

- a. Course of study – proposed curriculum, including course numbers, titles, and credit hours.

The software engineering program differs from computer science in that it emphasizes the communication skills, methodologies, tools, technologies, teamwork, professional practice, design, and architectures critical for building scalable, long-lasting software systems. The program emphasizes these software engineering principles over, but not at the exclusion of, computer science principles. The curriculum includes high-impact, team- and project-based courses early in the curriculum, followed by computer science courses that explore the most important theoretical topics in computer science.

During year one, students engage in a team-based, real-world project in which they create a “full stack” application covering the significant topics in software engineering principles and industrial practice. While learning outcomes are not at the mastery level, students repeat this project-based experience going both deeper into all topics as well as focusing on the second year theme of “data”; that is, database management, statistics, data science, data mining, and data visualization.

Year three emphasizes the themes of scalability, security and operations and enables students to continue to move toward mastering the software engineering body of knowledge. In addition, year three marks a transition: the experience of computer programming and software engineering serves as a foundation for exploring deeper computer science topics. Year four emphasizes entrepreneurship and the business of software, complemented by additional computer science courses.

Lastly, throughout all four years of the curriculum, the software engineering program integrates experiential learning and professional practice. The program expects that each student be engaged in a professional apprenticeship throughout their academic career.

The program of study follows the degree standards at Oregon State University, incorporating both existing courses and new courses. The “SE” prefix indicates new courses, which are also followed by the CAT II proposal numbers (XXX).

***Freshman Skill Courses (16 credits) #BACC Core (48 cr) XXX- CAT II course proposal**

First Year	46 cr
Fall	15 cr
SE 101: Creative Problem Solving with Code I (2) (XXX)	
SE 111: Introduction to Software Engineering I (6) (XXX)	
SE 107: Professional Seminar (1) (XXX)	
WR 121#*: English Composition (3)	
HHS 231#*: Lifetime Fitness for Health (2)	
PAC XXX#*: Various Physical Activity Courses (1)	
Winter	16 cr
SE 102: Creative Problem Solving with Code II (2) (XXX)	
SE 112: Introduction to Software Engineering II (6) (XXX)	
SE 110: Apprenticeship I (1) (XXX)	
MTH 112#: Elementary Functions (4)	
CS 391#: Social and Ethical Issues in Computer Science (3) (Bacc Core Synthesis: Science, Technology, Society)	

Spring	15 cr
SE 103: Creative Problem Solving with Code III (2) (xxx)	
SE 113: Introduction to Software Engineering III (6) (xxx)	
SE 110: Apprenticeship I (1) (xxx)	
COMM 111#*: Public Speaking (3)	
WR 327#*: Technical Writing (3)	
Second Year	45 cr
Fall	15 cr
SE 211: Data Science Engineering I (6) (xxx)	
SE 210: Apprenticeship II (1) (xxx)	
ST 351: Intro to Statistical Methods (4)	
BACC Core#: Biology with Lab (4)	
Winter	15 cr
SE 212: Data Science Engineering II (6) (xxx)	
SE 210: Apprenticeship II (1) (xxx)	
ST 352: Intro to Statistical Methods (4)	
BACC Core#: Physical Science with Lab (4)	
Spring	15 cr
SE 213: Data Science Engineering III (6) (xxx)	
SE 210: Apprenticeship II (1) (xxx)	
MTH 231: Elements of Discrete Mathematics (4)	
BACC Core#: Bio or Physical Science with Lab (4)	
Third Year	48 – 51 cr
Fall	16 - 17 cr
SE 301: Elements of Computing Systems I (2) (xxx)	
SE 311: Scalability, Infrastructure and Security I (6) (xxx)	
SE 310: Apprenticeship III (1) (xxx)	
CS 261: Data Structures (4)	
BACC Core#: Western Culture or American History (3 - 4)	
Winter	16 - 17 cr
SE 302: Elements of Computing Systems II (2) (xxx)	
SE 312: Scalability, Infrastructure and Security II (6) (xxx)	
SE 310: Apprenticeship III (1) (xxx)	
CS 271: Computer Architecture & Assembly Language (4)	
BACC Core#: Cultural Diversity (3 - 4)	
Spring	16 - 17 cr
SE 303: Elements of Computing Systems III (2) (xxx)	
SE 313: Scalability, Infrastructure and Security III (6) (xxx)	

SE 310: Apprenticeship III (1) (xxx)	
CS 381: Programming Language Fundamentals (4)	
BACC Core#: Literature & Arts (3-4)	
Fourth Year	36 – 39 cr
Fall	12 - 13 cr
SE 411: Business of Software I (4, WIC) (xxx)	
SE 410: Apprenticeship IV (1) (xxx)	
CS 325: Analysis of Algorithms (4)	
BACC Core#: Difference, Power & Discrimination (3 - 4)	
Winter	12 - 13 cr
SE 412: Business of Software II (4, WIC) (xxx)	
SE 410: Apprenticeship IV (1) (xxx)	
CS 344: Operating Systems I (4)	
BACC Core#: Synthesis, Contemporary Global Issues (3 - 4)	
Spring	12 - 13 cr
SE 413: Business of Software III (4, WIC) (xxx)	
SE 410: Apprenticeship IV (1) (xxx)	
CS XXX: Upper-Division CS Elective (4)	
BACC Core#: Social Processes & Institutions (3 - 4)	
Total Credit Hours 175 - 181	

***Freshman Skill Courses (16 credits) #BACC Core (48 cr) XXX- CAT II course proposal**

OSU Graduation Requirements

180 total credits: 175 – 181 credits (139 major and 36 - 42 bacc core)

60 upper division credits: 68 upper division credits in major

OSU Engineering Professional School

The first two years of the program include “pre-professional” courses unique to the program that must be taken at OSU-Cascades. The second two years are “professional” courses that require admission to the College of Engineering professional school. Grade point average in select pre-professional courses dictates admission. The pre-professional school courses used for admittance into the professional school will follow the same model as those used by many of the other academic programs in the College of Engineering.