ECE 321/321H Syllabus
Spring 2016

Instructor: Michael Cubley
Office: ENGR E-218
Email: mcubley@siu.edu
Office Phone: 453-7038

Office Hours: MWF - 10:00 to 11:00 am
TR – 10:00 to 11:30 am or by appointment
Lecture: MWF - 3:00 pm – 3:50 pm, ENGR E-136
Lab: W - 4:00 pm – 4:50 pm, ENGR E-136

Graduate Assistant: Ioannis Galanis
Office Hours: TBA

Grading/Evaluation:
Homework, Labs & Project 50%
Midterm Exam 25%
Final Exam 25%
A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: <60

Classroom Policies:

A. Attendance Policy: Attendance should be considered mandatory, will be taken at random times throughout the semester, and will be counted toward the final grade within the homework and quiz scores. Students are responsible for all announcements made in class and/or posted on SIU Online.

B. Late Homework/Missed Exams: Late homework will not be accepted. If an exam is to be missed for a legitimate reason, I should be notified in advance if at all possible and an alternate exam will be given at a designated time.

C. Mobile Technology Policy: Use of electronic devices within the classroom should be avoided. Your phone should be placed on silent when the class begins. During exams or quizzes, all electronics will be placed under the desk or within your bag.

1 Pages 3 and 4 are for ABET
D. **Homework:** Assignments may require you to work individually or in teams. In case of team assignments, one solution must be submitted by each team. All submissions must be made online. Programming assignments will be evaluated based upon fulfillment of functional requirements, coding style and documentation.

E. **Group work:** Programming assignments will mostly be required to be carried out individually. For group assignments, if a student’s name appears on a solution set, it certifies that he/she has participated in solving the problems. You are responsible for collaborative work within your group. It is imperative that you address lack of participation prior to turning in an assignment to ensure full credit. You may do so by first consulting the TA (and then the instructor if necessary) in case of problems that cannot be resolved within your group.

F. **Peer evaluation:** Group assignments are graded based on the number of points assigned to your solution multiplied with a personalization factor. This factor is the average of the factors indicated by you peer group members for your contribution to the group assignment. For example, if you are assigned sub-problem S and you handle the sub-problem on your own, your peers should give you 100% on the peer evaluation. However, if you only solve part of S and other group members have to pick up your work and complete it, your peers may give you a much lower evaluation.

G. **Group change:** Group changes are only permissible through written request with justification within 48 hours after the due date of an assignment. Such requests have to be directed to the TA. New assignments are effective if and when the TA approves it. If a group member does not contribute his/her share toward the homework, other group members may elect to “fire” this member. As with group changes, this is only permissible within a 48 hour window after a due date and by written request to the TA. It must include documented justification by each member favoring such an approach. Your justification should be based primarily on peer evaluation.
1. **Course number and name:** ECE 321/321H Introduction to Software Engineering

2. **Credits and contact hours:** 4 credits. Three 50-minute sessions per week. One 50 minute lab session per week.

3. **Course Committee:** H. Ramapresad, N. Botros, D. Kagaris

4. **Textbook(s), title, author, and year:**

   **References or other supplemental materials:**
   [1] www.cplusplus.com

5. **Specific course information**
   1. Catalog Description: Introduction to tools, concepts and techniques to develop complex software projects. The tools include object-oriented programming and advanced data structures. Concepts and techniques include introduction to principles of operating systems and introduction to software engineering, including requirements specifications, design methodology, and testing.

   2. **Prerequisites or co-requisites:** ECE-222, ECE-225 with a grade of “C” or better

   3. **Indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program:** Required for CpE majors

   4. **Professional Components (Credit Hours)**
      Mathematics 0 Sciences 0 General Ed. 0
      Eng. Science 2 Eng. Design 2

6. **Instructional Objectives (with SO’s)**
   The student is expected to be able to:
   1. Understand advanced data structures and be able to choose suitable data structures (such as linked lists, queues, stacks and trees) for programs. (a, c)
   2. Understand the principles of object-oriented programming, including encapsulation, inheritance and run-time polymorphism. (a, e)
   3. Understand the principles of software engineering, with special focus on object-oriented design using C++. (a, c, e, i, k)
   4. Understand the principles of operating system design. (c, i, k)

7. **Brief list of topics (class, lab and project) to be covered (with hours)**
   a. **Classroom Topic** (classes)
      1. Revision of procedural programming concepts 3
      2. Advanced data structures including linked lists, queues, stacks and trees: structure, supported operations, complexity of operations, traversal. Case study I: Implementation of a data structure using procedural approach. 8
      3. Introduction to object-oriented programming: classes, objects and encapsulation. Case Study 2: Implementation of a data structure using object-oriented approach. 6

