Graduate Certificate: Software Development Engineering (GC-SDE)

Information Session
August 26, 2020
Logistics: Please note that this Zoom meeting is being recorded. The presentation will be made public on YouTube.

Please ask questions via “chat” to Curtis Black any time. Curtis will monitor questions, and we will later answer questions.
Introduction

Ka Yee Yeung, Professor (kayee@uw.edu)
Wes Lloyd, Assistant Professor (wlloyd@uw.edu)
Ling-Hong Hung, Research Scientist (lhhung@uw.edu): Instructor in Spring 2021
Tom Capaul, Assistant Teaching Professor (tcapaul@uw.edu): TCSS 502 Instructor in Autumn 2020
Curtis Black, Graduate Advisor (uwtcurt@uw.edu)
Graduate Certificate: Software Development Engineering (GC-SDE)

Program Overview

https://www.tacoma.uw.edu/set/graduate-certificate-software-engineering
WHY learn Software Development & Engineering (SDE)?

- Many careers outside of computer science leverage programming today in various ways
- Examples of careers that leverage computer science*: Animator, Modeler, Bioinformatics, Book Designer, Business Intelligence Analyst, Forensics Investigator, Computer Support Specialist, Concept Artist, Data Architect, Data Scientist, Database Analyst, Document Imaging Specialist, eCommerce Consultant, . . .
- Salary range: $80k - $130k
- Job security

HOW will the GC-SDE program help you to launch a new career?

> Acquire skills necessary to transition to software development
> Courses led by experienced software developers and instructors
> Hands on tutorials and assignments
> Full stack development capstone “team” project
> Career development resources and networking
  – counseling, resume review sessions, access to job postings, networking opportunities, panel discussions, and guest speakers from industry
WHO will benefit from the GC-SDE program?

> Anyone with a Bachelor’s degree having basic computer programming experience (e.g. introductory programming classes)
> Anyone looking to expand on programming skills through a focused program, but not wanting to pursue a post-baccalaureate degree
> Anyone looking to understand programming to get ahead in a current job, transition to a new job, or pursue a graduate degree in computer science
  – UW Tacoma MS in Computer Science & Systems: [https://www.tacoma.uw.edu/set/ms-computer-science-systems](https://www.tacoma.uw.edu/set/ms-computer-science-systems)

Designed for working professionals, with classes on Saturdays
Program Structure

> The GC-SDE provides six integrated, focused courses to help build programming and software engineering skills
> Each quarter provides a **balanced curriculum**:
> Lecture-based course: devoted to computer science theory and practical aspects of software development
> Companion lab course: accompanies the lecture course to provide students with hands-on practice writing programs and applying concepts
## Courses

<table>
<thead>
<tr>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCSS 501 Analysis of Algorithms and Data Structures</td>
<td>TCSS 503 Algorithms and Problem Solving for Software Engineers</td>
<td>TCSS 505 Systems Programming</td>
</tr>
<tr>
<td>TCSS 502 Object Oriented Programming (OOP)</td>
<td>TCSS 504 Software Engineering and Development Techniques</td>
<td>TCSS 506 Practical Full Stack Development</td>
</tr>
</tbody>
</table>
Introduces techniques used in algorithm analysis and data structures. Includes review of basic algebra, time space complexity, big O notation. Covers fundamental data structures and algorithms with an emphasis on implementing them in high-level programming languages. Emphasis on data structures such as array lists, linked lists, queues, stacks, trees, and hash tables, and algorithms such as sorting, selection, binary search, and application of recursion in data structures.

**Prerequisites:** TCSS 142 and TCSS 143 or equivalent.

**Instructor:** Kevin Anderson

**Class time:** Saturdays 9:30 - noon
Kevin Anderson

BS in Computer Science and Systems from UW Tacoma in 2013
MS in Computer Science from UW Tacoma in 2016.
Nearly 20 years of experience in technology, spanning the industries of education, healthcare, manufacturing, and aerospace.
Introduces object-oriented programming (OOP) skills and best practices in software design including concepts of inheritance, encapsulation, abstraction, polymorphism, and software design patterns. Algorithm analysis techniques and data structures from TCSS 501 will be leveraged in projects.

Prerequisites: TCSS 142 and TCSS 143 or equivalent.
Instructor: Tom Capaul
Class time: Saturdays 1:30 - 4:00pm
## Courses

<table>
<thead>
<tr>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCSS 501 Analysis of Algorithms and Data Structures</td>
<td>TCSS 503 Algorithms and Problem Solving for Software Engineers</td>
<td>TCSS 505 Systems Programming</td>
</tr>
<tr>
<td>TCSS 502 Object Oriented Programming (OOP)</td>
<td>TCSS 504 Software Engineering and Development Techniques</td>
<td>TCSS 506 Practical Full Stack Development</td>
</tr>
</tbody>
</table>
The program will start Saturday October 3rd.
Courses will be online via Zoom
Courses in the fall will include synchronous sessions on Saturdays and asynchronous sessions at-your-own-time on weekdays

Tuition (fees included): $2575/class x 6 classes = $15,450
WHEN and HOW can I apply?

WHEN:
> Registration is open today.
> The priority registration deadline is August 31, 2020

HOW:
> Visit the UW Grad School Application website and click on ‘Create a New Applicant Profile’ to begin your application process:
  ● Complete the corresponding applicant profile form
  ● Continue to the Graduate School Application
  ● In “Step 1” of the Application, choose "Graduate Non-Matriculated"
  ● In “Step 2” of the Application, choose the program:
    "Computer Science & Systems - Tacoma (MS in Computer Science & Systems)"