CS/DES/IT/WEB 4990: Tangible Interaction

Fall 2018 Syllabus

Course Description

This course explores the use of tangible interaction in relationship to emerging technologies. Students will explore how humans interact with technology while creating tangible objects that affect how we work, play, communicate and learn.

Prerequisites

CS 1400 (grade C or higher) and DES 2100 (grade C or higher), or instructor permission.

Course fees

Course fee: $20, used to assist in maintaining computing infrastructure.

Disability Statement

If you suspect or are aware that you have a disability that may affect your success in the course you are strongly encouraged to contact the Disability Resource Center (DRC) located in the North Plaza Building. The disability will be evaluated and eligible students will receive assistance in obtaining reasonable accommodations. Phone # 435-652-7516.

Title IX Statement

DSU seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment/misconduct/assault we encourage you to report this to the college's Title IX Director, Cindy Cole, (435) 652-7731, cindy.cole@dixie.edu. If you report to a faculty member, she or he must notify the Title IX Director about the basic facts of the incident.

Sections

One section:

1. TR at 10:30 am–11:45 am in Smith 109
   - CRN: 42684 (CS 4990)
   - CRN: 42826 (DES 4990)
   - CRN: 42691 (IT 4990)
   - CRN: 42694 (WEB 4990)

   Final exam: Tues, Dec 11 at 9:00 am–10:50 am

Instructor

Instructor: DJ Holt

Email: djholt@dixie.edu

Office hours: see here

Objectives

At the end of the course, students will:

- Recognize how interactions between humans and technology in the real world can facilitate educational and functional experiences.
- Understand the basic principles behind microcontrollers, electronic circuits, sensors, actuators, and digital vs. analog communication.
- Demonstrate how to build working exhibits using physical materials and modern technologies that
incorporate interactive elements.
- Apply design-thinking principles to physical mediums in order to effectively capture attention, communicate ideas, and inspire.

**Resources**

**Computer Labs**

You may use the computers in the Smith Computer Center. There will also be lab assistants in this lab. Not all assistants will be qualified to assist with this course.

The computers provided within the CIT lab facilities have all necessary software installed and configured as required for the course. Students may use personal computers to complete course assignments, however, this will require several software components to be correctly installed and configured. While this will not be covered in class, students may request individual help from the instructor.

**Course Website**

This course has an accompanying website. You are responsible for staying apprised of updates to the website. Grades will be posted to Canvas, which is available here: [http://canvas.dixie.edu](http://canvas.dixie.edu)

**Assignments and Exams**

**Reading**

This course has no required text; however, students will be expected to find and reference online documentation and examples to assist with the completion of assignments. Additional reading resources can be recommended upon request.

**Assignments**

A series of projects will be assigned throughout the course. Assignments are due at 11:59pm on the date specified in Canvas. See below for the course late work policy.

**Exams**

A comprehensive final project will be assigned during the second half of the semester.

**Grading**

Each project, including the final project, will contribute toward your final point total. The number of points for each project will vary.

Projects may involve working collaboratively with other students in the class, where work may be divided equally among all contributors. Your score for such projects will be based on your own contributions (or lack thereof), and your score may reflect evaluations requested from your peer(s) by the instructor (pending validation by the instructor).

Letter grades are assigned based on the percentage of possible points attained, according to the following chart:

<table>
<thead>
<tr>
<th>Minimum Percentage</th>
<th>Letter Grade</th>
<th>Minimum Percentage</th>
<th>Letter Grade</th>
<th>Minimum Percentage</th>
<th>Letter Grade</th>
<th>Minimum Percentage</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>94</td>
<td>A</td>
<td>84</td>
<td>B</td>
<td>74</td>
<td>C</td>
<td>64</td>
<td>D</td>
</tr>
<tr>
<td>90</td>
<td>A-</td>
<td>80</td>
<td>B-</td>
<td>70</td>
<td>C-</td>
<td>60</td>
<td>D-</td>
</tr>
<tr>
<td>87</td>
<td>B+</td>
<td>77</td>
<td>C+</td>
<td>67</td>
<td>D+</td>
<td>0</td>
<td>F</td>
</tr>
</tbody>
</table>

**Course Policies**

**Attendance**

Students are responsible for material covered and announcements made in class. School-related absences may be made up only if prior arrangements are made. The class schedule is approximate and the instructor reserves the right to modify the schedule according to class needs; changes will be announced in class. Exams and quizzes cannot be made up unless arrangements are made prior to the scheduled time of the
Occasional absences are acceptable as long as the student maintains current progress on assignments; however, students who miss more than two consecutive weeks of class or who miss more than 20% of scheduled classes during the semester without making prior arrangements will receive a failing grade. Students who miss any scheduled exam or fail to complete a final project without making prior arrangements will receive a failing grade.

This course can only be completed by attending classes and completing all assigned work to a satisfactory level. There is no procedure for testing out of the class.

**Time Commitment**

Courses should require about 45 hours of work per credit hour of class. This class will require about 135 hours of work on the part of the student to achieve a passing grade, which is approximately 9 hours per week. If you do not have the time to spend on this course, you should probably rethink your schedule.

**Late Work Policy**

Assignments are due on the date specified in Canvas, for full credit. Assignments may be submitted not more than seven (7) calendar days beyond the specified due date, including weekends and holidays, subject to a penalty determined by the degree of lateness compounded by late work submitted earlier in the semester (i.e. each late submission will result in progressively more severe late work penalties thereafter). Assignments will not be accepted after this period of time (except under exceptional circumstances decided by the instructor, if prior arrangements are made with the instructor). No late work will be accepted after the last day of class, with absolutely no exceptions. Exams cannot be made up, unless arrangements are made with the instructor prior to the date of the exam.

**Collaboration**

Limited collaboration with other students in the course is permitted. Students may seek help learning concepts and developing programming skills from whatever sources they have available, and are encouraged to do so. Collaboration on assignments, however, must be confined to course instructors, lab assistants, and other students in the course. Students are free to discuss strategies for solving programming assignments with each other, but this must not extend to the level of programming code. Each student must code his/her own solution to each assignment. See the section on cheating.

**Cheating**

Cheating will not be tolerated, and will result in a failing grade for the students involved as well as possible disciplinary action from the college. Cheating includes, but is not limited to, turning in homework assignments that are not the student’s own work. It is okay to seek help from others and from reference materials, but only if you learn the material. As a general rule, if you cannot delete your assignment, start over, and re-create it successfully without further help, then your homework is not considered your own work.

You are encouraged to work in groups while studying for tests, discussing class lectures, discussing algorithms for homework solutions, and helping each other identify errors in your homework solutions. If you are unsure if collaboration is appropriate, contact the instructor. Also, note exactly what you did. If your actions are determined to be inappropriate, the response will be much more favorable if you are honest and complete in your disclosure.

Where collaboration is permitted, each student must still create and type in his/her own solution. Any kind of copying and pasting is not okay. If you need help understanding concepts, get it from the instructor or fellow classmates, but never copy another’s code or written work, either electronically or visually. The line between collaborating and cheating is generally one of language: talking about solutions in English or other natural languages is usually okay, while discussions that take place in programming languages are usually not okay. It is a good idea to wait at least 30 minutes after any discussion to start your independent write-up. This will help you commit what you have learned to long-term memory as well as help to avoid crossing the line to cheating.

**College Policies**

Additional college policies, calendars, and statements are available online at [http://academics.dixie.edu/syllabus/](http://academics.dixie.edu/syllabus/).