



POLITÉCNICA

INTERNATIONAL
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COORDINATION PROCESS OF
LEARNING ACTIVITIES
PR/CL/001



E.T.S. de Ingenieros
Informáticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000938 - Blockchain And Services For Fintech Enterprise Integration

DEGREE PROGRAMME

10BB - Eit Digital Master Programme On Fintech

ACADEMIC YEAR & SEMESTER

2020/21 - Semester 1

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1. Description

1.1. Subject details

Name of the subject	103000938 - Blockchain And Services For Fintech Enterprise Integration
No of credits	5 ECTS
Type	Compulsory
Academic year of the programme	First year
Semester of tuition	Semester 1
Tuition period	September-January
Tuition languages	English
Degree programme	10BB - Eit Digital Master Programme On Fintech
Centre	10 - Escuela Tecnica Superior de Ingenieros Informaticos
Academic year	2020-21

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Antonio Jesus Diaz Honrubia (Subject coordinator)	D-4302	antoniojesus.diaz@upm.es	Tu - 12:00 - 14:00 W - 10:00 - 12:00 Th - 15:00 - 17:00 Please, contact by e-mail before.
Miguel Jimenez Gañan		m.jimenez@upm.es	W - 13:00 - 15:00 F - 10:00 - 13:00 Please, contact by e-mail before.

Francisco Javier Soriano Camino		javier.soriano@upm.es	M - 15:00 - 17:00 W - 15:00 - 17:00 Th - 15:00 - 17:00 Please, contact by e-mail before.
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* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

3. Skills and learning outcomes *

3.1. Skills to be learned

CE-FT02 - Capacidad para aplicar técnicas para el análisis y la exploración de datos en un contexto financiero, y para la correcta comunicación de los resultados del análisis

CE-FT03 - Capacidad para seleccionar las técnicas y herramientas para la manipulación de datos de tipo financiero, incluyendo su procesamiento y visualización

CE-FT05 - Capacidad para entender los conceptos básicos relacionados con las industrias del sector financiero, incluyendo dominios de fintech, proptech e insurtech

CE-FT08 - Capacidad para conocer las últimas tecnologías aplicadas a las finanzas

CE-FT09 - Capacidad de aplicar diferentes tecnologías basadas en inteligencia artificial al dominio financiero

3.2. Learning outcomes

RA2 - Apply the acquired knowledge in real context

RA25 - Being able to implement a digital non-repudiation system

RA27 - To know the basic concepts behind the blockchain technology

RA3 - Acquire specialized knowledge from innovative fields of studiesowledge in real context

RA26 - Being able to deploy a secure service-oriented architecture for interprise integration

* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

4. Brief description of the subject and syllabus

4.1. Brief description of the subject

This course pretends to introduce the student the data security and blockchain concepts, along with a practical viewpoint using a state-of-the-art blockchain system. The blockchain technology will be presented from a service-oriented architecture viewpoint, which can be easily used for enterprise integration.

4.2. Syllabus

1. Introduction
2. Data security foundations
3. Service-oriented architectures for enterprise integration
4. Blockchain practical application
5. Blockchain concepts
6. Seminars

5. Schedule

5.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Distant / On-line	Assessment activities
1	Introduction Duration: 03:00		Introduction Duration: 03:00	
2	Data security fundations Duration: 03:00		Data security fundations Duration: 03:00	
3	Data security fundations Duration: 03:00		Data security fundations Duration: 03:00	
4	Data security fundations Duration: 03:00		Data security fundations Duration: 03:00	
5	Service-oriented architectures for enterprise integration Duration: 03:00		Service-oriented architectures for enterprise integration Duration: 03:00	
6	Service-oriented architectures for enterprise integration Duration: 03:00		Service-oriented architectures for enterprise integration Duration: 03:00	
7	Blockchain concepts Duration: 03:00		Blockchain concepts Duration: 03:00	
8	Service-oriented architectures project Duration: 03:00		Service-oriented architectures project Duration: 03:00	Service-oriented architectures project Continuous assessment Not Presential Duration: 00:00 Service-oriented architectures project presentation Continuous assessment Presential Duration: 03:00
9	Blockchain concepts Duration: 03:00		Blockchain concepts Duration: 03:00	
10	Blockchain practical application Duration: 03:00		Blockchain practical application Duration: 03:00	

