

TEACHING MODULE Announcement

Università degli Studi di Napoli Federico II PhD Program in Information and Communication Technology for Health

Title: “The complexity paradigm: design principles of the digital twin in healthcare”

Lecturer: prof. Annarita Tedesco

Università degli Studi di Napoli Federico II

Dipartimento di Sanità Pubblica

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CV Annarita Tedesco Annarita Tedesco is a researcher in Bioengineering with the Department of Public Health of the Federico II University of Naples. She obtained her M.S. Degree in M.S. degree in Telecommunications Engineering from the University of Naples Federico II. Annarita Tedesco holds a PhD in Physical Sciences and Engineering at the University of Bordeaux and a PhD in Complex Systems Engineering at the University of Salento. Dr. Tedesco has been involved in R&D divisions of international technology companies, promoting strong cooperation with the academic world. Her research activities focus on the use of 4.0 technologies, especially digital twins and human-machine interfaces and on the modeling and control of biomedical systems. She is author or co-author of over 50 publications in peer reviewed international journals and has participated at several research projects.

Credits: 2

Dates and Locations(Policlinico Federico II, via Pansini n. 5, Napoli)

Date	Hours	Room	Lecturer
01 July 2025	3 (14:30-17:30)	Build. 20 - roomE	Annarita Tedesco
03 July 2025	3(14:30-17:30)	Build. 20 – room F	Annarita Tedesco
09 July 2025	2 (14:30-16:30)	Build. 20 – room E	Annarita Tedesco

Content

I Lesson – Introduction: Course introduction; Brief introduction on complex systems. Transition from statistical models to modeling through emergent behavior.

II Lesson - Rationale: involvement of enabling technologies in healthcare environment. Introduction to Cyber Physical Systems. Patient digital twin: requirements and application scenarios. The innovative concept of precision medicine and its consequences and implications.

III lesson - Conclusions: Discussion of some case studies. Discussion of future developments of the technology applications presented



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Notes

At the end of the 3rd lecture, there will be a final assessment test (30 minutes) to award the credits.

Participants to the Module are requested to e-mail to Annarita Tedesco the following: Student name, name of the PhD course and cycle, by **27 June 2025**.

Info:

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