

# ENGR 1111

Intro to Engineering:  
Civil Engineering  
Fall 2022

## Part 1: Introduction



COLLEGE OF  
**ENGINEERING, ARCHITECTURE  
AND TECHNOLOGY**



**西南交通大学**  
Southwest Jiaotong University

# Part 1: Introduction

Associate Dean and Professor  
Carisa Ramming

Email:

carisa.ramming@okstate.edu

WeChat:

OSU\_SWJTU\_Prof

Class Time:

Tuesday, 19:30-20:15, 20:20-  
21:05



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**美国俄克拉荷马州立大学(OSU)交流项目**

**项目模式**

2+2本科双学位 (名额不限): 获取西南交大本科学位 + OSU本科学位, 交流期限两年

(1) 双方共有专业均可报名;

(2) GPA2.25以上 (OSU计算方式), 3.25以上获得5000美元OSU奖学金;

(3) 托福61分或雅思5.5分以上。

**免学费交换生 (4名): 免交OSU学费, 交流期限一学期**

(1) 双方共有专业大二、大三本科生;

(2) GPA3.5分以上;

(3) 托福90分或雅思6.0分以上。

**工业工程3+2本硕连读 (名额不限): 获取西南交大本科学位 + OSU工程管理硕士学位, 在美学习2年**

(1) 工程类专业大三在读学生;

(2) GPA3.0以上;

(3) 托福79或雅思6.5。

短期: (1) 3 (2) 2 (3) 4

博士: (1) 3 (2) 4 (3) 5

报名截止: 校内容询



SWJTU - Fall 2019



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## Canvas Course Website



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## Canvas Course Website

≡ [2022 Fall - ENGR 1111 - Introduction to Engineering](#) > Modules

Home

Announcements

Modules

Grades

People

### Recent Announcements



你好 - Welcome to Class!

Dear Students, It is my pleasure to meet you and to have you in class this sem...

Posted on:

Aug 30, 2022, 2:51 AM

Collapse All

Export Course Content

▼ Zoom Link

▼ Syllabus and Course Information

► Part 1: Introduction



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你好 - Welcome to Class!

Carisa Ramming  
All Sections

Dear Students,

It is my pleasure to meet you and to have you in class this semester! I am a structural engineering professor and Associate Dean at Oklahoma State University and have been teaching ENSC 2113 at SWJTU for several years. You may contact me at any time over WeChat (OSU\_SWJTU\_Prof) or by email. You may email me directly through Canvas or my email address is [carisa.ramming@okstate.edu](mailto:carisa.ramming@okstate.edu).