11	Blockchain practical application Duration: 03:00		Blockchain practical application Duration: 03:00	
12	Blockchain project Duration: 03:00		Blockchain project Duration: 03:00	
13	Blockchain project Duration: 03:00		Blockchain project Duration: 03:00	
14	Seminars Duration: 03:00		Seminars Duration: 03:00	
15	Blockchain project Duration: 03:00		Blockchain project Duration: 03:00	Blockchain project Continuous assessment Not Presential Duration: 00:00 Blockchain project presentation Continuous assessment Presential Duration: 03:00
16				
17				Final exam Continuous assessment Presential Duration: 01:00 Final exam (Final-exam-only assessment) Final examination Presential Duration: 02:00

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

* The schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
8	Service-oriented architectures project		No Presential	00:00	20%	4 / 10	CE-FT02 CE-FT08 CE-FT05
8	Service-oriented architectures project presentation		Face-to-face	03:00	10%	4 / 10	CE-FT02 CE-FT08 CE-FT05
15	Blockchain project		No Presential	00:00	40%	4 / 10	CE-FT08 CE-FT03 CE-FT02 CE-FT09 CE-FT05
15	Blockchain project presentation		Face-to-face	03:00	10%	4 / 10	CE-FT08 CE-FT09 CE-FT05 CE-FT03 CE-FT02
17	Final exam		Face-to-face	01:00	20%	4 / 10	CE-FT08 CE-FT09 CE-FT05 CE-FT03 CE-FT02

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Final exam (Final-exam-only assessment)		Face-to-face	02:00	100%	5 / 10	CE-FT08 CE-FT09 CE-FT05 CE-FT03 CE-FT02

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Re-sit exam		Face-to-face	02:00	100%	5 / 10	CE-FT03 CE-FT02 CE-FT08 CE-FT09 CE-FT05

6.2. Assessment criteria

Continuous assessment method

The continuous assessment of the course is divided into three main categories:

- Service-oriented architectures: project (20%) and presentation (10%).
- Blockchain: project (40%) and presentation (10%).
- Final exam: short exam to check the acquired knowledge (20%).

Students are required to obtain a minimum mark of 4 points (out of 10) in each activity, i.e. both projects, both presentations, and the exam. If any of these activities is graded lower than 4 points (out of 10), then the final mark of the subject will be no greater than 4.5 (out of 10). The minimum mark required to pass this course is 5 points (out of 10), as long as the above criteria are met.

Final-exam-only assessment method and extraordinary call assessment

The final-exam-only assessment method will only be offered as agreed upon by the Examination and Assessment Regulations of the University in force in the academic course. The procedure to apply for this method is subject to the regulation established by the Associate Dean for Academic Affairs. For further information, please refer to <http://www.fi.upm.es/?pagina=1147>

The final-exam-only assessment method and extraordinary call assessment consists of just one final exam (100%). Students are required to obtain a minimum mark of 5 points (out of 10) in this exam. If this condition is not met, then the final mark will be no greater than 4.5 (out of 10). The minimum mark required to pass this course is 5 points (out of 10).

Action procedures against fraudulent behavior

- All exams and lab deliverables must be done individually, unless specified otherwise by the teaching staff. If any non-conformity with this criteria is detected (copy, plagiarism, etc.), all students involved will be graded with 0 points (out of 10) in the corresponding activity, and therefore they will not reach the minimum mark to pass the course.
- To this end, all students involved in the fraud are considered accountable, and the above actions will be taken against both active and passive agents.
- The above actions do not exclude other actions covered by the normative and laws.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Data Security Handbook	Bibliography	ABA Book Publishing. ISBN: 9781604420470
Service-Oriented Architecture: Analysis and Design for Services and Microservices	Bibliography	Thomas Erl. Pearson. ISBN: 9780133858709
Blockchain	Bibliography	O'Reilly Media, Inc. ISBN: 9781491920497

8. Other information

8.1. Other information about the subject

For attending this course, it is recommended that students bring a laptop.

The information contained in this learning guide might be subjected to small deviations according to the actual planning of the semester. Any deviation will be reported on Moodle with enough time.