

# Course : Python web development with Flask

Practical course - 4d - 28h00 - Ref. FLK  
Price : 2580 CHF E.T.

NEW

This course will teach you how to develop web applications with Flask, a lightweight, flexible Python framework. From installation to production, you'll learn how to manage routes, forms and databases, as well as how to authenticate and secure your application.

## Teaching objectives

At the end of the training, the participant will be able to:

- ✓ Understanding the Flask framework and its architecture
- ✓ Create and configure a Flask application
- ✓ Master the management of routes, HTTP requests and Jinja2 templates
- ✓ Managing forms, sessions and databases with Flask-SQLAlchemy
- ✓ Set up an authentication system and secure a Flask application
- ✓ Deploying a Flask application on an online server

## Intended audience

The course is designed for developers wishing to acquire an in-depth knowledge of the basics of the Flask framework.

## Prerequisites

A good command of Python, basic HTML/CSS, and a general understanding of the client-server model and HTTP requests.

## Course schedule

### 1 Introduction to Flask

- Introduction to the Flask framework and its use cases.
- Comparing Flask and Django.
- Understand the client-server model and MVC architecture.
- WSGI and the Jinja2 template engine.

#### Hands-on work

General presentations.

### PARTICIPANTS

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### PREREQUISITES

A good command of Python, basic HTML/CSS, and a general understanding of the client-server model and HTTP requests.

### TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

### ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more. Participants also complete a placement test before and after the course to measure the skills they've developed.

## 2 Installation and first application

- Install and configure Flask on Windows and Linux.
- Creation of a first Flask application ("Hello World").
- Change Flask server port and IP address.

### Hands-on work

Install Flask and create a first application displaying "Hello World".

## 3 Route and query management

- Define and manage routes with `@app.route`.
- Use of dynamic rules in URLs.
- HTTP method management (GET, POST, PUT, DELETE).
- Redirections and error handling (404, 500).

### Hands-on work

Create different routes with `@app.route`, use dynamic rules and test HTTP methods.

## 4 Templates and digital signage

- Introduction to Jinja2 templates.
- Inherit templates and use placeholders.
- Inclusion of CSS and JavaScript files in a Flask project.
- Dynamic display with variables and loops in Jinja2.

### Hands-on work

Use Jinja2 to display data dynamically and organize templates with inheritance.

## 5 Forms and session management

- Introduction to the Request object and management of data sent by a form.
- Use of cookies and Flask sessions.
- Forms management with Flask-WTF.
- User input validation and error management.
- Using Flask-Flash to display messages.

### Hands-on work

Create a form with Flask-WTF, validate inputs and store data in session.

## 6 Database and Object-Relational Mapping (ORM)

- Introduction to SQLAlchemy and Flask-SQLAlchemy.
- Configure and connect to SQLite, MySQL and PostgreSQL.
- Definition of models and relationships (One-to-Many, Many-to-Many).
- Creating and managing migrations with Flask-Migrate.
- Execute SQL and ORM (Create, Read, Update, Delete) queries.

### Hands-on work

Configure Flask-SQLAlchemy, create a database model and run CRUD queries.

### TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

### TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

### ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at [psh-accueil@orsys.fr](mailto:psh-accueil@orsys.fr) to review your request and its feasibility.

## 7 Authentication and security

- Setting up authentication with Flask-Login.
- Creation of registration and login templates and forms.
- Password hashing with Bcrypt and secure storage.
- Managing roles and permissions with Flask-Principal.
- Securing routes with @login\_required.

### Hands-on work

Set up a registration and login system with Flask-Login and secure passwords.

## 8 Deployment and maintenance

- Deploying a Flask application on Heroku or AWS.
- Configuration of environment variables and Procfile.
- Logging and error monitoring.
- Error handling (404, 500) and creation of custom error pages.

### Hands-on work

Deploy the application on Heroku or AWS and configure logs and environment variables.

## Dates and locations

### REMOTE CLASS

2026 : 15 Sep., 15 Dec.