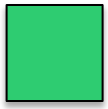
# COURSE RELATIONSHIP DIAGRAMS

Gaziantep University - Civil Engineering Department

# Course Classification Legend

**Fundamental Courses: Mathematics, Physics, Chemistry**

**Core Engineering Courses: Statics, Mechanics, Materials**

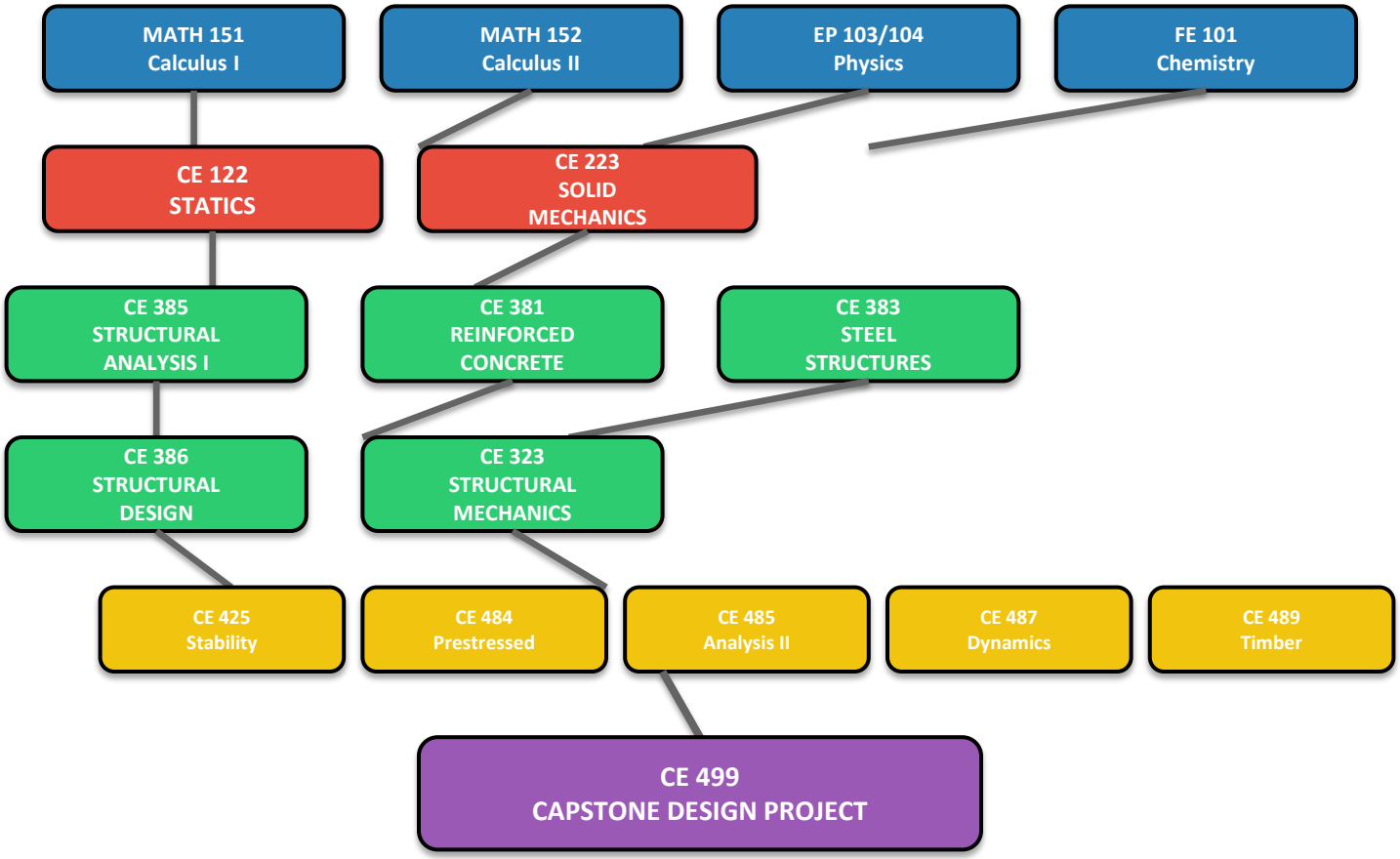


**Specialization Courses: Specific domain courses**

**Elective Courses: Additional technical courses**

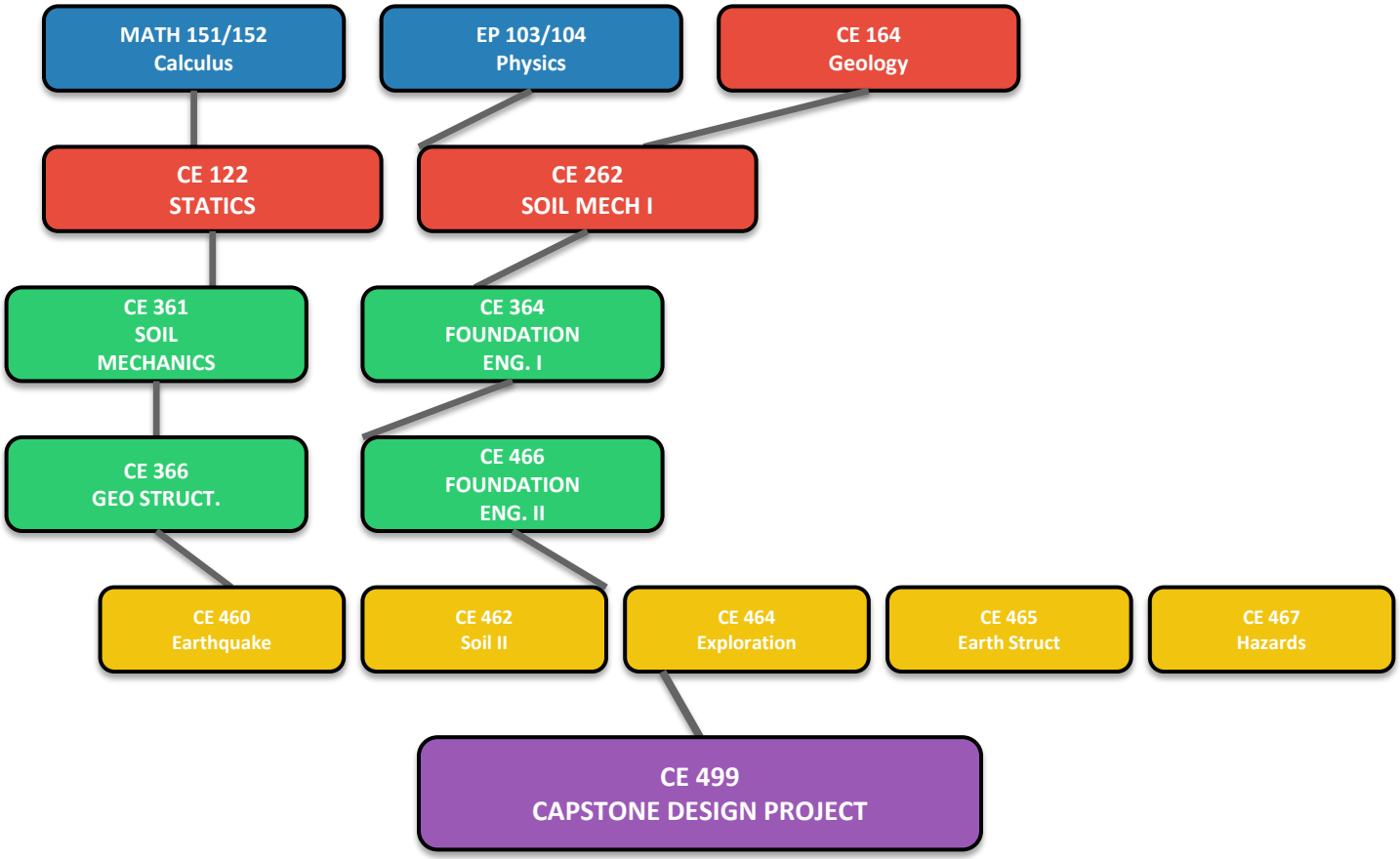
**Design & Project Courses: Capstone projects**