Warmest wishes for the semester,

Professor Carisa Ramming

This announcement is closed for comments



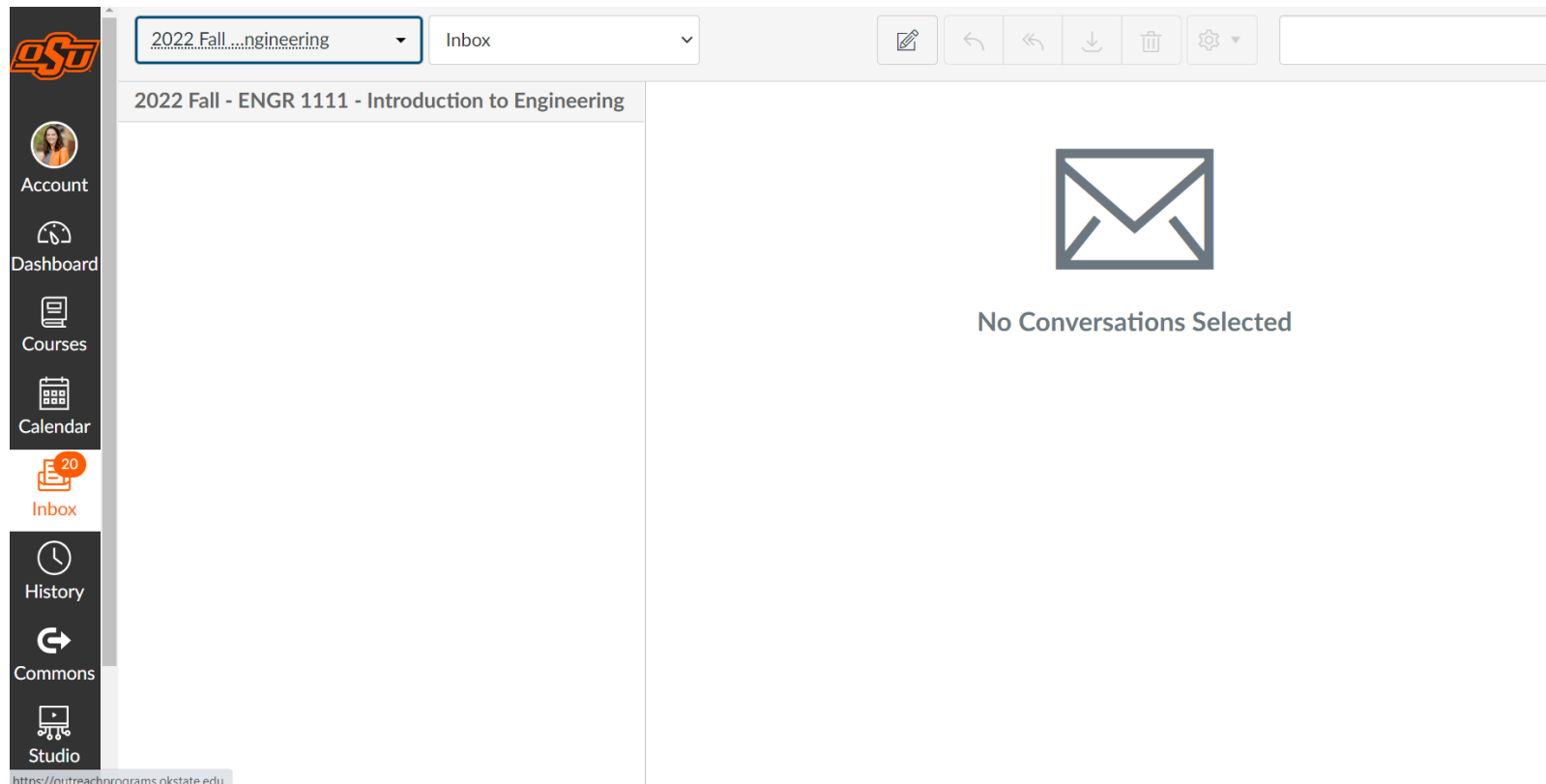
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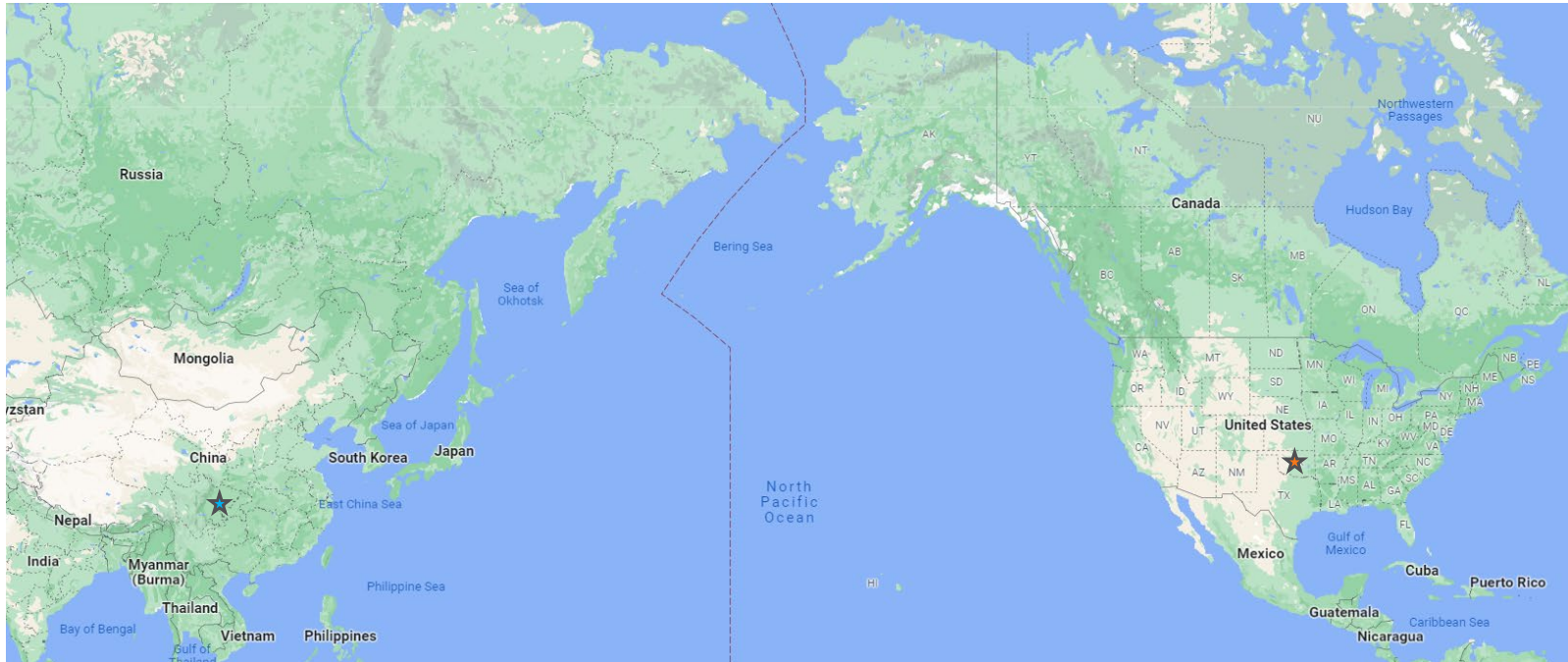
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# Part 1: Introduction

