

# “UNBOXING OAPI FEATURE OF THE CIVIL ENGINEERING SOFTWARE USING PYTHON PROGRAMMING”



## GUJARAT TECHNOLOGICAL UNIVERSITY SCHOOL OF ENGINEERING AND TECHNOLOGY

**OFFERED**

### CIVIL (STRUCTURAL) ENGINEERING CERTIFICATION COURSE

**Registration Link:**

<https://forms.gle/FnfqvqgyQjYN82Pr5>



Certificates will be awarded to participants who will attend at least 80% of scheduled activities and qualify for the examination.

### For further query contact

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## About the Course

Welcome to “Unboxing OAPI Feature of the Civil Engineering Software using Python Programming” a specialized course designed to empower civil and structural engineers with programming skills tailored to their field. Automating tasks and simulating complex scenarios are invaluable in the modern engineering landscape. This course aims to bridge the gap between traditional civil engineering practices and the technological advancements programming brings. Whether you want to streamline your workflow, enhance your research capabilities, or stay competitive in the ever-evolving engineering field, this course will provide the necessary skills and knowledge. We will cover a wide range of topics, including Monte-Carlo simulations, data handling with Pandas and NumPy, visualisation techniques for reporting, and the integration of Python with industry-standard software like SAP2000, AutoCAD, and ETABs for structural analysis and design.

## GOALS



Equip civil engineers with essential programming skills in Python to automate tasks, perform complex simulations, and enhance efficiency in structure analysis and design project.



Provide hands-on experience with industry-standard software and real-world projects, boosting employability and professional growth with a GTU-certified course certificate.



Encourage innovative solutions and efficient project management through automation, data analysis, and ML techniques.

## Time Duration

- **Total Duration: 55 hours**
- **No. of Sessions: 11**
- **Mode of Sessions: Offline/Online**
- **Max seat: 30 per Batch**
- **Theory and Practical Sessions**

## Eligibility

- **UG - Civil Engineering**
- **PG - Structural Engineering**
- **Ph.D. Research Scholars**
- **Practitioner Consultants**

## Course Fees

- **B.Tech/M.Tech: Rs 3,500/-**
  - **Research Scholar: Rs 5,000/-**
  - **Industry Person/Consultant: Rs 7,000/-**
- Fees in all three category includes GST**

## Chief Patron

**Prof.(Dr.) Rajul K. Gajjar**  
**Hon'ble Vice Chancellor**

## Patron

**Dr. K. N. Kher**  
**Registrar**

## Convenor

**Prof.(Dr.) S. D. Panchal**  
**Director, GTU-SET**

## Key Features

- GTU Certified course certificate
- Acquire skills in a versatile Python programming language relevant to modern engineering.
- Tackle practical engineering challenges through programming skills.
- Python can be directly applied to solve real-world civil and structural engineering problems. Integrate Python with engineering software like SAP2000, AutoCAD, and ETABS for enhanced analysis.
- Learn to automate tasks for increased efficiency in civil engineering projects.
- Master tools for practical data analysis and presentation.
- Connect with professionals, Experts and peers in the field of Structural and Computer Engineering.
- Open up career opportunities in software development and data analysis in Civil Engineering.

## Course Outcomes

- Acquire foundational skills in Python, enabling the automation of civil engineering tasks and the execution of complex simulations.
- Apply programming techniques to traditional civil engineering methodologies, enhancing modeling, data analysis, and structural design processes.
- Gain hands-on experience with the OAPI features of leading software such as SAP2000, AutoCAD, and ETABS, facilitating advanced structural analysis and design.
- Implement Monte-Carlo simulations and probabilistic models to support informed decision-making and effective risk management in engineering projects.
- Use Python libraries such as Pandas, NumPy, and Matplotlib to handle and visualize data, creating clear and impactful reports and presentations.

## Career Opportunities

- Structural Engineering
- Automation Engineer
- Data Analyst
- Software Integration Specialist
- Research and Development
- Freelance Programmer

