ABP Master Track Urban Systems & Real Estate (USRE)

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The Department of the Built Environment

Urban Systems and Real Estate

TU/e

Content

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Urban Systems and Real Estate

Creating healthy, safe and viable urban environments.

USRE fields of expertise

- REMD - Real Estate Management & Development

- UPT - Urban Planning & Transportation

- ISBE - Information Systems for the Built Environment

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USRE Courses

Core courses:	*25 ec*
Specialization courses:	*30 ec*
Free electives:	*20 ec*
Graduation project:	*45 ec*
Total:	***120 ec***

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USRE Core Courses (select all)

7ZW3M0   *Urban Planning II (Q1)*

7ZU3M0   *Managing Place and Property (Q2)*

7ZW7M0   *Urban Research Methods (Q3)*

7ZW4M0   *Built Environment and Smart Mobility (Q4)*

7ZM5M0   *Process Modeling and Information Management (Q4)*

You can find information on courses in Osiris (https://tue.osiris-student.nl/#/login)

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USRE Specialization Courses (select 30 ec)

7ZU4M0   *Econometric analysis of housing markets: data, tools and strategies (Q1)*

7ZU1M0   *Housing Portfolio Management (Q1-Q2, project)*

7U772   *Corporate Real Estate Strategy (Q3)*

7ZU2M0   *Redevelopment of Problem Areas (Q3-Q4, project)*

7ZW5M0   *Smart healthy urban environments (Q2)*

7ZW1M0   *Big Data for Urban & Transportation Analysis (Q3-Q4, project)*

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USRE Specialization Courses (continued)

7ZM1M0   *Research and Development project (Q1-Q2, Q3-Q4)*

7M900   *Fundamentals of Building Information Modeling (Q2)*

7ZM7M0   *Parametric Design (Q3)*

7ZM8M0   *Collaborative Design (Q3)*

7ZZ9M0   *Design Science Methodology and Systems Engineering (Q1)*

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USRE **Electives** (select 20 ec, examples)

7LY8M0 *Smart Cities (Q3)*

7ZW6M0 *History of Housing and Cities (Q3)*

7ZAWE0 *Internship USRE Academic Work Experience*

7ZRWE0 *Internship USRE Relevant Work Experience*

You may select master courses from BE, other departments, or other universities as well.

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USRE Graduation Project 7Z45M0 (45 ec)

- Starts every quarter

- 3 quarters
  - Write graduation plan
  - Execute the plan

- We offer graduation subjects, however … (*own ideas fit the expertise of the unit*)

- Students may discuss own ideas with potential supervisors

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Schedule:

Elective
Graduation project
All courses are worth 5 ECTS, unless indicated otherwise
Courses with a * are given every quarter

7X1X0   Course name   Ⓐ Ⓤ   A

BT ← Certificates: BT (Building Technology) / CT (Construction Technology) / *CD* (Circular Design in the Built Environment)