# STRUCTURAL DIVISION



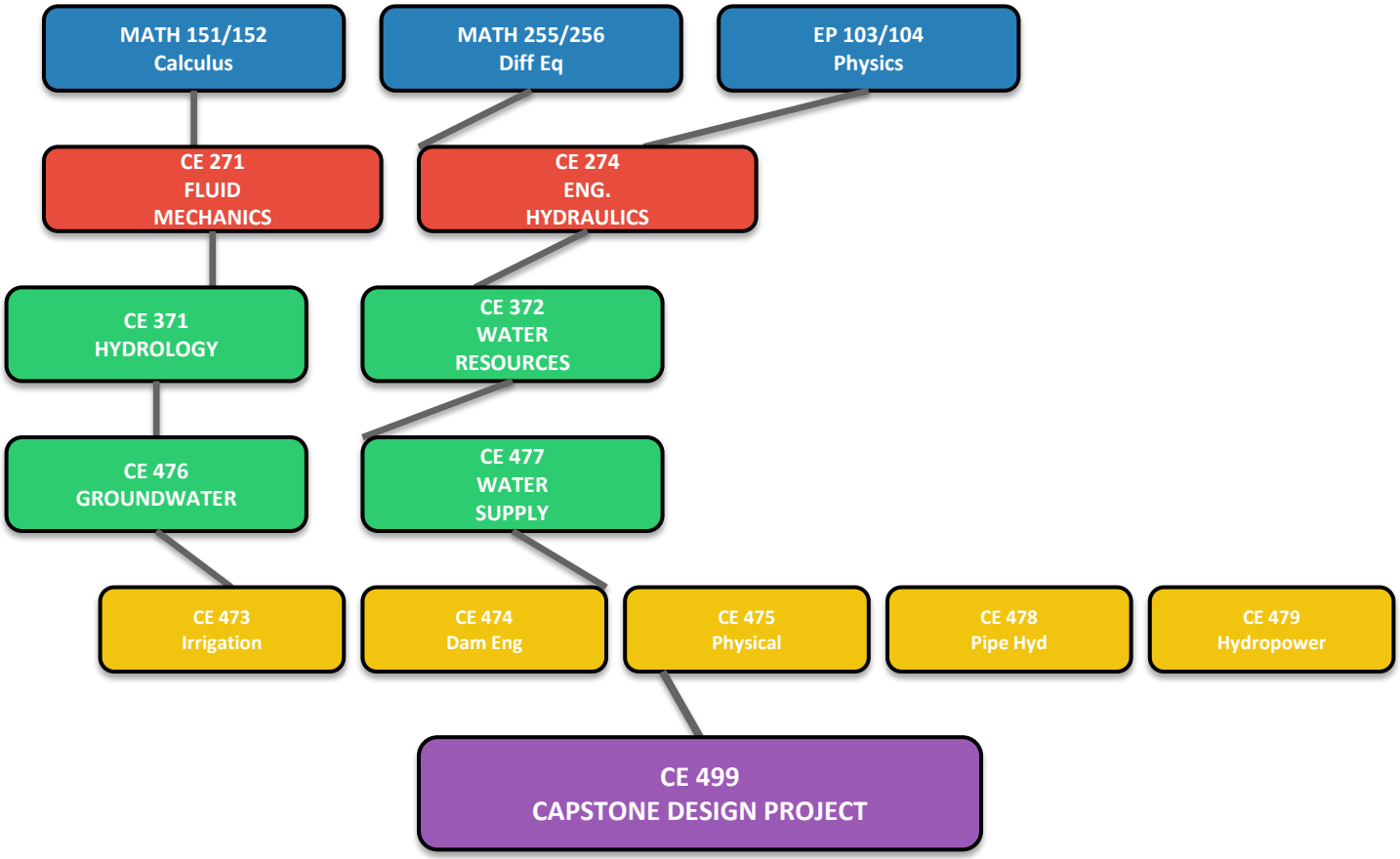

*Pathway: Fundamentals → Core Engineering (Statics & Mechanics) → Structural Analysis & Design → Capstone Project*

