**IT Laboratories**

Prof. Andrea Mattioli

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The course aims to make students experience, through theoretical and practical sessions, the concrete application of the most innovative information technologies on the market today, and also instill a digital mindset within students in order to have an overall view of what means to create digital-oriented business models.

At the end of the course students will be able to take an active part in digital technology innovation and implementation projects, whilst acquiring awareness of the potential and complexity (technical, financial, organizational and strategic) of these processes. Addressing the digital scenarios that now underpin most businesses and organizations also fosters the readiness for change and technological evolution underlying most services used today.

With reference to the main technologies addressed during the course, students will learn how to do the following:

* To understand the value of blockchains as infrastructural elements for digital services and understand how smart contracts can be used;
* To define application scenarios, in an industrial environment, through the use of virtual, augmented and mixed reality technologies
* To understand how data is present in every business and how valuable it can be for predictive analysis or simply for business process governance
* Conceptually to design cloud computing architecture by trying to understand the entire infrastructural and application chain behind the scenes of an IT solution (without going into details about the specific technology)
* To choose, based on qualitative and quantitative analysis, between an e-commerce strategy via a proprietary website and one based on marketplace.

***COURSE CONTENT***

A detailed programme of course activities will be defined at the start of the academic year. There will be practical activities such as workshops, talks and company visits related to various topics regarding the innovation and digitalisation of processes. The course also includes theoretical lectures.

By way of example, here are some application areas that will be covered during the course:

* Blockchains and DLT
* Virtual and augmented reality (VR/AR)
* Data analytics
* Internet of Things (IoT)
* Cloud computing
* E-commerce and digital advertising strategy

***READING LIST***

Due to the workshop nature of the course – organised into seminars plus an operational part – it does not include an official reading list.

In-depth study material (textbooks, articles, presentations, vertical websites, online tools, white papers etc.) will be distributed during the individual workshop activities and made available to students via the Blackboard platform.

***TEACHING METHOD***

The course consists of practical lessons which could be: workshops, talks and company visits; there will also be frontal lectures where the theoretical foundations of the various technologies presented during the course will be addressed.

***ASSESSMENT METHOD AND CRITERIA***

For students who regularly attend lectures, assessment will be based on a combination of criteria: the intensity and rate of lecture attendance (up to 3 marks), a mid-term written test featuring both closed and open-ended questions (up to 5 marks), group work completed during the course followed by a classroom discussion (up to 3 marks) and lastly, a final written examination on an ordinary official examination date, featuring both closed and open-ended questions (up to 20 marks). Students who are unable to attend the lectures and workshops will have a special programme and reading list, and there will be an oral examination on the ordinary official examination date.

***NOTES AND PREREQUISITES***

There are no particular prerequisites but students may find it useful to read the following articles:

<https://www.html.it/pag/403266/introduzione-alla-blockchain/>

<https://www.agendadigitale.eu/documenti/nft-che-cosa-sono-come-funzionano-come-investire-sui-non-fungible-token/>

<https://www.redhat.com/it/topics/cloud-computing/iaas-vs-paas-vs-saas>

<https://www.ibm.com/it-it/topics/iaas-paas-saas>

<https://www.innovationpost.it/tecnologie/industrial-it/intelligenza-artificiale-deep-learning-e-machine-learning-quali-sono-le-differenze/>

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.