## Oklahoma State University



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# Part 1: Introduction

## Oklahoma State University

Oklahoma City

650,000 population

Tulsa

403,000 population

Stillwater

50,000 population



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# Part 1: Introduction



Oklahoma State University

25,000 students

College of Engineering,  
Architecture and Technology

3,700 students

Civil Engineering

268 students



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## What is Civil Engineering?

Civil Engineering is one of the oldest engineering disciplines with a focus on the built environment that encompasses much of what defines modern civilization: buildings, bridges, roads, etc.



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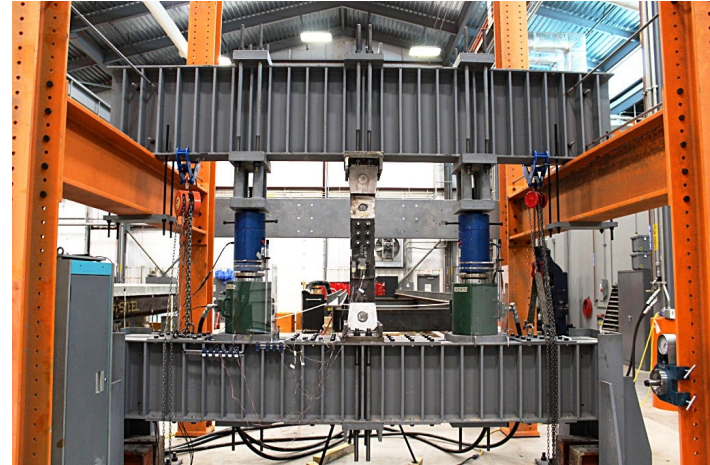


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# Part 1: Introduction

## Civil Engineering

- Construction Engineering and Management
- Environmental Engineering and Water Resources
- Geotechnical Engineering and Construction Materials
- Structural Engineering and Engineering Mechanics
- Transportation and Pavement Engineering



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# Part 1: Introduction

## Civil Engineering

- Construction Engineering and Management
  - Planning and management of the construction of structures such as highways, bridges, airports, railroads, buildings, dams, and reservoirs
  - Requires knowledge of engineering and management principles and business procedures, economics, and human behavior
  - Includes cost estimating, planning and scheduling, materials procurement, selection of equipment, and cost control



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# Part 1: Introduction

## Civil Engineering

- Environmental Engineering and Water Resources
  - Environmental Engineering
    - Environmental engineers design systems that protect human health and environmental resources (air, water, and/or land resources) from pollution and similar activities.
    - Involves the design, implementation, modeling and monitoring of water and air pollution control technologies, resource recovery and recycling systems, and the remediation of contaminated environments



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# Part 1: Introduction

## Civil Engineering

- Environmental Engineering and Water Resources
  - Environmental Engineering
    - Could include knowledge and application of environmental and human risk assessment, public health science, and environmental law
    - Often work within worldwide environmental issues such as climate change, resource management, ecological disruptions, and the effects of the global spread of pollutants



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## Civil Engineering

- Environmental Engineering and Water Resources
  - Water Resource Engineering
    - Design systems for the use and management of water resources for agricultural, industrial, household, recreational and environmental activities
    - Study hydrological cycles and design systems for runoff management and flood control, such as dams, levees, surcharge basins, and drainage systems
    - Use tools such as geographic information systems (GIS), historical records, and hydrological modeling, and involves knowledge of water laws