# GEOTECHNICAL DIVISION



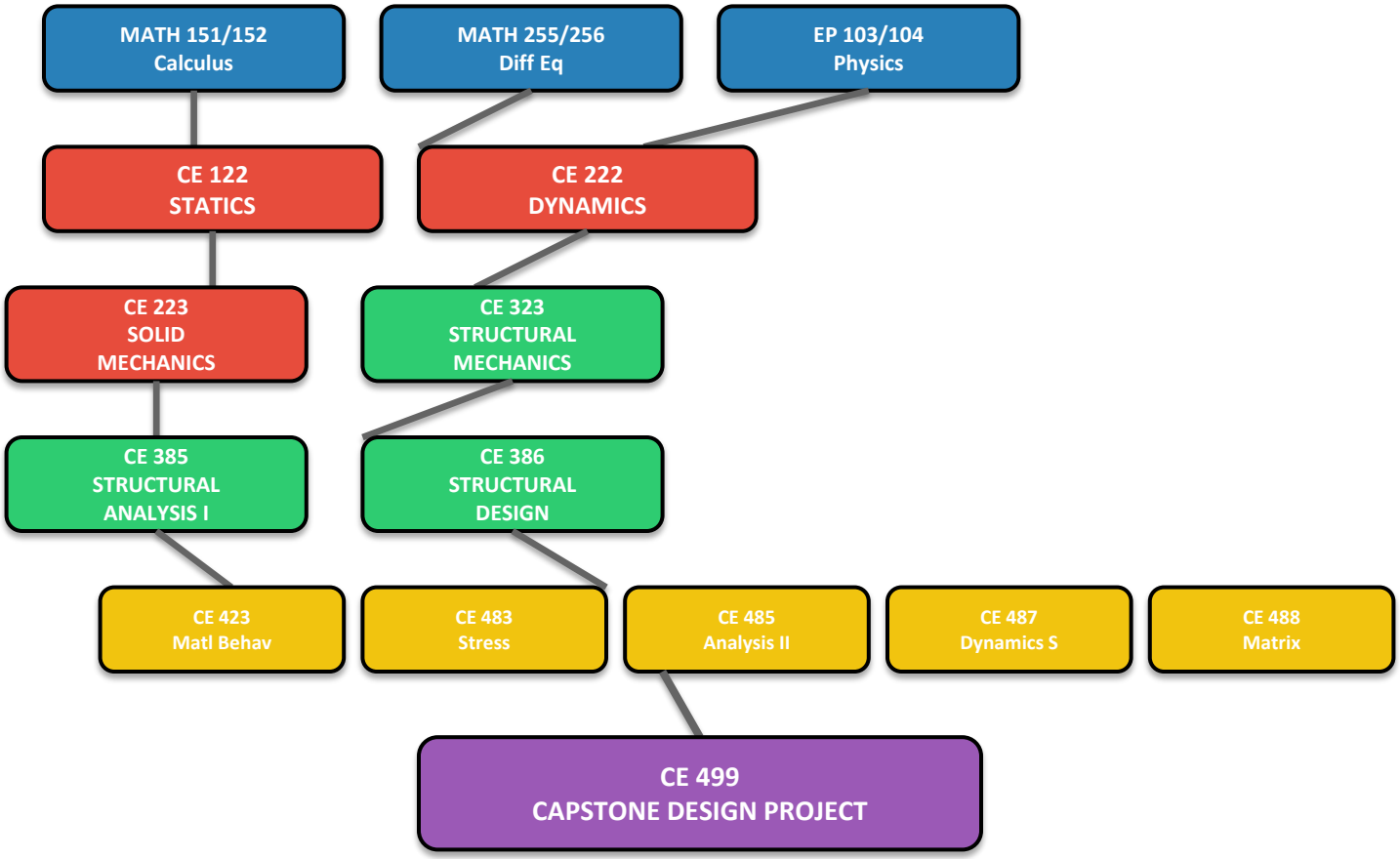

*Pathway: Geology & Physics → Statics → Soil Mechanics → Foundation Design → Capstone Project*

