

SYLLABUSES FOR THE DEGREE OF MASTER OF SCIENCE IN URBAN DESIGN AND TRANSPORT (MSc(UDT))

(These syllabuses are applicable to candidates admitted to the Master of Science in Urban Design and Transport curriculum in the 2026-2027 academic year and thereafter)

(See also General Regulations and Regulations for Taught Postgraduate Curricula)

The Department of Urban Planning and Design offers a postgraduate course leading to the degree of Master of Science in Urban Design and Transport.

CURRICULUM STRUCTURE

The curriculum shall include assessment of the prescribed and elective courses subject to the approval of the Head of the Department of Urban Planning and Design, the Design Studios, the Dissertation and the Thesis Project. Candidates studying the full-time curriculum are required to complete a total of 120 credits of courses.

Candidates are required to follow courses of instruction and satisfy the examiners in each of the following:

Core Courses (Compulsory)

Candidates shall complete the following core courses:

MUDP1030 Morphologies and Urban Design Theories	6 credits
URBA6011 Programming and Foundations in Urban Data Analysis	6 credits
URBP7005 Planning Future Cities and Regions	6 credits
URBA6004 Spatial Mobilities Analytics	6 credits
URBA6008 Spatial Planning Analytics	6 credits
MUDP2010 Research Methods for Urban Design	6 credits
URBP6157 Transport Economics	6 credits
MUDT5011 Complex Systems for Smart Urban Mobility	6 credits

Studio Courses (Compulsory)

Candidates shall complete the following studios courses:

MUDT7011 Future Street Design Studio	12 credits
MUDT7002 Smart Transit-Oriented Development Design Studio	12 credits

Capstone Experience (Compulsory)

Candidates shall complete the following capstone experience courses:

MUDT1004 Urban Design & Transport Research Dissertation	15 credits
MUDT1005 Urban Design & Transport Thesis Project	15 credits

Elective Courses

| 18 credits

Candidates shall complete three courses (18 credits) from the following list:

CIVL7006 Optimization Techniques for Transportation Applications
CIVL6007 Behavioral Travel Demand Modelling
GEOG7001 Survey and Data Analysis in Transport Studies
URBP6131 Transport Policy and Planning
URBP6123 Public Transport Systems
MUDP1020 Urban Design Technologies & Innovations
MUDP2020 Values of Urban Design: Urban, Social Environmental Economics
URBP6006 Planning, Managing and Financing the Development Process
URBP6003 Planning Practice, Law and Ethics in Hong Kong
URBP6007 Geographic Information System (GIS) for Urban and Regional Planning Development
MHCD7001 Design, Survey and Modelling for Urban Health
MHCD7002 Principles of Healthy Cities
MHCD7003 Health Impact Assessment of Urban Development Projects

MHMP8012 Key Issues in Ageing Communities
MHMP8008 Transitional Cities: Urban and Housing Development
MHMP8013 Smart and Sustainable Cities
URBP6904 Housing, Planning and Sustainability
URBA6002 Urban Big Data Analytics
MDUM1030 Municipal Finance for Urban Practitioners
MDUM2020 Digital Technologies and Smart Cities

Not all elective courses are available each year and list of courses may vary from year to year. Selection of elective courses offered by other taught postgraduate programmes in the Faculty of Architecture, and courses offered by the Department of Civil Engineering and the Department of Geography at the University of Hong Kong, is subject to prior approval by the Head of Department in consultation with the respective Programme Directors. Please check the courses offered by these curricula at the time of enrolment and refer to the respective syllabuses for the course descriptions.

CORE COURSES (Compulsory)

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 for Urban Design

| 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

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

MUDT5011 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

STUDIO COURSES (Compulsory)

The Studios are the critical component of the MSc programme. The design studios link the theories and issues raised in the core and elective courses with the practical analysis of urban design, transport and accessibility issues and the formulation of proposals for soft and hard interventions. The courses lead students through the process of experiential and problem-based learning in urban design, transport and accessibility and engaging with the different ways urban design, transport and accessibility relates to policy development, planning processes, legal contexts, financing instruments, multi-scale configuration and organisation and the existing and emerging values of complex urban societies. Each studio focuses on important aspects of urban design, transport, mobility and accessibility fields both informed by research about design and creative modes of research for design and by/through design.

MUDT7011 Future Street Design Studio

| 12 credits

This is the first urban design and transport studio in the Programme. Emphasizing the street as both a mobility system and a social space, this studio challenges students to reimagine Hong Kong's streets for a low-carbon, livable, and resilient future. It explores future mobility scenarios in which mass public transport—subway, tram, bus, minibus, and ferry—remains the backbone of urban mobility, complemented by electric vehicles, automated transit, and shared micromobility. Working with a real site, students integrate transport planning principles and urban design strategies to develop forward-looking yet feasible proposals. Core concepts in urban analytics are introduced, together with computational tools such as GIS, Rhino Grasshopper, Space Syntax, and Python-based methods, to equip students with the skills to process, analyze, and visualize 2D and 3D spatial data across scales. Industry professionals and practitioners are invited to deliver guest seminars, lead workshops, and participate in design reviews, offering students valuable insights from real-world practice.

