

MASTER OF DIGITAL URBAN MANAGEMENT (MDUM)

These syllabuses are applicable to candidates who are admitted to the Master of Digital Urban Management curriculum in the academic year 2026-27 and thereafter

COURSE DESCRIPTIONS

MDUM1010 Management of Urban Systems (6 credits)

The course provides a solid foundation for understanding the complexities of managing urban systems. Students will learn the main challenges that urban systems are confronted with today, and the management and governance of interrelated urban systems, such as land, transportation, energy and environment systems. The course will also analyse real-world scenarios of using digital smart technologies for urban system management, and offer insights into the transitions to smart urban systems.

Assessment: 100% continuous coursework assessment

MDUM1020 Urban Economics (6 credits)

This course provides an introduction to urban economics. The course will cover fundamental models in land use, transportation, and housing markets. It will also discuss the role of government in urban economic development. Students will learn the economic factors that influence decisions about where to live, work, and invest in cities. They will also explore the impacts of public policies on urban economies, including taxation, transportation, and housing policies.

Assessment: 40-60% continuous coursework assessment, 40-60% examination

MDUM1030 Municipal Finance for Urban Practitioners (6 credits)

This course aims to equip urban practitioners the necessary knowledge to participate in financing and funding decisions for cities. The objectives include teaching financial concepts at a municipal level for practical application, comparing financing choices among different countries, comprehending the diverse social, political, and historical contexts that influence institutional financing structures, and linking sectoral insights with financing decisions to enhance urban practices on local, regional, and global scales.

Assessment: 100% continuous coursework assessment

MDUM2010 Urban Sustainability and ESG (6 credits)

This course introduces the concepts of urban sustainability and Environmental, Social, and Governance (ESG) principles within the context of city management. The focus will be on understanding how cities can be developed and managed to balance economic vitality, environmental protection, and social equity. It will discuss the challenges and opportunities in sustainable urban development.

Assessment: 100% continuous coursework assessment

MDUM2020 Digital Technologies and Smart Cities (6 credits)

This course explores the role of digital technologies in smart cities. It provides a comprehensive understanding of how technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), Big Data analytics, and Geographic Information Systems (GIS) are transforming urban environments and services. The course will also cover the impacts of these technologies on urban planning, public administration, and citizen engagement.

Assessment: 100% continuous coursework assessment

MDUM2030 Urban Governance and Policymaking in the Digital Age (6 credits)

This course explores the evolving dynamics of urban governance and policymaking in the context of the digital age. The course will cover the concepts and forms in governance and policymaking, and delve into algorithmic governance and data-driven policymaking. Students will also learn how cities around the world integrated technology into their governance models, as well as the ethic and privacy associated with the use of data and algorithms in city management.

Assessment: 100% continuous coursework assessment

MDUM6010 Transport and Society (6 credits)

How is transport socially produced? And what makes transport a social phenomenon? This course examines these questions through a dialectical approach to the relationship between transport and society. On one hand, it investigates the social factors and dynamics that shape transport—not merely as an instrument of economic development or technological efficiency, but as an inherently social phenomenon structured by inequalities, discourses, representations, and subjectivities. On the other hand, it analyzes how transport and mobility shape contemporary societies, focusing on the production of transport knowledge, policy formulation, infrastructure development, and everyday practices of transport labor and mobility. These processes are deeply entangled with broader relations of class, gender, race, coloniality, and power. Taken together, the course offers a dialectical understanding of transport as both socially produced and as a key arena where social relations are reproduced.

Assessment: 65% continuous coursework assessment and 35% examination

MDUM6020 Urban Project Management in Practice: From Classical Methods to AI-Driven Delivery (6 credits)

Urban planning and design projects are increasingly delivered in environments characterized by complexity, uncertainty, multinational collaboration, and accelerated technological change. While students in planning and design programs are well-trained in substantive urban theory and design thinking, there is often limited structured exposure to how such projects are actually managed, governed, and delivered in professional practice.

This course focuses explicitly on project management as applied to urban planning and design contexts. It examines how projects are initiated, structured, coordinated, controlled, and concluded, drawing on both classical project management frameworks and contemporary, technology-enabled practices. Emphasis is placed on real-world decision-making, organizational dynamics, stakeholder relationships, and risk management in complex and cross-boundary project environments.

A distinctive feature of the course is the integration of AI and automation tools—including Notion, Microsoft Project, ChatGPT, Gemini, and workflow automation platforms such as n8n—as practical supports for project planning, coordination, monitoring, and reporting. Rather than positioning AI as a replacement for professional judgement, the course critically explores its role as an augmentation tool, highlighting both its capabilities and limitations.

Students will engage in hands-on development of a personal digital project management system and undertake an industry-facing group research project based on interviews or surveys with experienced project managers. Through these activities, students will connect theory with professional practice, develop empirical inquiry skills, and reflect on the evolving nature of project management in the urban planning and design domain.

The course is designed for postgraduate students and assumes prior knowledge of urban planning and design principles. Its primary objective is to equip students with transferable project management competencies and a critical understanding of how emerging technologies are reshaping professional practice.

