

MASTER OF SCIENCE IN URBAN DESIGN AND TRANSPORT (MSc(UDT))

Applicable to candidates admitted to the Master of Science in Urban Design and Transport curriculum in the 2026-2027 academic year and thereafter

COURSE DESCRIPTIONS

MUDP1030 Morphologies and Urban Design Theories (6 credits)

This course introduces the three natures of urban morphology: natural, built environment, institutional configurations and urban design theories. Introduction to urban morphologies will examine key concepts, the study of the formation of urban fabric, the relationship of these components through time and at different spatial scales in local and international contexts. Urban design theories describe the state of the art of research about the relationship between urban morphology and human effects and other impacts referenced to the key historical urban design thinkers.

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 techniques on spatial data analysis.

Assessment: 100% continuous coursework assessment

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

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

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

MUDP2010 Research Methods and Techniques (6 credits)

The course introduces research design and research methodology and their limitations appropriate for urban design. Topics include: research paradigms, the emergence of design research, formulation of research questions; range of research methods and resources needs; choices of research methods and limitations; formulation of research proposals; use of digital techniques in urban design research.

Assessment: 100% continuous coursework assessment

MUDT (TBC) Complex Systems for Smart Urban Mobility (6 credits)

Transportation systems and human mobility patterns are quintessential examples of complex systems, in which many components interact with each other to produce emergent behaviors that are challenging to predict from the behavior of the individual components. The complex systems perspective has therefore provided many critical insights and exciting new methodologies for transportation and mobility modelling. This course will introduce students to a variety of advanced analytical and computational methods for analyzing and modelling urban transportation systems and human mobility patterns from the complex systems perspective, stressing applications of these methods in urban design problems. The primary concepts introduced will include complex networks, spatiotemporal machine learning, and urban simulation, with an eye towards how these methods can facilitate transport designs promoting urban vitality, sustainability, accessibility, resilience, and various factors of wellbeing (e.g. disease spread, social integration, and equity).

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

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

URBP6123 Public Transport Systems (6 credits)

This course is designed to examine the nature and the role of public transport systems mainly in the urban context with special reference to high-density development. Topics include the nature and the characteristics of passenger transport, the operation and management of public transit systems, deregulation and privatisation, the role of para-transit, and multi-modal cooperation and competition.

Assessment: 100% continuous coursework assessment.

MUDP1020 Urban Design Technologies & Innovations (6 credits)

The course focuses on technologies-related tools and techniques in professional urban design practice, and urban design research that enables designers to fully exploit technologies and techniques for urban physical environment appraisal, research for and about urban design, urban development design and communication at small and medium spatial scales. It also includes insights of innovations and techniques in urban design.

Assessment: 100% continuous coursework assessment

MUDP2020 Values of Urban Design: Urban, Social Environmental Economics (6 credits)

Urban design and real estate engage the complex mechanisms of environmental and social capital in relation to finance and economics, by seeing design and built environment investment as intrinsically associated with economics and values. The course is an introduction to the issues arising of these associations: what roles urban economics play in urban design? From regional and spatial economics to spatial initiatives and governance to approaches to values in urban design. Conversely how urban design visioning can have impacts on economics, financial investment and values, including added environmental, social, cultural and aesthetic values?

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

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

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; 30%-40% examination

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

MHCD7001 Design, Survey and Modelling for Urban Health (6 credits)

This is a methodology course aimed at assessing key attributes of urban environments for population health improvement. The course will introduce concepts of: 1) study design (descriptive and analytical [observational study and experimental study]); 2) study populations (sample size calculation, data collection/sampling approaches); 3) exposure assessment (survey and management of urban environments: air pollution, water, wastes etc.); 4) outcome assessment (physical and mental health, economics, policy etc.); 5) describe and analyse evidence (disease mapping, spatial analysis models, and health effects assessment of environmental exposures). Students will be also encouraged to form groups to appraise and interpret existing evidence of the links between urban exposures, behaviour and health outcomes.

Assessment: 0%-70% examination and/or 30%-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

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

MHMP8012 Key Issues in Ageing Communities (6 credits)

This course examines key trends in ageing cities and introduces key ageing-related concepts, such as healthy ageing and age-friendly communities. It discusses the influence of the built environment and social environment on the physical and mental health of older adults, including the role of housing, transport and opportunities for social interactions. The course also draws attention to social inequalities in later life. Other topics include ageism, smart technologies and the digital divide.

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

MHMP8008 Transitional Cities: Urban and Housing Development (6 credits)

Building upon comparative concepts and introductory materials of local knowledge, this course aims to provide students with the opportunity to explore contemporary urban changes both in the countries that are undergoing the transition from the planned to a market-oriented economy and in newly industrialised economies. The course has a regional focus on cities in Pacific Asia, in particular Chinese cities, and cities in Central and Eastern Europe. By the end of the course, students should be able to gain an empirical understanding of diverse local contexts and to broaden the concepts discussed in urban and housing studies.

Assessment: 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

URBP6904 Housing, Planning and Sustainability (6 credits)

This course aims to provide an integrative and in-depth understanding of Hong Kong's housing system and its relationships with urban planning and the concepts of sustainable development. It discusses the theoretical and practical aspects of housing, making special reference to their relationships with urban planning and sustainable development. Major topics include the housing system concepts, the political economy of housing policies, land use planning and housing affordability, principals of residential planning, housing policy analyses, housing market analyses, and the application of the sustainable development perspective to housing analyses.

Assessment: 100% continuous coursework assessment

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

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