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	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
AUDE C15-S30-E30-G45	7QX5M0 Seminar urbanism and architecture *	Ⓐ Ⓤ A	7QX5M0 Seminar urbanism and architecture *	Ⓐ Ⓤ A	7QX5M0 Seminar urbanism and architecture *	Ⓐ Ⓤ A	7QX5M0 Seminar urbanism and architecture *	Ⓐ Ⓤ A
	7QW5M0 Research in urbanism and architecture II	Ⓐ Ⓤ B	7QW6M0 Architectural and urban theory	Ⓐ Ⓤ B	7QZ2M0 Masterproject 2 architecture (10 ECTS)			Ⓐ DC
	7QX1M0 Masterproject 1 architecture (10 ECTS)	Ⓐ DC			7QW2M0 Masterproject 2 urbanism (10 ECTS)			Ⓤ DC
	7QW1M0 Masterproject 1 urbanism (10 ECTS)	Ⓤ DC			7XW1M0 Combined masterstudio Architecture and Urban Design (10 ECTS)			Ⓐ Ⓤ DC
	7XW1M0 Combined masterstudio Architecture and Urban Design (10 ECTS)	Ⓐ Ⓤ DC	7XX9M0 Urban trends and strategies	Ⓤ A			7QQ4M0 Types and methods in architecture	Ⓐ B
			7QX3M0 Architectural engineering	Ⓐ D			7QW3M0 Urban planet	Ⓤ D
BPS C30-S30-E15-G45	7LS3M0 Sustainable buildings	A	7S880 Lighting technology	C	7LS9M0 Heat, air and moisture transfer / CFD1	BC	7LY4M0 Building services and fire safety	B
	7LY3M0 Building performance	C	7LY6M0 Materials panorama	A	7LS8M0 Architectural acoustics	D	7LS6M0 Heat, air and moisture transfer / CFD2	E
	7LS0M0 BPS masterproject design (10 ECTS)	X			7LS0M0 BPS masterproject design (10 ECTS)			X
	7LS1M0 BPS masterproject A, research (10 ECTS)	X			7LS1M0 BPS masterproject A, research (10 ECTS)			X
	7LS2M0 BPS masterproject B, research (10 ECTS)	X			7LS2M0 BPS masterproject B, research (10 ECTS)			X
	7LY5M0 Data science for Intelligent buildings	B			7LL7M0 Capita selecta lighting technology			A
							7LY7M0 Techniques in architectural acoustics	D
SED C25-S30-E20-G45	7KP4M0 Advanced concrete structures	DE	7KP3M0 Advanced steel and aluminum structures	E	7KP6M0 Energy and finite elements methods	E	7KP7M0 Stability of structures	A
	7PP5M0 Resource efficient SED	A	7KT1M0 Structural design, capita selecta	B	7KS2M0 Design project high rise building (10 ECTS)			A
	7KP2M0 Design project large span structure (10 ECTS)			C	7KP2M0 Design project large span structure (10 ECTS)			C
	7KP1M0 Research project (10 ECTS)			X	7KP1M0 Research project (10 ECTS)			X
	7KT8M0 Finite element method, non-linear [1]	B	7KT4M0 Digital design & manufacturing (2.5 ECTS)	A	7KK1M0 Geotechnics, soil mechanics, seismic struct. design	A	7KT9M0 Structural design with glass (2,5 EC) [3]	D
	7PP4M0 Advanced timber structures [2]	B						

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	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
USRE C25-S30-E20-G45	7ZW3M0 Urban planning II	Ⓤ E	7ZU3M0 Managing place and property	C	7ZW7M0 Urban research methods	C	7ZW4M0 Built environment and smart mobility	Ⓤ C
	7ZU4M0 Econometric analysis of housing markets	B	7ZW5M0 Smart healthy urban environments	D	7ZM8M0 Collaborative design	A	7ZM5M0 Process modeling and information management	D
	7ZZ9M0 Design science and systems engineering	B	7M900 Fundamentals of BIM	E	7ZM1M0 Research and development project (10 ECTS)			B
	7ZM1M0 Research and development project (10 ECTS)	AC			7ZU2M0 Project: Redevelopment of problem areas (10 ECTS)			B
	7ZU1M0 Project: Housing portfolio management (10 ECTS)	A			7ZW1M0 Big data for urban & transportation analysis/project (10 ECTS)			E
					7U772 Corporate real estate strategy	D		
					7ZM7M0 Parametric design	*CT* A		
CME C30-S35-E15-G40	7ZZ9M0 Design science and systems engineering	B	1CM900 Project management (2.5 ECTS)	C	7ZM8M0 Collaborative design	A	7ZM5M0 Process modeling & information management	D
	7ZM3M0 Case study process modeling (2.5 ECTS)	D	7ZW5M0 Smart healthy urban environments	D	1ZM65 System dynamics	B	7ZW4M0 Built environment and smart mobility	Ⓤ C
	7ZZ6M0 Legal & governance aspects	X	7M900 Fundamentals of BIM	E	7ZM1M0 Research and development project (10 ECTS)			B
	7ZM1M0 Research and development project (10 ECTS)	AC			7ZW1M0 Big data for urban & transportation analysis/project (10 ECTS)			E
	7ZW3M0 Urban planning II	Ⓤ E	1ZM20 Technology entrepreneurship	A	7ZW7M0 Urban research methods	C		
			1ZM120 Entrepreneurial marketing	B	7ZM7M0 Parametric design	*CT* A		