# Part 1: Introduction

## Civil Engineering

- Geotechnical Engineering and Construction Materials
  - Engineering behavior of soils, rocks, other earth and geo-materials
  - Geotechnical engineering investigates existing subsurface conditions and materials and determines their physical/mechanical/chemical properties that are relevant to the project being considered
  - Typical projects include the design of foundations for structures, design of earth dams, slopes, tunnels, disposal of waste products in the ground, and a variety of other earth materials related topics



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## Civil Engineering

- Structural Engineering and Engineering Mechanics
  - Deals with the design of a structural system with the purpose of supporting and resisting various loads
  - Structural engineers may be involved in the design of buildings and non-building structures including civil infrastructure such as bridges
  - Can also play an essential role in the design of machinery or other systems where structural integrity of the design impacts safety and reliability



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## Civil Engineering

- Transportation and Pavement Engineering
  - Technical forecasting of passenger travel usually involves an urban transportation planning model, requiring the estimation of trip generation (how many trips for what purpose), trip distribution (destination choice, where is the traveler going), mode choice (what mode is being taken), and route assignment (which streets or routes are being used).



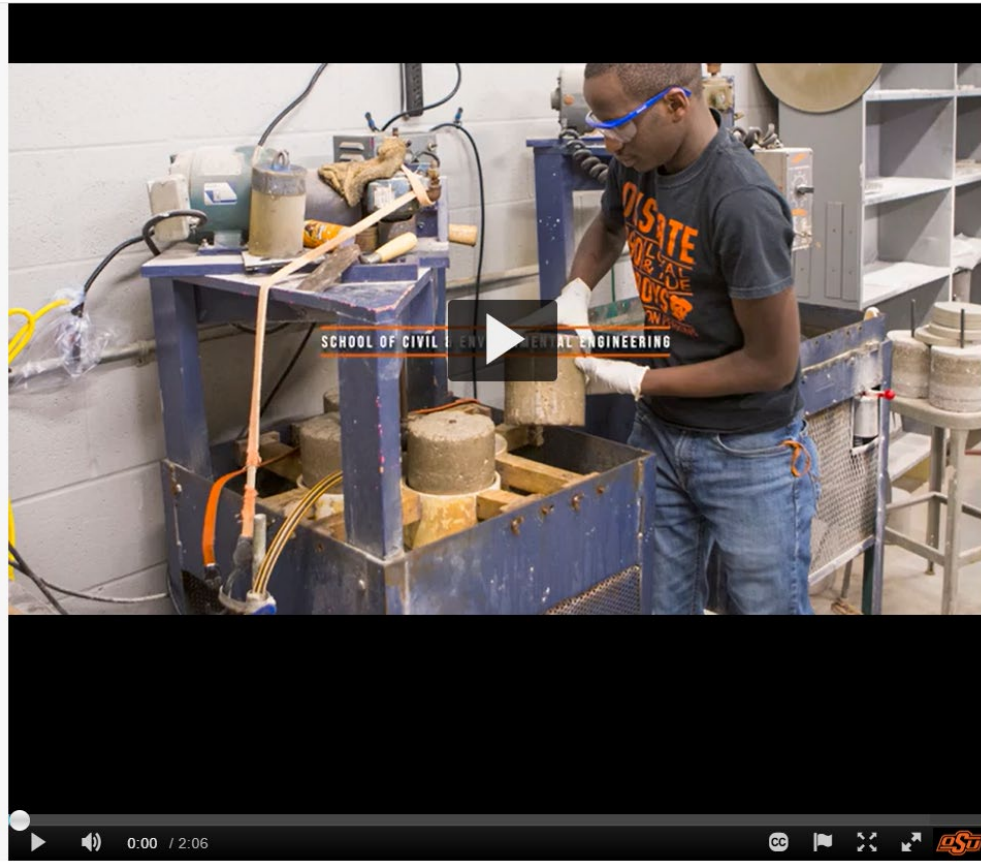
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## Civil Engineering at OSU



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## Welcome to the School of Civil & Environmental Engineering

The fields of Civil and Environmental Engineering represent challenging and rewarding professions that serve the needs of the public at all levels from locally to internationally. Our graduates practice in local, state and government agencies; small, medium and large consulting firms both domestic and internationally; and use Civil and Environmental degrees to launch careers in fields such as law, medicine and venture capitalism.



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