



# UNIVERSITÀ DI PAVIA

Anno Accademico 2021/2022

## SOFTWARE PROJECT FOR DIGITAL TRANSFORMATION

<b>Anno immatricolazione</b>	2020/2021
<b>Anno offerta</b>	2021/2022
<b>Normativa</b>	DM270
<b>SSD</b>	ING-INF/05 (SISTEMI DI ELABORAZIONE DELLE INFORMAZIONI)
<b>Dipartimento</b>	DIPARTIMENTO DI INGEGNERIA INDUSTRIALE E DELL'INFORMAZIONE
<b>Corso di studio</b>	COMPUTER ENGINEERING
<b>Curriculum</b>	PERCORSO COMUNE
<b>Anno di corso</b>	2°
<b>Periodo didattico</b>	Primo Semestre (27/09/2021 - 21/01/2022)
<b>Crediti</b>	6
<b>Ore</b>	45 ore di attività frontale
<b>Lingua insegnamento</b>	English
<b>Tipo esame</b>	SCRITTO E ORALE CONGIUNTI
<b>Docente</b>	MOTTA GIANMARIO PIERO ANTONIO (titolare) - 6 CFU
<b>Prerequisiti</b>	The course addresses architecture and management of Digital Transformation projects. It complements the distinctive courses of Computer Science and Embedded Systems, to which it adds techniques for designing Digital Transformation systems and for structuring / assessing / controlling related projects.
<b>Obiettivi formativi</b>	The course illustrates the roadmap for conceiving and implementing software projects for Digital Transformation, and includes also relevant technological, organizational and societal implications. It intends to develop requirements modeling ability and the knowledge of relevant areas of software project management. Learning is supported by the discussion of real projects and case studies. Finally, through a Project Work, students will experience the techniques illustrated in the course.
<b>Programma e contenuti</b>	Digital Transformation (DT) is the transformation of organizational,

individual and societal aspects driven by digital technologies. It stems from a very substantial enhancement of classic information systems (an of classic automation) thanks to the synergy of emerging technologies (IOT, Blockchain, AI) and/or established (Mobile Computing, Social Media, Cloud Computing, Analytics).

The course addresses three key aspects of DT projects, namely system architecture, requirements modeling, and project management.

The DT systems architecture is illustrated by lectures, testimonials of relevant companies, published case studies on DT applications in Banking, Entertainment, Shopping, Healthcare, and, also, on technology infrastructure developments (IOT - Internet Of Things, Cloud computing, etc.)

Requirements modelling addresses various complementary perspectives, and focuses on business process (e.g. BPMN), human-machine interaction (GOA and alike), systems interaction (e.g. Collaboration Diagrams and alike), and, finally, social-organizational transformation (Galbraith's Star Model).

Project management section provides the knowledge needed for structuring and implementing projects, based on PMI (Project Manager Institute) standards and Agile/Scrum paradigm; it addresses various project management areas, namely Project Scoping, Project Structure and Plan, Risk assessment, and control, Project Impact assessment.

#### Metodi didattici

Learning relies on a stimulus - reinforcement cycle where:

- Professor illustrates foundations and simple cases;
- Business testimonials illustrate the issues in the real world;
- Students develop as a Project Work the project proposal and give related presentations.

#### Testi di riferimento

1. N. Urbach et alii, Digitalization Cases, Springer 2018
2. A Guide to the Project Management Body of Knowledge, Project Management Institute, 6th edition, 2017
3. Agile Practice Guide, Project Management Institute, 2017
4. Course material provided by the teacher

#### Modalità verifica apprendimento

The exam includes a test on foundations, with a 1/3 weight, and the Project Work, with a 2/3 weight. Specifically:

- The test measures the comprehension of course foundations, through a series of open questions
- The project work measures the ability of implementing foundations on a real-world case study; it includes both team and individual sections.

#### Altre informazioni

For students who cannot attend on line lectures will be available

#### Obiettivi Agenda 2030 per lo sviluppo sostenibile

[Gli obiettivi](#)