USC Viterbi
School of Engineering

ITP 499: Professional Development for Software Engineers

Units: 2
Fall 2020 – Thursday – 6:00pm-7:50pm

Location: Please refer to the Schedule of Classes

Instructor: Matthew Whiting
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Office Hours: TBD
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Teaching Assistant: Nicolas "Nico" Filip-Sanchez
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IT Help: Viterbi IT (https://viterbiit.usc.edu/)
Hours of Service: Variable
Contact Info: engrhelp@usc.edu

Course Description

This course will focus on teaching engineering students how to present practical computer science topics and practice non-technical skills that will make them strong communicators. These are important skills for job interviews and beyond.

Learning Objectives

To become comfortable communicating complex computer science topics via whiteboarding and coding. Develop confidence and communication skills needed to market oneself and be a holistic engineer.

Recommended Preparation

CSCI-104, CSCI-201, or ITP-365. Students should be familiar with or be willing to quickly learn Python. Experience with data structures and algorithms.

Course Notes

This course will be taken for a letter grade. Lectures will take place in person, but we will use Blackboard for course logistics. Slides during the course will be posted on Blackboard after the lecture has been completed.

Each lecture will recap topics that students with the requisite knowledge have already learned and focus on communicating applications of these topics.

Communication will be key as students will be expected to speak in front of others and talk about relevant topics.

Students who aspire to pursue graduate school or become leaders in their engineering organizations will be relied on to articulate complex topics and demonstrate an understanding of their field.

Technological Proficiency and Hardware/Software Required

Python will be the primary language for this course given its popularity, versatility, and ease of use. Using Python will allow students to write clean and concise solutions, allowing them to focus on the algorithm and not the language's syntax. For a development environment, it is recommended that they install PyCharm to reduce code compatibility issues.

Required Readings and Supplementary Materials

Cracking the Coding Interview: 189 Programming Questions and Solutions (6th Edition). Gayle Laakmann McDowell. ISBN-13: 978-0984782857.

Links to article readings will be provided.

Description and Assessment of Assignments

Homework

Homework will be a combination of third space thinking exercises and coding problems that apply to recently covered topics.

Technical homework assignments will be python programs to be submitted on codepost.io.

Homework needs to be completed individually prior to the beginning of the following class meeting. In addition, each student must be prepared to present their solutions for discussion with the class.

Homework Presentation

Each week students will be expected to present their assignment solutions from the previous homework. Two students will be selected, and each will explain one of the questions to help them with professional communication skills.

Industry Article Write-Ups

Students will write a one-page, double spaced (~300 words), report on a relevant tech article they found. There is an article write-up due before every class meeting. Articles must be taken from reputable tech news sites (for example techcrunch.com, wired.com), a major news source that has a tech section, or a research paper. At the beginning of each class, 1-2 students will be randomly chosen to present for around 2 minutes each on the tech article they chose to read for their write up. This will help them increase their knowledge of the industry and improve their on-the-spot presentation skills. The write up will be graded based on completeness and is expected to be written at a college level. For those students presenting, half the grade will be the writing portion and the other half will be based on their ability to clearly articulate what they wrote about. Those students who are not presenting during that class period are only graded on completeness.

Live Coding Challenges

Every week, 2-3 students will participate in a live assessment to demonstrate their knowledge and ability to articulate the covered topics. Each student will be asked to do a live coding challenge once during the semester. Students will be asked to write an algorithm on the whiteboard in front of the class. During the assessment, the other students will pay attention and make notes on what they thought was good/needed improvement. After the instructor's initial critique, the other students will have the opportunity to comment. 40% of the grade is based on the student's ability to apply their technical knowledge to solve the problem. 40% of the grade is based on the student's ability to use TST techniques to effectively communicate given time pressure. The final 20% of the grade is based on whether or not the right answer was achieved. We are trying to show how although getting the right answer is important, being able to step your interviewer through your thought process is also important.

Final Project

In lieu of a final exam, students will be asked to complete a coding challenge on a predetermined course topic. The assessment can be completed from anywhere and will be administered via, codepost.io a platform that allows for automated grading and testing of code. As an accompaniment to the final coding challenge students will complete a mock interview with the instructor.

Grading Breakdown

Assignment	**% of Grade**
Homework	50
Homework Presentation	5
Industry Article Write Ups	15
Live Coding Challenge	10
Final Project	20
TOTAL	100

Grading Scale

Course final grades will be determined using the following scale A 95-100

A- 90-94
B+ 87-89
B 83-86
B- 80-82
C+ 77-79
C 73-76
C- 70-72
D+ 67-69
D 63-66
D- 60-62
F 59 and below

Assignment Submission Policy

All homework assignments will be submitted via Blackboard. Assignments submitted via email will not be accepted.

Grading Timeline

Assignments will be graded, and feedback will be provided within a week of the due date.

Additional Policies

Assignments can still be submitted late but will incur a 25% deduction for each day after the due date. Attendance is mandatory despite there being no attendance grade. Missing class will result in other penalties as you will miss your assigned date for in-class assessments and presentations.
In-class assessments and presentations cannot be rescheduled (except for an unforeseeable event) as this will disrupt the course schedule. Please do not schedule interviews during class time, but if it happens you must let us know and provide evidence of your scheduled interview. If you know you will be missing any classes at the beginning of the semester, please tell the instructor as soon as possible.