# HYDRAULIC DIVISION



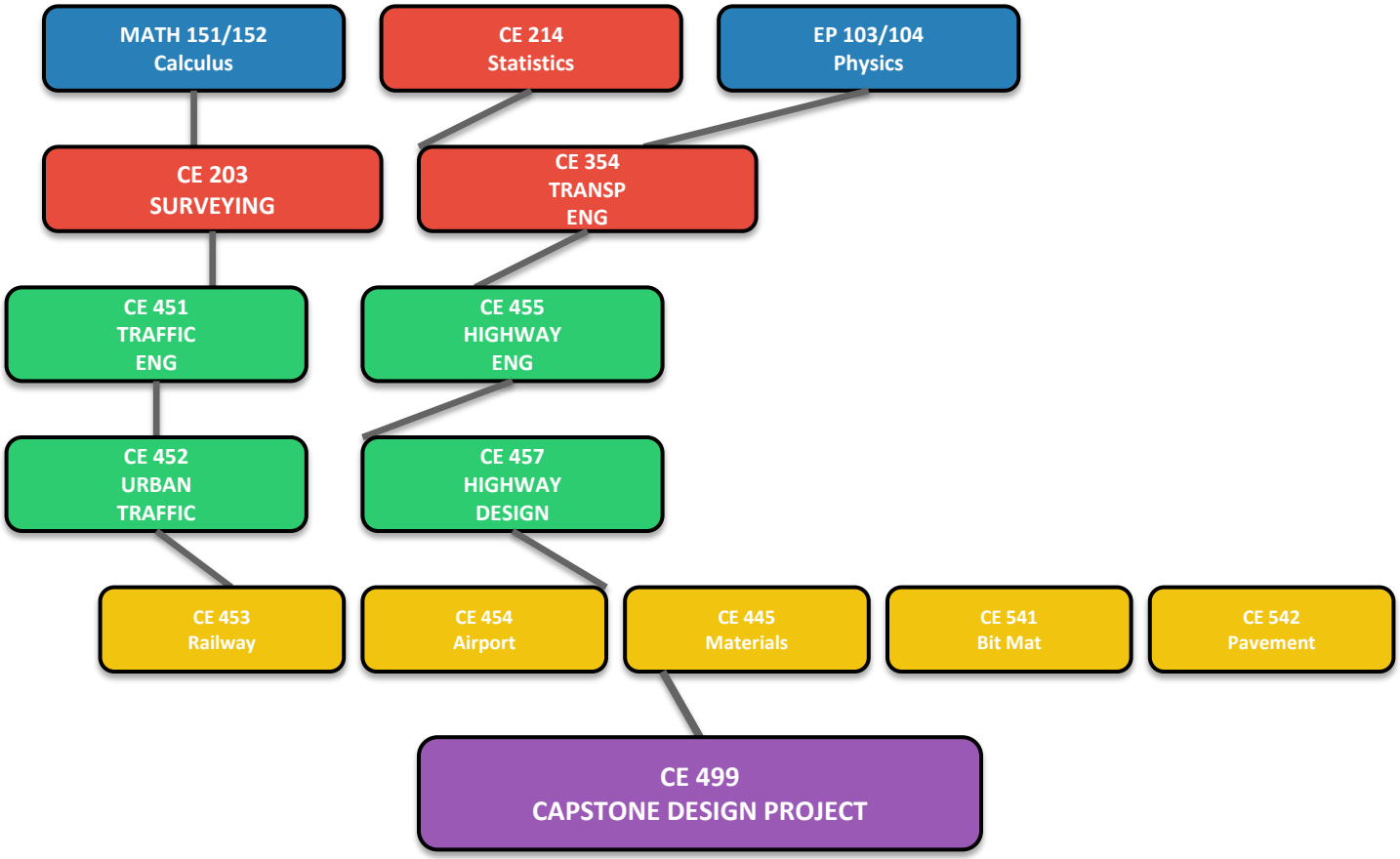

*Pathway: Calculus & Physics → Fluid Mechanics → Hydrology → Water Resources & Applications*

# MECHANICS DIVISION




*Pathway: Calculus & Physics → Statics & Dynamics → Solid & Structural Mechanics → Advanced Analysis*

# TRANSPORTATION DIVISION




*Pathway: Statistics & Surveying → Transportation Engineering → Traffic & Highway Design → Project*

# General Education & Support Courses

### 📚 LANGUAGES & COMMUNICATION

**LENG 101/102: Freshman English I & II**

*Essential for international collaboration and technical documentation*

**TURK 101/102: Turkish Language I & II**

*Professional communication in Turkish standards and regulations*

### 🎯 PROFESSIONAL DEVELOPMENT

**GME 100: General & Professional Ethics**

*Foundation of responsibility*

**KRY 100: Career Planning**

*Professional guidance*

**TDP 101/102: Social Projects**

*Community engagement*

**CE 024: Occupational Health & Safety**

*Workplace safety*

**CE 232: Engineering Economy and Man.**

*Project economics and Management*

# CE 499: CIVIL ENGINEERING DESIGN PROJECT

🏆 **CAPSTONE DESIGN COURSE - 9 ECTS (3 Credits) - SEMESTER 7**

*Integration of all knowledge acquired throughout the 4-year program into a comprehensive real-world design project*