Assessment: 100% continuous coursework assessment

URBP6002 Urban Development Theories (6 credits)

This course reviews the theoretical frameworks for the understanding of urban development processes. It analyses the economic, spatial and socio-political dimensions of urban activities. The dynamics of urbanisation in the global production system, the relations between capital accumulation and urban development, place marketing and the rise of the creative cities will be discussed.

Assessment: 100% continuous coursework assessment

URBP6003 Planning Practice, Law and Ethics in Hong Kong (6 credits)

This course provides a detailed understanding of professional planning practice in Hong Kong. It deals with the practical dimensions of planning in both the public and private sectors. The course reviews the history, policies, strategies, administrative and legal procedures of planning. It also examines issues surrounding the ethical basis of professional planning activity.

Assessment: 60%-70% continuous coursework assessment and 30%-40% examination

URBP6006 Planning, Managing and Financing the Development Process (6 credits)

Planning in a development process needs to take into account a variety of spatial, sectoral, resources management and financial factors. This course examines the interactions of these factors in development processes initiated by the public sector, the private developers or through various modes of public-private partnership. The intersectoral and spatial implications of the development processes will be explored through case studies of planning at different geographical scales in the context of Hong Kong.

Assessment: 100% continuous coursework assessment

URBP6131 Transport Policy and Planning (6 credits)

This course focuses on key issues in transport policy and the implementation of

transport plans and programmes. It examines the role of private and public modes within the overall urban transport system as well as pedestrian movement planning, airport development and seaport development. The course uses examples drawn from various countries to evaluate the appropriateness and effectiveness of alternative policies and implementation mechanisms.

Assessment: 100% continuous coursework assessment

URBP6157 Transport Economics (6 credits)

This course helps to develop a specialist appreciation of the economics of urban transport provision. It highlights the economic principles and techniques employed in planning, operating and managing our city transport systems and concentrates on topics such as: travel time valuation, road congestion costing and pricing, public transport finance and cost-recovery, and economic appraisal techniques employed therein.

Assessment: 40%-60% continuous coursework assessment; 40%-60% examination

URBP7005 Planning Future Cities and Regions (6 credits)

In this course, class participants explore prevalent and emerging challenges cities and regions confront in pursuing sustainable development and discuss potential planning and policy solutions to such challenges. In detail, the course covers three main topics: key concepts/theories of sustainable development and global megatrends, such as slow growth, ageing, inequality, and climate change; available planning and policy tools for sustainable development—and in response to the megatrends—and related performance/impact assessment systems; and contemporary practice in both local and international contexts.

Assessment: 100% continuous coursework assessment

URBP8002 International Planning Policy and Practice (6 credits)

This course examines different planning systems across the world and the ideologies and values behind the planning processes and approaches. Understanding the key approaches to urban planning in different countries and regions of different governance regimes is important in developing an appreciation of how different ideologies and political economies give rise to different planning policies and practices to shape the urban landscapes of various localities within their own contexts. The course takes a comparative approach to understand and evaluate planning policy and practice and the planning outcomes across a spectrum of international case studies, and attempts to explain their differences and similarities by probing into the dynamics between

government intervention and market freedom, diversity in development certainty vis-à-vis land use controls and planning governance modes.

Assessment: 100% continuous coursework assessment

MHCD7002 Principles of Healthy Cities (6 credits)

This is a theoretical course focusing on fundamental concepts, theories and models on a wide range of emerging urban health issues at local, regional and global scales. The aim is to employ systems thinking to elucidate the intrinsic multifactorial interactions between urban space and human behaviour and lifestyle resulting in the socio-spatial production of health. Urban planning, design and policy aspects at building-, neighbourhood- and city-levels promoting active-living, salutogenicity, social cohesion and racial inclusivity, age-friendliness, climate change-resilience, pandemic-resilience and longevity- readiness, and their role in population health and wellbeing will be discussed.

Assessment: 0%-70% examination and/or 30%-100% continuous coursework assessment

MHMP8013 Smart and Sustainable Cities (6 credits)

This course examines the rise of smart and sustainable cities, as mobilized by a range of governance actors from the urban to global scale, including their origins, construction and management. It explores the underlying motivation for these specific urban models - often grounded in the UN Sustainable Development Goals (SDGs) - their potential, but also their more problematic aspects. The course will introduce key theories that have been used to understand smart and sustainable cities, and relevant planning and governance issues. Learning activities will involve case studies, debates, and field research intended to enhance student engagement.

Assessment: 0%-70% examination and/or 30%-100% continuous coursework assessment

MPOP7004 Methods for Policy Evaluation (6 credits)

This module offers a deep dive into the intricate world of evaluating population policies, employing cutting-edge quantitative causal inference methods with both experimental and non-experimental data. Participants will grapple with fundamental questions: How can we rigorously assess the impact of policies or events? How do we discern causal relationships within observational data? The course extensively employs real-world examples to elucidate various statistical methods for causal inference, encompassing Rubin's Causal Model, regression fundamentals, standard error

calculations, analysing naturally occurring “quasi-experiments,” instrumental variable estimation, difference-in-differences estimation, and regression discontinuity design. Participants will gain hands-on experience, mastering these techniques to conduct robust and insightful evaluations of population policies and programs. Throughout the course we will use the R statistical software to carry out calculations and visualise our results.

