improvement of student writing.
  - d. Students will be provided written instructions that discuss the major criteria for evaluation of writing assignments.
  - e. Student will receive guidance in conceiving, organizing, and cogently presenting written material in formats appropriate to Computer Science.
  - f. Writing assignments will include at least one major assignment and several shorter assignments that relate to the course material.
  - g. Students will produce at least 5000 words of writing that will be critically evaluated.
  - h. Students will be required to submit a draft of at least one major writing assignment that will be returned with instructor comments and/or suggestions for improvement. Students will have the opportunity to revise the written work before final submission.
  - i. Students will submit final copies of written assignments for critical evaluation.
  - j. Instructor evaluation of written work will comprise at least 50% of the course grade.
  - k. At the end of the semester, instructors of W courses will submit copies of their syllabi to the curriculum committee for review.
  - l. At the end of the semester, instructors of W courses will submit copies of completed writing assignments to the curriculum committee for review by the committee and the department chair. This is required by ABET for accreditation.