Course Schedule: A Weekly Breakdown

Notes: TST - Referenced from Third Space Thinking Syllabus. TST readings are listed by a number but listed at the bottom of this chart

Week	Topic	Homework Due	In-Class Presentation	In-Class Assessments	Reading to do Before Session
1 8-20	Intro, Third Space Thinking Overview				McDowell §I-II, McDowell §IV-V
2 8-27	Strings, Sets, Dictionaries, Lists, Tuples	Resume	Resumes	Live Coding Assessment	McDowell §IX.1, TST [1]
3 9-3	TST: The importance of Mindset	HW02 codepost.io	Guest: Luke Ravitch (Google) Homework presentation	In Class 03	TST [2] TST [3] TST [4]
4 9-10	Queue, Stack, Linked List	Article write up	Article summary	Live Coding Assessment	McDowell §IX.2, McDowell §IX.3
5 9-17	TST: Third Space Thinking and Making Ideas Tangible	HW04 codepost.io	Homework presentation	In Class 05	TST [5] TST [6] TST [7]
6 9-24	Trees, Graphs	HW05 blackboard, Article write up	Article summary	Live Coding Assessment	McDowell §IX.4
7 10-1	TST: Problem Space Versus	HW06 codepost.io	Homework presentation	In Class 07	TST [8] TST [9] TST [10]

	Solution Space				
8 10-8	Recursion & Dynamic Programming	HW07 blackboard, Article write up	Article summary	Live Coding Assessment	McDowell §IX.8
9 10-15	TST: Adaptability - The New Competitive Advantage	HW08 codepost.io	Homework presentation		TST [11] TST [12] TST [13]
10 10-22	Sorting, Searching	HW09 blackboard, Article write up	Article summary, Homework presentation	Live Coding Assessment	McDowell §IX.9, McDowell §IX.10
11 10-29	TST: How Not to Get a Job	HW10 codepost.io	Homework presentation		TST [14] TST [15] TST [16]
12 11-5	Code review, source control	HW11 blackboard, Article write up	Article summary	Live Coding Assessment	
13 11-12	Course Wrap-Up		Article summary, Group Activity: Mock Interviews	Live Coding Assessment	TST [17] TST [18]
Final		Final Coding Challenge, Mock Interview	Due by the date of the scheduled final exam. Please see the Schedule of Classes for the University scheduled final exam date.		

List of TST Readings

Week 2

[1] How Emotional Intelligence Became a Key Leadership Skill – Harvard BuinessReview, Andrea Ovans
https://hbr.org/2015/04/how-emotional-intelligence-became-a-key-leadership-skill

Week 3

[2] The Importance of Mindset – whitepaper, Richard Miller
http://www.olin.edu/sites/default/files/oct_16_white_paper-the_importance_of_mindset1.pdf

[3] What Google Learned from its Quest to Build the Perfect Team
https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html

[4] Additional reading (optional):
Mindset: The New Psychology of Success, Chapters 1-3, Carol Dweck.

Week 5

[5] Agile versus Lean versus Design Thinking
https://medium.com/@jboogie/agile-vs-lean-vs-design-thinking-2329df8ab53c

[6] What Is Design Thinking and Why Is It So Popular?
https://www.interaction-design.org/literature/article/what-is-design-thinking-and-why-is-it-so-popular

[7] Additional reading (optional):
Olsen D (2015) The Lean Product Playbook, Introduction + Chapters 1 and 2

Week 7

[8] Problem Space vs Solution Space, Nikhil Gupta -
https://medium.com/@nikhilgupta08/problem-space-vs-solution-space-f970d4ace5c

[9] Why Human Centered Design Matters, Wired Magazine
http://www.wired.com/insights/2013/12/human-centered-design-matters/

[10] Additional reading (optional):
Olsen D (2015) The Lean Product Playbook, Chapters 3 and 4

Week 9

[11] Adaptability: The New Competitive Advantage, Harvard Business Review
https://hbr.org/2011/07/adaptability-the-new-competitive-advantage

[12] Constantly Changing Technologies: What's a Software Developer To Do?, Mashable
https://mashable.com/2010/12/20/constantly-changing-technologies/

[13] Additional reading (optional):
Bridges, W (2009) Managing Transitions, Chapter 6: How to Deal with Non-Stop Change

Week 11

[14] Ferrari, B (2012) The Executive's Guide to Better Listening, McKinsey Quarterly
https://www.mckinsey.com/featured-insights/leadership/the-executives-guide-to-better-listening#

[15] Mark Balbes (2014) Conflict and Resolution in the Agile World, ADTMag
https://adtmag.com/articles/2014/12/17/agile-conflict-resolution.aspx

[16] Additional reading (optional):
Harvard Business Review on Negotiation and Conflict Resolution, Chapter 3: The Team That Wasn't

Week 13

[17] Katzenbach, J (2012) Cultural Change that Sticks – Harvard Business Review -
https://hbr.org/2012/07/cultural-change-that-sticks

[18] Bennet, Milton J. (2014) The Development Model of Intercultural Sensitivity -
https://www.idrinstitute.org/dmis/

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu
Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710
campussupport.usc.edu
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101
diversity.usc.edu
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
ombuds.usc.edu
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.