## LEARNING OUTCOMES

✓ Apply theoretical knowledge to real-world problems

✓ Design complete infrastructure projects

✓ Develop feasibility and economic analyses

✓ Create professional technical reports

✓ Present findings to stakeholders

✓ Work in multidisciplinary teams

## TYPICAL PROJECT TYPES

🏢 Building Design (RC/Steel)

🌉 Bridge Design & Analysis

💧 Water Supply Systems

🚗 Highway Design Project

🏔️ Foundation Design

🌊 Hydropower Project

## PREREQUISITES & REQUIREMENTS

✓ Completion of all core engineering courses ✓ Specialization courses required ✓ Faculty supervision ✓ Written report + presentation ✓ Design drawings and calculations

# ENG 499: MULTIDISCIPLINARY PROJECT

🤝 **INTERDISCIPLINARY COLLABORATION - 2 ECTS (2 Credits) - SEMESTER 7**

*Collaborate with students from other engineering disciplines to solve complex, real-world problems*

## PURPOSE & BENEFITS

- Cross-disciplinary teamwork
- Learn different perspectives
- Develop communication skills
- Understand interconnected systems
- Real-world project scenarios
- Professional collaboration skills
- Build professional networks

## PROJECT EXAMPLES

🌉 Smart bridge design

🏢 Green building systems

💧 Water treatment facility

🚗 Sustainable transportation

⚡ Renewable energy

🚒 Emergency response

🌳 Environmental projects

# CE 400: ENGINEERING ORIENTATION (INTERNSHIP)

💼 **PROFESSIONAL PRACTICE & INTERNSHIP - 30 ECTS (4 Credits) - SEMESTER 8**

*8-week (minimum) intensive internship with practicing engineering firms, construction companies, or government institutions*

## INTERNSHIP BENEFITS

- ✓ Real-world site experience
- ✓ Professional management skills
- ✓ Equipment & technology use
- ✓ Safety procedures & practices
- ✓ Industry standards learning
- ✓ Professional ethics insight
- ✓ Professional networking
- ✓ Career direction clarity
- ✓ Job references

## INTERNSHIP LOCATIONS

- 🏗️ Construction Companies
- 📐 Design & Consulting Firms
- 🏛️ Government Institutions
- 💧 Water Authority Offices
- 🚗 Transportation Dept.
- 🏢 Real Estate Developers
- ⚙️ Utility Companies
- 🌳 Environmental Agencies

# Final Year: Three Capstone Experiences

**CE 499**
**DESIGN PROJECT**

SEM 7

9 ECTS

**Specialized Design**

Comprehensive design in your specialization. Full technical drawings, calculations, and feasibility analysis. Demonstrates mastery of field knowledge.

**ENG 499**
**MULTIDISCIPLINARY**

SEM 7

2 ECTS

**Team Collaboration**

Work with other engineering disciplines. Develop teamwork and communication. Solve complex, integrated problems.

**CE 400**
**INTERNSHIP**

SEM 8

30 ECTS

**Professional Practice**

8+ weeks with firms/companies. Real-world site experience, professional skills, networking, and industry exposure.

*Together, these three capstone experiences ensure you are fully prepared for professional civil engineering practice*

# COMPLETE LEARNING PATHWAY

| | | |
|---|---|---|
| **YEAR 1** | **Foundation** | Math, Physics, Chemistry, Languages, General Education |
| **YEAR 2** | **Core Engineering** | Statics, Dynamics, Fluid Mechanics, Materials |
| **YEAR 3** | **Specialization Start** | Choose: Structures, Geotechnical, Hydraulics, Mechanics, Transportation |
| **YEAR 4** | **Advanced & Professional** | Design, Internship, Electives, Capstone Projects |

🎓 **COMPETENT PROFESSIONAL CIVIL ENGINEER**

Ready to design, build, and manage infrastructure projects with professional expertise