University of the Built Environment
EST. 1919

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Introduction to Digital Planning and Artificial Intelligence

Module Descriptor

Module Code:	PLN7IDP
Version:	V1.00
Status:	Final
Date:	16/07/2025

Summary Module Details

Module details

Module Title: Introduction to Digital Planning and Artificial Intelligence

Module Leader: TBC

Module Mode: Supported online learning

Semester: Spring (UK)

Level: 7

Credits: 10

Learning Hours: 100

Contact & Study Hours

Directed Study Time: 30 hrs (30%)

Self-directed Study Time: 35 hrs (35%)

Assessment Study Time: 35 hrs (35%)

Assessment Type

Coursework: 100%

Module Summary

This module introduces students to the transformative role of digital technologies, data, and artificial intelligence in the planning and delivery of the built environment. Students gain a conceptual and practical grounding in key digital tools and Artificial Intelligence (AI) concepts, including geospatial platforms, digital twins, and machine learning. The module explores how these tools are beginning to reshape planning decision-making, infrastructure systems, and professional roles, while critically examining the regulatory and ethical frameworks that guide their use. Emphasis is placed on building students' confidence in digital thinking, spatial data analysis, and understanding real-world urban challenges such as sustainability, mobility, and housing.

Taken on which Programmes

MSc Urban Planning (C)

Core (C) or Elective (E)

Module Aims

By the end of this module, students will be able to:

- Explain core digital and AI concepts relevant to planning and infrastructure decision-making
- Identify opportunities and risks associated with digital and AI technologies in the built environment
- Develop foundational skills in using digital planning platforms (e.g. GIS, public engagement tools)
- Understand the ethical, political, and legal frameworks for responsible digital planning and AI use

Module Learning Outcomes

LO1. Critically interrogate and understand key digital tools and AI technologies shaping the built environment, including geospatial platforms and machine learning systems

LO2. Critically explore and apply basic spatial and engagement platforms to assess urban issues such as housing, mobility, and sustainability

LO3. Critically evaluate the ethical and regulatory implications of digital planning and AI, including RTPI and RICS frameworks

LO4. Critically evaluate how digital transformation is influencing the role of planners, built environment professionals, and local government

Indicative Module Content

Module topics

The module is divided into the following key themes:

- **Introduction to Digital Planning and AI**

  Overview of digital transformation in planning. Key concepts: artificial intelligence, machine learning, big data, and smart cities. Case studies: How

digital planning is reshaping urban governance (case studies from the MHCLG Proptech Innovation Fund)

- **Tools and Technologies**

Geographic Information Systems (GIS) in planning. Introduction to Digital Twins and their applications in urban planning. AI-based tools for predictive modelling, design automation, and scenario planning.

- **Data and Decision-Making in Planning**

Urban data sources: open data, real-time data, and remote sensing. Principles of data governance and interoperability. Practical session: Visualizing and analysing urban data using tools such as VUCity/Commonplace/Futurecity.

- **Ethics and Regulation in AI for Planning**

Policy and legal frameworks for AI in planning. PSED, Human Rights, and digital planning. Making "fair" decisions with AI. The environmental impact of data-driven decisions. Workshop: Case studies on ethical dilemmas in digital planning.

- **Applications of AI in Urban Challenges**

AI for sustainable development: climate modelling, energy efficiency, and green infrastructure. AI for mobility and transport planning: predictive traffic modelling, autonomous vehicles, and route optimization. AI for housing and land use: customisable and compliant tools for site selection, demand forecasting, and resource allocation.

- **Future Directions in Digital Planning**

Emerging technologies: blockchain, the Internet of Things (IoT), and extended reality (XR) in planning. The role of planners and surveyors in an AI-driven future. Group presentations: Proposals for integrating AI into specific planning challenges.

This content will be reviewed and updated regularly to reflect the legal, moral and financial changes in professional standards and practice.

Overview of Summative Assessment

Module learning outcomes	Assessment	Word count or equivalent	Weighting
LO1, LO2	**Assessment 1** Coursework	1,250	50%
LO3, LO4	**Assessment 2** Coursework (project and presentation)	1,250	50%

Module Pass Mark (each element is to be passed separately): 50%

Key Module Learning Resources

Core Sources and Texts

The core reading resources within each module will be provided via the specific Virtual Learning Environment (VLE) module pages and within the e-Library. Additional reference material and supplementary resources to support your studies are available through the University of the Built Environment e-Library.

Module tools

Students will have access to study materials, dedicated academic support, student forums, and learning activities via an online learning platform (VLE).

The module page on the VLE is broken down into structured study weeks to help students plan their time, with each week containing a mixture of reading, case studies, videos/recordings and interactive activities to go through. Online webinars/seminars led by the Module Leader can be attended in real time and provide opportunities to consolidate knowledge, ask questions, discuss topics and work through learning activities together. These sessions are recorded to support students who cannot attend and to enable students to recap the session and work through it at their own pace. Module forums on the VLE provide further opportunities to discuss topics with other students, complete collaborative work and get extra help from the module team.

Professional online resources

The e-Library provides access to trusted, quality online resources, selected by subject specialists, to support students' study. This includes journals, industry publications, magazines, academic books and a dissertation/work-based library. For a list of the key industry specific and education resources available please visit the VLE e-Library.

Other relevant resources

Access is also provided to further information sources that include the British Library and Open University UK catalogues, as well as providing a monthly current awareness service entitled, ***Knowledge Foundations*** - a compendium of news, research and resources relating to the educational sector and the Built Environment.

The module resource list is available on the module VLE page and is updated regularly to ensure materials are relevant and current.