Teaching guide

IDENTIFICATION DETAILS

Degree:	
Faculty/School:	Law, Business and Government
Course:	CLOUD DIGITAL LEADER - GOOGLE
Type:	Compulsory Internal
ECTS credits:	3
Year:	2
Code:	45810
Teaching period:	Third semester
Teaching type:	Classroom-based
Language:	Inglés
Total number of student study hours:	75

Teaching staff	E-mail
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SUBJECT DESCRIPTION

This course prepares students to understand and pass the Google Cloud Digital Leader certification. It introduces the foundational concepts of cloud computing, Google Cloud services, data and AI solutions, and responsible innovation within cloud-based transformations. The subject emphasizes practical understanding aligned with real-world business and technical applications in cloud ecosystems.

GOAL

The goal of this course is to provide students with the conceptual and practical knowledge necessary to understand key elements of cloud computing and digital transformation using Google Cloud, enabling them to pass the Google Cloud Digital Leader certification exam.

PRIOR KNOWLEDGE

It is recommended that students have previously completed the course Foundations of Data & AI and Digital Business Models, as this subject builds upon foundational digital, analytical, and technological concepts explored there.

COURSE SYLLABUS

Digital Transformation with Google Cloud

Business Drivers for Cloud Adoption
Key elements of digital transformation
Google's approach to innovation

Infrastructure and Application Modernization

Introduction to cloud infrastructure
Compute, storage, networking basics
Application deployment models

Data-Driven Decision Making

Data lakes and warehouses
Analytics and BI tools
Intro to BigQuery

Modernizing Business with AI and ML

Responsible AI principles
Use cases

Contact Center AI
AI document
Vertex AI

AI democratization

Security and Operations in the Cloud

Shared Responsibility Model
Compliance and security on Google Cloud
SRE and operational excellence

Sustainability and Innovation

Green IT and sustainable cloud
Google's sustainability goals and impact

Exam Preparation and Practice

Sample questions
Simulation exercises
Tips and strategies

EDUCATION ACTIVITIES

The theoretical course combines sessions, group discussions, and practical exam-oriented activities:

Expository lessons (10 hours)
Practical classes & simulations (10 hours)
Case studies & problem solving (8 h)
Individual and group work (27 hours)
Self-study and exam preparation (20 h)

Learning is supported via UFV's LMS platform (CANVAS).

DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES	INDIVIDUAL WORK
30 Horas	45 Horas

SKILLS

Explain the basic concepts of Big Data and its key characteristics.

Relate scientific principles to the analysis of data and business contexts.

Apply the fundamentals of artificial intelligence, machine learning and deep learning to business decision-making.

Demonstrate comprehension of scientific texts and communicate analyses and results effectively, both orally and in writing.

Evaluate different technological solutions and the resources required to implement data analysis processes.

Compare data analysis models to solve problems, applying ethical and moral principles.

Show critical, analytical, and reflective thinking to propose business solutions.

SPECIFIC LEARNING RESULTS

Identify and describe Google Cloud services for Big Data (e.g., BigQuery, Dataflow, Pub/Sub) .

Match scientific models with real-world data challenges using Google Cloud technologies.

Describe how Google Cloud's Vertex AI and AutoML tools can be used to solve enterprise problems.

Summarize cloud solution outcomes clearly and persuasively for business and technical stakeholders.

Analyze pros and cons of different cloud-based analytics architectures and justify their use in enterprise contexts.

Discuss ethical considerations in AI model deployment using Google Cloud (e.g., bias, explainability) .

Develop a critical argument for or against migrating business processes to Google Cloud based on case study analysis.

LEARNING APPRAISAL SYSTEM

First Enlorment Students
Ordinary Call

Assessment type
Description
Weight

Final written exam (test + case-based questions)
A comprehensive written test simulating the official Google Cloud Digital Leader certification exam. It will include multiple choice, true/false, and applied business cases.
50

Weekly online activities (individual)
Weekly quizzes and brief case responses on Canvas. These verify individual learning progress and engagement.
30

Participation in online forums and debates
Participation in structured discussion forums and short reflective prompts on cloud ethics and decision-making. Critical reasoning will be evaluated.
10

Individual Project: Cloud Strategy Brief
A final deliverable where students propose a cloud strategy for a fictitious business, aligned with Google Cloud solutions.
10

Extraordinary Call

Assessment type
Description
Weight

Theoretical-practical exam
Full content, same as ordinary exam
70

Recovery Assignment
Updated version of individual report
30

Students with Dispensation (2nd enrollment, Erasmus, etc.)
Ordinary Call

Assesment type
Description
Weight

Final exam
Same structure and criteria as regular students
70

Individual report
Migration and adoption plan (adapted)
30

Extraordinary Call

Assessment type
Description
Weight

Theoretical-practical exam
Same Content as Ordinary Call
70

Individual report
Final delivery (refined)
30

Students must achieve a minimum grade of 5 out of 10 in each evaluation block to calculate the final grade. The continuous assessment focuses on individual authorship, engagement, and critical understanding of the subject.

Plagiarism, as well as the use of illegitimate means during evaluation, will be penalized in accordance with the University's Evaluation and Coexistence Regulations.

ETHICAL AND RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

1.- The use of any Artificial Intelligence (AI) system or service shall be determined by the lecturer, and may only be used in the manner and under the conditions indicated by them. In all cases, its use must comply with the following principles:
a) The use of AI systems or services must be accompanied by critical reflection on the part of the student regarding their impact and/or limitations in the development of the assigned task or project.
b) The selection of AI systems or services must be justified, explaining their advantages over other tools or methods of obtaining information. The chosen model and the version of AI used must be described in as much detail as possible.
c) The student must appropriately cite the use of AI systems or services, specifying the parts of the work where they were used and describing the creative process followed. The use of citation formats and usage examples may be consulted on the Library website(https://www.ufv.es/gestion-de-la-informacion_biblioteca/).
d) The results obtained through AI systems or services must always be verified. As the author, the student is responsible for their work and for the legitimacy of the sources used.
2.- In all cases, the use of AI systems or services must always respect the principles of responsible and ethical use upheld by the university, as outlined in the Guide for the Responsible Use of Artificial Intelligence in Studies at UFV. Additionally, the lecturer may request other types of individual commitments from the student when deemed necessary.
3.- Without prejudice to the above, in cases of doubt regarding the ethical and responsible use of any AI system or service, the lecturer may require an oral presentation of any assignment or partial submission. This oral evaluation shall take precedence over any other form of assessment outlined in the Teaching Guide. In this oral defense, the student must demonstrate knowledge of the subject, justify their decisions, and explain the development of their work.

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

Google Google Cloud Learning Resources. Cloud Digital Leader Training Path. Google Cloud Skills Boost. Online (Google Google Cloud Learning Resources. Cloud Digital Leader Training Path. Google Cloud Skills Boost. Online , Google Cloud Learning Resources. Cloud Digital Leader Training Path. Google Cloud Skills Boost.)

Jackson, K. & Goessling, S. Architecting Cloud Computing Solutions 2018
(Jackson, K. & Goessling, S. Architecting Cloud Computing Solutions 2018 , ||Miller, S. & Mork, P. Responsible AI in the Enterprise: The Practitioner's Guide to Building Ethical AI Systems. O'Reilly. 2021)

Additional

(, Official technical reference for all GCP services.)