

# ENGINEERING (ENGR)

---

## ENGR 5001 - Foundations of the Smart City (1 Credit)

The Foundations badge explores the history of "smart" cities and what has enabled them to succeed or fail. Special attention is paid matters of civic and community engagement as focal points of technological innovation. Finally the implications on governance, personal privacy, and equity – often considered secondary by technologists – are centered and explored as primary drivers in problem-solving. Max hours: 1 Credit.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

## ENGR 5002 - Technologies of the Smart City (1 Credit)

The Technologies badge explores recent developments in software and hardware and their implications for the urban experience. Open data, analytics, machine learning, the Internet of Things, and advanced mobility (electric, autonomous, and connected vehicles) are reviewed from a non-technical perspective. Prereq: ENGR 5001. Max hours: 1 Credit.  
Grading Basis: Letter Grade  
Prereq: ENGR 5001.  
Typically Offered: Fall, Spring, Summer.

## ENGR 5003 - Building the Smart City (1 Credit)

The Building badge explores areas of smart city design and development not traditionally considered central. These include the growing field of urban science, urban gaming and simulation, the economics/financing of smart city projects, and finally trends in architecture and construction relevant to next-generation, technology-assisted cities. Prereq: ENGR 5001 & ENGR 5002. Max hours: 1 Credit.  
Grading Basis: Letter Grade  
Prereq: ENGR 5001 ENGR 5002.  
Typically Offered: Fall, Spring, Summer.

## ENGR 5004 - Living in the Smart City (1 Credit)

The Living badge explores aspects of urban technologies that affect quality-of-life. Energy, sustainability, resiliency, public health and public safety are all considered through the lens of technologies that may accelerate or impede personal and collective goals. Finally, a review of emerging technologies and trends is provided as a possible roadmap for the future. Prereq: ENGR 5001, ENGR 5002, & ENGR 5003. Max hours: 1 Credit.  
Grading Basis: Letter Grade  
Prereq: ENGR 5001, ENGR 5002, ENGR 5003.  
Typically Offered: Fall, Spring, Summer.

## ENGR 5150 - Seminar: Special Topics in Engineering (1 Credit)

A flexible seminar format dealing with topics of special interest in engineering on a graduate level. Topics vary from semester to semester. Prereq: Graduate standing. Cross-listed with ENGR 4150 and 7150. Max hours: 1 Credit.  
Grading Basis: Letter Grade  
Restriction: Restricted to graduate students  
Typically Offered: Fall, Spring.

## ENGR 5208 - Special Topics (1-3 Credits)

Repeatable. Max Hours: 9 Credits.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 9.

## ENGR 5301 - Systems Engineering: Principles and Practice (3 Credits)

Max Hours: 3 Credits.  
Grading Basis: Letter Grade

## ENGR 5302 - Systems Engineering: Planning and Management (3 Credits)

Max Hours: 3 Credits.  
Grading Basis: Letter Grade

## ENGR 5303 - Special Topics: Systems Engineering (3 Credits)

Repeatable. Max Hours: 6 Credits.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.

## ENGR 5800 - Long Range Infrastructure Planning and Design: Colorado 2050 (3 Credits)

The goal of this course is to equip students to address the problems of long term future resource limitation and its influence on urban infrastructure in Colorado. Repeatable. Max Hours: 6 Credits.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.

## ENGR 6299 - Introduction to Smart Cities (3 Credits)

This course will explore some of the most change-making technological innovations in the 21st century and their impact on public policy in cities through a survey of best practices, model policies, and lessons learned from cities across the United States and globe. Cross-listed with ENVS 5660, PUAD 5627, and URPL 6299. Max hours: 3 Credits.  
Grading Basis: Letter Grade

## ENGR 7150 - Seminar: Special Topics in Engineering (0.5 Credits)

A flexible seminar format dealing with topics of special interest in engineering on an advanced graduate level. Topics vary from semester to semester. Prereq: Graduate standing. Cross-listed with ENGR 4150 and 5150. Repeatable. Max hours: 1 Credit.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
Restriction: Restricted to graduate students  
Typically Offered: Fall, Spring.