All programs

Quarter 1		Quarter 2		Quarter 3		Quarter 4	
7KS1M0 Masterproject building technology	*BT* AC	7LL1M0 Sports and building aerodynamics	A	7KP8M0 Smart building methodology & technology	*BT* C	7KP9M0 Building technology with extreme complexity	*BT* E
7QQ1M0 Architectural expression *	Ⓐ B3	7QQ1M0 Architectural expression *	Ⓐ B3	7LY8M0 Smart cities	B	7QQ1M0 Architectural expression *	Ⓐ B3
7QQ3M0 Arts and architecture	E	7QX7M0 Architectural analysis	Ⓐ A	7QQ1M0 Architectural expression *	Ⓐ B3	7QX7M0 Architectural analysis	Ⓐ E
7QW7M0 Theory and practice of the public domain	Ⓤ E	7KS3M0 Practical assignment "Bouwkundewinkel" *	X	7QQ2M0 Constructing architecture	Ⓐ D	7XX4M0 The thinking eye	D
7QX8M0 Urban form	Ⓐ Ⓤ E	7QW8M0 The built-up heritage over time	Ⓐ Ⓤ A	7QQ3M0 Arts and architecture	E	7KS3M0 Practical assignment "Bouwkundewinkel" *	X
7RC100 Inner-city modular high-rise	*CT* E			7QX6M0 Architecture and philosophy	Ⓐ B	7RC50 Master project construction plan	*CT* X
7XX4M0 The thinking eye	D			7QX8M0 Urban form	Ⓐ Ⓤ E		
7XC1M0 Circularity in the built environment	*CD* A			7ZW6M0 History of housing and cities	D		
7KS3M0 Practical assignment "Bouwkundewinkel" *	X			7KS3M0 Practical assignment "Bouwkundewinkel" *	X		
				7XC2M0 Circularity research a/o design project (10 ECTS)			*CD* A
				7CBL1M0 Challenge based learning-smart cities (10 ECTS)			

https://educationguide.tue.nl/programs/graduate-school/masters-programs/architecture-building-and-planning/curriculum

Your options in Q1

For the first quartile, choose 15 ec from the following USRE courses:

7ZW3M0 *Urban Planning II (core course)*

Specialization courses:

7ZU4M0 *Econometric analysis of housing markets: data, tools and strategies*

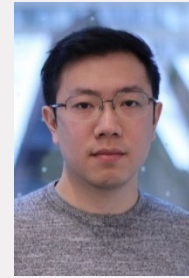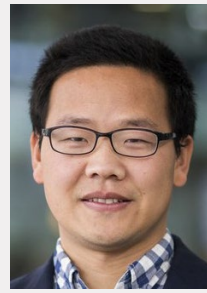**7ZU1M0** *Housing Portfolio Management (to be continued in Q2)*