Assessment: 100% continuous coursework assessment

MUDT7002 Smart Transit-Oriented Development Design Studio

| 12 credits

Rapid urbanization has made it increasingly critical to coordinate public transport infrastructure with urban development. Without proper integration, cities struggle to remain adaptable and sustain long-term development. Many urban areas now apply Transit-Oriented Development (TOD), which guides planning and investment decisions to promote compact, mixed-use neighborhoods located within a 10-minute walk of major transit hubs. Effective TOD encourages non-motorized transport (such as walking and cycling), strengthens local economies, reduces car dependence, and improves access to jobs,

services, and high-quality public spaces.

This studio explores the interaction between urban mobility, development, and community in contemporary cities. It focuses on strengthening the connections between public transport systems, surrounding neighborhoods, and mixed-use development. Students will learn to design walkable, sustainable communities that are context-sensitive, reflect local identity, and enhance urban livability.

The studio combines lectures, design exercises, workshops, and reviews. Students work individually and in teams to prepare, present, and refine design proposals. An overseas field trip provides opportunities to study the international application of diverse TOD principles. By the end of the course, students gain the skills needed to create more connected, resilient, and livable urban environments.

Assessment: 100% continuous coursework assessment

CAPSTONE EXPERIENCE (Compulsory)

MUDT1004 Urban Design & Transport Research Dissertation

| 15 credits

The Research Dissertation (RD) builds directly on the research training acquired in MUDP2010 Research Methods for Urban Design and provides students with an opportunity to undertake a focused, supervised research project in urban design and transport.

The RD emphasises research about urban design and transport, rather than research for design. Students are expected to formulate clear, focused, and feasible research questions grounded in existing theories, conduct a critical literature review, and carry out case study-based research to generate analytical and design-relevant insights. Given the limited timeframe, the course prioritises relevance, feasibility, methodological soundness over novelty of research topics and methods.

Through the dissertation, students learn to develop and implement a research proposal, analyse primary and/or secondary data, and communicate findings in the format of an academic paper. The RD develops students' capacity to link theory, method, and evidence, while cultivating research ethics, critical thinking, and scholarly communication skills essential for both professional and academic careers in urban design and transport.

Assessment: 100% continuous coursework assessment

MUDT1005 Urban Design & Transport Thesis Project

| 15 credits

The Thesis Project (TP) is the design-based counterpart to the Research Dissertation and forms the second core component of this course. It integrates and extends students' learning from the two taught studios—Future Street Design Studio and Smart Transit-Oriented Development Design Studio—by requiring students to translate research knowledge into a design proposal.

The TP focuses on research for design and research by design, addressing the well-recognised research-practice gap in urban design and transport. Building on existing theories and research findings, students are expected to develop and articulate a clear design thesis—expressed through design principles, strategies, and propositions—and operationalise it through iterative design exploration. The project emphasises innovation, spatial reasoning, and multi-scalar thinking while remaining grounded in real-world constraints and ethical considerations.

Through the TP, students demonstrate their ability to synthesise research insights, analytical reasoning,

and creative design into a coherent, professionally presented design proposal. The TP cultivates advanced design and technical competence, translational thinking, and critical judgement, preparing students to engage with complex urban mobility challenges in their future professional practice or research endeavours.

Assessment: 100% continuous coursework assessment

ELECTIVE COURSES

CIVL7006 Optimization Techniques for Transportation Applications | 6 credits

Linear programming, non-linear programming, network optimization, and integer optimization methods for solving transportation problems.

Assessment: All courses offered by the Department of Civil Engineering are assessed through examination (70%) and coursework continuous assessment (30%), the weightings of which are subject to approval by the Board of Examiners.

CIVL6007 Behavioral Travel Demand Modelling | 6 credits

Demand theory; statistical models; survey methods in transport; land use transportation models; disaggregate choice models; behavioural concepts in choice modelling.

Assessment: All courses offered by the Department of Civil Engineering are assessed through examination (70%) and coursework continuous assessment (30%), the weightings of which are subject to approval by the Board of Examiners.

GEOG7001 Survey and Data Analysis in Transport Studies | 6 credits

Surveys are commonly used to collect useful data in transport studies. A myriad of survey methods and instruments are available. This course covers the major aspects including survey design, sampling, hypothesis testing, interview and questionnaire design, survey implementation and administration, computer-based data processing, analysis and retrieval and report writing. Different aspects of surveys are discussed with reference to the transport-related professions and disciplines in different political and socio-economic contexts. Examples include travel characteristics, origin-destination, freight and public transport surveys conducted in Hong Kong and the other parts of the world. The fundamentals of spatial and non-spatial data analysis are covered using selected software. Moreover, some key opportunities and challenges of big data are discussed.

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

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

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

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

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