

Course Outline

Luis Gustavo Nardin
gnardin@emse.fr

Cloud and Edge Infrastructures

October 7, 2025

Objectives

- ▶ Introduce the main concepts and characteristics of Cloud and Edge Computing
- ▶ Introduce the service and delivery models of Cloud Computing
- ▶ Introduce the business impacts of on-demand use of computer system resources, including data storage and computing power
- ▶ Present the distinctions and complementarities of Cloud and Edge Computing
- ▶ Practical sessions using the AWS Public Cloud Computing platform

Learning Outcomes

- ▶ Understand the main concepts, characteristics, and distinctions of Cloud and Edge Computing
- ▶ Understand the business impacts of Cloud and Edge Computing
- ▶ Know the main Cloud Computing service and delivery models
- ▶ Acquire experience in developing applications using the Cloud Computing infrastructure

Course Outline

- ▶ Introduction to Cloud Computing
- ▶ Cloud Models and Advantages
- ▶ Cloud Architecture
- ▶ Virtualization – VMs & Containers
- ▶ Cloud Elasticity
- ▶ Edge Computing

Resources

<https://ci.mines-stetienne.fr/courses/cloud/>

- ▶ **Username:** cps22023
- ▶ **Password:** cps22023

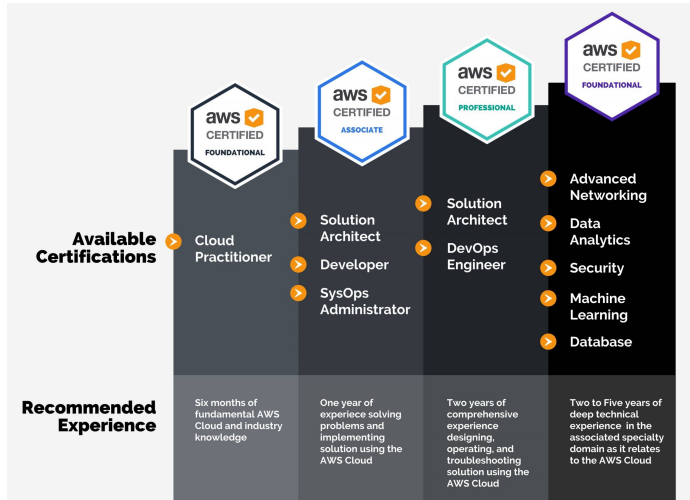
Organization

- ▶ Sessions [Room 1.32]
 - Lectures
 - ✓ 08/10, 15/10, 22/10, 12/11, 13/11
 - Practical Work
 - ✓ 5 TD sessions: 08/10, 15/10, 22/10, 12/11, 13/11
 - ✓ 2 TP sessions: 18/11, 19/11
- ▶ Written Exam

Grading

- ▶ 50% Written Exam
 - **09/12/2025 10h45-12h15**
 - Room 1.32
 - Individual, Closed book, Theoretical
- ▶ 50% Group Project [**Submission 17/12/2025**]
 - Groups of maximum 3 students
 - 2 Practical sessions dedicated to the project development
 - Late submissions will have a 10% penalty and an additional 10% penalty for each late week (maximum 4 weeks lateness). After 4 weeks, projects will receive zero marks.

AWS Certification Exams



This course helps prepare you for the **Cloud Practitioner** certification exam.

AWS Certified Cloud Practitioner

- ▶ Intended for anyone who has basic knowledge of the AWS platform
- ▶ Before taking this exam, it is recommended to have
 - Six months of exposure to the AWS Cloud
 - Basic understanding of IT services and their uses in the AWS Cloud platform
 - Knowledge of core AWS services and use cases, billing and pricing models, security concepts, and how cloud impacts your business

AWS Certified Cloud Practitioner Exam

- ▶ Details about the exam are at <https://aws.amazon.com/certification/certified-cloud-practitioner/>
- ▶ Download and carefully read the AWS Certified Cloud Practitioner Exam Guide at https://d1.awsstatic.com/training-and-certification/docs-cloud-practitioner/AWS-Certified-Cloud-Practitioner_Exam-Guide.pdf
- ▶ Download the sample exam questions at https://d1.awsstatic.com/training-and-certification/docs-cloud-practitioner/AWS-Certified-Cloud-Practitioner_Sample-Questions.pdf
- ▶ See the recommended path to attain the certification at <https://aws.amazon.com/training/path-cloudpractitioner/>
 - AWS Academy Cloud Foundations covers much of the same material found in the Cloud Practitioner Essentials course, but in greater depth
 - Additional free digital training at <https://www.aws.training/>

Other Resources

- ▶ Erl, T., Mahmood, Z., & Puttini, R. (2013). Cloud Computing: Concepts, Technology & Architecture. Upper Saddle River, NJ: Prentice Hall.
- ▶ Hwang, K. (2017). Cloud Computing and Cognitive Computing: A Machine Learning Approach. Cambridge, MA: MIT Press.
- ▶ Jackson, K. L. & Goessling, S. (2018). Architecting Cloud Computing Solutions. Birmingham: Packt Publishing.
- ▶ Ruparelia, N. B. (2016). Cloud Computing. Cambridge, MA: MIT Press.