7ZZ9M0 *Design Science Methodology & Systems Engineering*

7ZM1M0 *Research & Development project (to be continued in Q2)*

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USRE professors

- 3 full professors

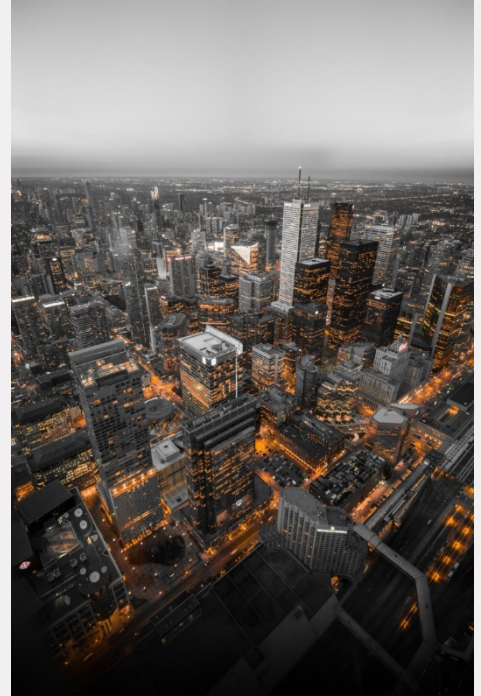- 5 associate professors

- 10+ assistant professors

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Your mentor

I will assign a mentor upon your request. I need to know your preferred specialization within USRE, if any:

- Real Estate Management & Development
- Urban Planning & Transportation
- Information Systems for the Built Environment

Please send me an email: f.liao@tue.nl

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Your Personal Study Program (PSP)

- You have to compose your own study program

- Discuss it with your mentor

- If your mentor approves → (*students*) send it to the examination committee

- We expect you to finish this in Q1

- You can decide yourself regarding courses/projects in Q1

- <mark>No approved PSP → No graduation project!</mark>

- **PSP can be adapted**

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Double degree programs (2 diplomas: 120 + 45 ec)

- **USRE** and **CME**: Construction Management and Engineering

- **USRE** and **IE&IS**: Innovation sciences

Meet requirements of both programs; one common graduation project (60 ec)

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Double track program (1 diploma: 120 + 30 ec):

ABP-USRE and **ABP-AUDE** (Architecture); 3 packages:

- USRE-REMD and AUDE
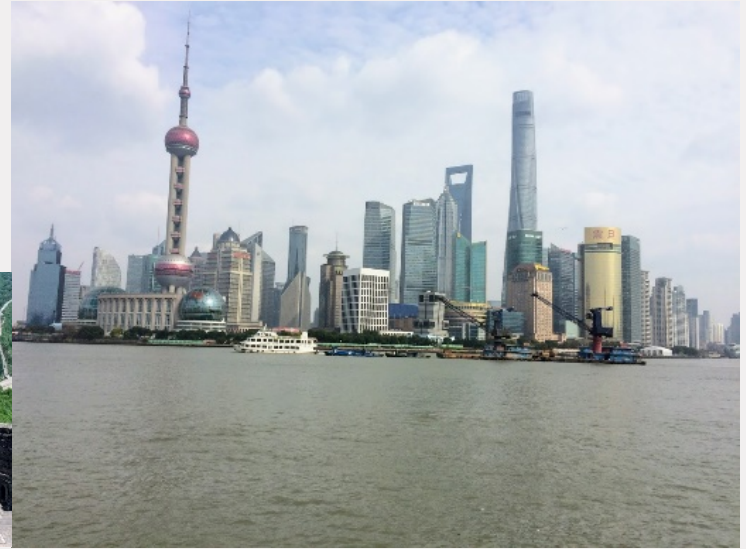
- USRE-UPT and AUDE

- USRE-ISBE and AUDE

Meet (most) requirements of both programs; one common graduation project of 60 ec.

Both tracks will be stated on the diploma.

For excellent students only.

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Internationalization (usually 1 semester)

- Core/Specialization courses; Electives

- Research Internship

- Part of graduation project

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New tracks – more info: **Soora Rasouli** s.rasouli@tue.nl

- Sustainable Urban Mobility Transitions

- Smart Mobility Data Science and Analytics

- Part of EIT Urban Mobility Master School

- two-year Master's Program at two different universities, in two different countries

- Two Master degrees

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Questions?

Email: f.liao@tue.nl

Thank you

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