---

2 Subject to change at the instructor’s discretion
4. Introduction of software engineering concepts: requirements engineering, object-oriented design and testing 4

5. Case study 3
   Identification of case study 1
   Requirements engineering using UML use-case diagrams and sequence/scenario diagrams. 3
   Object-oriented design using noun and verb analysis, sequence/scenario diagrams and C-R-C cards. 5
   Object-oriented implementation; introduction to inheritance and run-time polymorphism; unit testing 5

6. Case study 4: Operating System design
   Requirements discussion: modularity, information hiding, abstraction, user interface 3
   Design principles discussion: object-oriented approaches for achieving requirements. 3

8. **CAD and Computer Tools Used:** Visual Studio IDE

9. **Assessment of the Contribution to Student Outcomes**

<table>
<thead>
<tr>
<th>Outcome →</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>E</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>j</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessed →</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Important Dates**

- Semester Class Begins 01/19/2016
- Last day to add a class 01/24/2016
- Last day to withdraw completely and receive a 100% refund 01/31/2016
- Last day to drop a course using Salukinet 04/03/2016
- Last day to file diploma application 02/12/2016
- Final Examinations 05/09 – 05/13/2016
- Spring Break 03/12 – 03/20/2016
University Policies

A. Incomplete Grades: An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within a time period designated by the instructor but not to exceed one year from the close of the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, not to exceed one year, or graduation, whichever comes first, the incomplete will be converted to a grade of F and the grade will be computed in the student’s grade point average. Students should not reregister for courses in which an INC has been assigned with the intent of changing the INC grade. Re-registration will not prevent the INC from being changed to an F.

B. Academic Integrity: You are expected to submit your original work and adhere to the academic policies as stated in the SIU Student Conduct Code: http://srr.siu.edu (listed under Additional Links). Any act of academic dishonesty, cheating, or plagiarism in any form, including anonymous internet sources used in student papers, will be reported. These acts are taken seriously and the consequences may range from failing an assignment to expulsion from the university.

C. SIU Email: Your SIU email account is an official form of University communication. Your instructor will use SIU email as a primary means of electronic communication with students. Please make sure that you maintain a valid password and acquire the habit of regularly checking your SIU email account for important instructor and University announcements. You may view the official SIU Student Email Policy at: http://policies.siu.edu/policies/email.html.

D. Emergency Procedures: SIU is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with SIU Emergency Response Plan and building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT’s website at http://www.bert.siu.edu/, the SIU Department of Public Safety’s website www.dps.siu.edu (disaster dropdown and video, “Shots Fired”), and in the Emergency Response Guideline pamphlet. Know how to respond to each type of emergency. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building and sheltering within the facility.
E. **Supplementary Assistance:** SIU is committed to assisting students with disabilities. With the cooperation of SIU’s Disability Support Services (DSS), each student who qualifies for reasonable supplementary assistance has the right to receive it. Students requesting supplementary assistance must first register with DSS in Woody Hall, B-150, 618-453-5738 or 618-453-2293 (TTY), by email DSS@siu.edu, or http://disabilityservices.siu.edu/. Notice: If you have any type of special need(s) or disability for which you require accommodations to promote your learning in class, please contact me as soon as possible. The Office of Disability Support Services (DSS) offers various support services and can help you with special accommodations. You may wish to contact DSS to verify your eligibility and options for accommodations related to your special need(s) or disability.

**Student Services**

A. **Learning Support Services:** The Center for Learning Support Services (CLSS) assists students of all cultures, abilities, backgrounds and identities with enhancing their self-management and interdependent learning skills. Programs offered by CLSS include: group study sessions, math tutoring, academic coaching, early intervention program, and study skills seminars. For additional information please contact CLSS in Woody Hall, Room A-313, 618-453-2925, or www.tutoring.siu.edu.

B. **Writing Center:** The Writing Center offers free tutoring services and assistance with improving writing skills to all SIU undergraduate students and faculty. For center locations and hours, to schedule an appointment online, and to view information regarding the Online Writing Lab (OWL) contact the Writing Center at 618-453-1231 (Morris Library location), 618-453-2927 (Trueblood location), or www.write.siu.edu.

C. **Saluki Cares:** The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. To make a referral to Saluki Cares click, call or send: http://salukicares.siu.edu/index.html; 618-453-5714, or siucares@siu.edu.