Assessment: 100% continuous coursework assessment

URBA6002 Urban Big Data Analytics (6 credits)

This course further develops students’ knowledge and skills in handling, analysing and modelling urban data, especially big data. Students will learn conceptual frameworks for analysing and modelling urban issues, methodologies and software tools for processing and modelling urban data; as well as applying urban models and analytics to empirical cases. The aim of this course is to equip students with advanced urban modelling and analytics to explain current urban conditions and predict future urban changes beyond the smart era.

Assessment: 100% continuous coursework assessment

Prerequisite: URBA6011 Programming and Foundations in Urban Data Analysis

URBA6004 Spatial Mobilities Analytics (6 credits)

This course discusses how space, society (institutions) and accessibility are related and how accessibility should be defined, analysed and designed/improved in light of the existing, possible or proposed spatial arrangements of socially valued goods, services and opportunities, which are embedded in, and shaped by social norms, values and institutions. It argues that complex relationships exist between space, society and accessibility, which should be accounted for in related policy/planning interventions. Students will learn to understand, analyse, manage and harmonise such relationships to deliver desirable outcomes such as efficiency, equity, quality of life and sustainability.

Assessment: 100% continuous coursework assessment

Prerequisite: URBA6011 Programming and Foundations in Urban Data Analysis

URBA6006 Science of Cities (6 credits)

This course introduces fundamental theories and models for an emerging field of urban sciences, with emphasis on the urban economics, regional science, and spatial planning

literature. The primary goal of this course is to strengthen students' theoretic and scientific bases for cities and regions as a prerequisite for the mastery of advanced data analytics or urban modelling techniques. A thorough understanding of the city and the system of cities is essential in developing expertise in urban science, and taking advantage of advanced data analytics and modeling tools would not be possible without the former.

Assessment: 100% continuous coursework assessment

URBA6007 Geographic Information System (GIS) for Urban and Regional Planning Development (6 credits)

This course introduces the basic concepts and methods in the use of geographic information system as a spatial planning support system in different areas of urban and regional planning and development. It examines the basic principles and functions of geographic information system in data input, manipulation, retrieval, visualization and modelling of geographical data for supporting spatial planning decisions.

Assessment: 100% continuous coursework assessment

URBA6008 Spatial Planning Analytics (6 credits)

Spatial planning shapes the built environment and human activities across sites, neighbourhoods, cities and regions. This course introduces the basic concepts and methods in the use of spatial analytics and modelling to support sustainable urban development across different spatial scales. It is applied oriented and designed to equip students with analytical and modelling techniques for measuring, modelling and predicting urban spatial changes. It covers a wide range of topics, including urban form metrics, geodesign, location choice models, frameworks for land use and transport interaction, and scenario planning. Students will be required to reflect on and design context-specific strategies for a sustainable urban future, based on spatial planning analytics and modelling.

Assessment: 100% continuous coursework assessment

URBA6011 Programming and Foundations in Urban Data Analysis (6 credits)

Spatial data has become indispensable for building a smart city, particularly in city planning, design and management. This involves new means of capturing spatial data by different types of sensors, advanced application of Artificial Intelligence (AI) and rapid development of spatial analytics in the area of Geographic Information System (GIS) and Building Information Modelling (BIM). The main objective of this course is to

equip students from relevant disciplines (e.g. land use planning, surveying, architecture, landscape architecture, engineering, environmental science and social sciences) with foundational knowledge and programming techniques on spatial data analysis.

Assessment: 100% continuous coursework assessment

MHCD7003 Health Impact Assessment of Urban Development Projects (6 credits)

Urbanisation is one of the leading global trends of the 21st century. It has been found that urban development is closely associated with significant human health in both direct and indirect way. This course will introduce Health Impact Assessment as a tool to internalize evidence in our decision-making process with focus on health externalities. The process of full-chain health impact assessment including exposure assessment, health risk assessment and economic evaluation of various aspects of urban design and urban and transport development projects will be elucidated.

Assessment: 30% - 100% continuous coursework assessment and/or 0% - 70% examination

MPOP7005 Statistical Computing for Social Science (6 credits)

The volume of data produced by society continues to grow at an exponential pace. Tools that harness the increasing amounts of data are providing new insights into ongoing changes in our societies. This course introduces statistical data analysis using R; a popular open-source statistical programming language used for data mining, modelling, and visualisation. The course begins with an introduction to the R and RStudio working environments, providing an outline of common core functions for data analysis and getting help using R. Next, common data structures, variables, and data types will be demonstrated. Students will then learn how to write code scripts to utilise the popular tidyverse set of R packages for data manipulation and visualisation. Finally, we will learn how to carry out a range of statistical regression analyses in R, to summarise relationships, account for hierarchies in data sets and effectively assess and communicate our model results.

Assessment: 100% continuous coursework assessment
