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SMARt COmmunities Skills Development in Europe

Green Transition and Sustainability' in Smart Communities – Introduction

P. Fitsilis (fitsilis@uth.gr)
University of Thessaly

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Key objectives

- By the end of the course, participants will be able to:
  - **Define and explain** the concepts of *smart*, *sustainable*, and *green* communities and cities, and how they interconnect.
  - **Describe** the major frameworks, standards, and policy initiatives guiding smart urban transformation (e.g., SDG 11, EU Green Deal, ISO 37122, SCBoK).
  - **Recognize** the technological building blocks of smart cities (IoT, AI, data analytics, digital twins) and their role in sustainable operations.
  - **Understand** how sustainability principles (resource efficiency, circular economy, resilience) apply at community and city scales.
  - **Identify** governance models, citizen participation approaches, and innovation ecosystems that enable human-centered smart development.

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Expected Learning Outcomes

- After completing the course, participants will be able to:
  - Explain the foundational concepts of smart, sustainable, and green communities.
  - Evaluate technologies and policies supporting digital and ecological transformation.
  - Develop practical, data-informed strategies for sustainable community development.
  - Engage citizens and stakeholders in participatory governance.
  - Contribute to local, regional, or institutional smart community initiatives.

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Unit 1 – Foundations of Smart, Sustainable, and Green Communities

- This foundational unit introduces the **principles, frameworks, and paradigms** that shape the development of **smart, sustainable, and green communities**. It emphasizes the **integration** of technology, ecology, governance, and citizen participation as interconnected pillars of modern urban and regional ecosystems.
- **Learning Objectives.** By the end of Unit A, participants will be able to:
  - **Explain** the fundamental concepts of sustainability, green transition, and smart community development.
  - **Understand** the interrelation between digital transformation and sustainable urban growth.
  - **Recognize** key international and European frameworks that guide smart and sustainable community development.
  - **Apply** systems thinking to interpret how environmental, social, economic, and technological dimensions interact within communities.
  - **Identify** the enabling factors (data, technology, governance, citizen engagement) that drive community transformation.

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Unit 2 - The European Perspective: Green and Digital Transitions

- **EU Frameworks and Initiatives**
  - **European Green Deal:** A roadmap for making the EU's economy sustainable and resource-efficient.
  - **New European Bauhaus:** Connecting design, sustainability, and inclusiveness.
  - **Mission: 100 Climate-Neutral and Smart Cities by 2030**
  - **European Data Strategy** and **Digital Europe Programme** — fostering data-driven smart communities.
  - **Smart Specialisation (S3)** for regional innovation and local sustainability.

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Unit 3- ESG and Life Cycle Assessment (LCA) for Cities

- Equip participants with tools and frameworks to measure, report, and improve urban sustainability through ESG (Environmental, Social, Governance) principles and LCA (Life Cycle Assessment).
- Key Concepts
  - **ESG for Cities**: Strategic framework to assess sustainability performance.
    - E: Energy, emissions, waste, biodiversity
    - S: Equity, health, safety, participation
    - G: Transparency, ethics, accountability
  - **LCA:** Evaluates environmental impacts across the full life cycle of urban systems (buildings, mobility, energy, waste).

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Panos Fitsilis bio page

University of Thessaly

fitsilis@uth.gr

UNIVERSITY OF THESSALY

- **Professor Dr. Panos Fitsilis** is a full Professor at Business Administration Dept. of the University of Thessaly, Greece., Director of Research Lab for "Management, Digital and Educational Skills" (MANDEIS) of UTH, and academic coordinator of the module "Software Design" at Hellenic Open University.
- He has extensive project management experience with the development and deployment of large IT systems and extensive management experience in various senior management positions. His research interests include Smart Cities, Smart Factories, Industry 5.0, Business Information Systems, Social Systems, Educational Technology, Software Project Management, etc.

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