Courses offered by Singapore University of Technology and Design (SUTD) for PhD Students Exchange Programme AY2025/26 (January 2026 intake) as of 11 Oct 2025
Note: List of courses may be subject to changes without prior notice.

No.	Pillar/Cluster	Course Code	Course Title	Course Description	Credits	Grading Scheme	Remarks
1	ESD	40.230	Design for Sustainability	Design for Sustainability is the integration of social, environmental, and economic considerations in the design of products, processes, and engineered systems. This course introduces the concept of sustainability – both theory and applications – to engineers and designers. Students will apply tools to perform life cycle environmental impact assessment, which provide decision guidance on the design, maintenance, and operations of products and systems.	12	Graded	Subject to review/ approval by SUTD
2	ESD	40.520	Stochastic Models	A good knowledge of uncertainty is a key tool in analyzing environmental systems, telecommunication systems, financial systems and overall large scale complex systems. The aim of this course is to acquaint students with the basic tools for modeling stochastic phenomena. The course does not require knowledge of measure theoretic probability, but knowledge of elementary probability and advanced calculus will be assumed	12	Graded	Subject to review/ approval by SUTD
3	ASD	20.802	Methods in the Study of Architecture	Introduces Architecure and Urban Design Research Design Methods and provides a Forum for Dialog	12	Graded	Subject to review/ approval by SUTD
4	SMT	99.501	Science of Sound: Acoustics, Audio & Music	Through this course, students will first understand the physical basis of sound (acoustics), its production and propagation, as well as models with which to evaluate and predict its interaction with physical (and digital) systems. Next, we will recognize psychoacoustic processes and human perception of hearing. Combining these two insights, we will then examine the "applications" of sound in various contexts: music and speech, room acoustics, audio signal processing, and environmental noise control. We will also look at current research frontiers in selected topics. This course draws on what students have already learnt earlier in physics, mathematics, and design science, and will prepare students with the necessary foundation for subsequent acoustic, audio and music related implementations of design, engineering and technological applications both in industry and at postgraduate level.	12	Graded	Subject to review/ approval by SUTD
5	SMT	99.507	Reliability Engineering and Failure Analysis of Advanced CMOS Devices	This course provides knowledge and skills on reliability and failure issues in CMOS devices, including topics on reliability physics, models, accelerated stress testing for the performance degradation, interpretation statistical data and statistical methods for reliability improvement. This course is also designed to address the challenges posed by continuous technological advancements in the field. Students will gain hands-on experience through practical activities and exposure to reliability and failure analysis tools used in the semiconductor industry. Additionally, the course explores emerging trends in reliability engineering, ensuring participants are well-versed in the latest advancements and challenges in this field.	12	Graded	Subject to review/ approval by SUTD
6	SMT	99.500	Applied Mathematics For Engineering	The Applied Mathematics course will provide students with an introduction to several advanced mathematical topics related to practical problems. The course will familiarize students with important mathematical tools that are often used for modeling and solution of engineering problems. The topics which we plan to cover in 2025 include complex functions, complex integration, complex series, residue method, conformal mapping, ordinary differential equations, special functions, Laplace transform, Fourier transform, and partial differential equations. The course will emphasize on problem solving skills through worked examples in class and regular assignments. A midterm project and a final exam will be given.	12	Graded	Subject to review/ approval by SUTD
7	LYKCIC	02.522	Urban Data & Methods II: Interpreting Urban Trends	This course is Part 2 of the Urban Data & Methods module. The course seeks to develop students' hands-on experience in analysing, interpreting, and developing a research proposal to study an urban issue or phenomenon. Using urban inequity as a focal point, the course introduces and contextualises how different methodologies – quantitative, qualitative and mixed methods – can be used to analyse urban inequities within and across cities. It develops understanding and skill in the collection, analysis and interpretation of information relevant to inequity and how it affects urban societies from different points of view such as transportation, housing, and employment. Students will also learn how to develop research proposal and address research ethics requirements.	12	Graded	Subject to review/ approval by SUTD
8	LYKCIC	02.542	Urban Planning and Policy II: Urban Symposium: Leadership and Planning in Singapore	Singapore has been recognized as a successful and well-managed global city in numerous international rankings of cities. In particular, it is often used to illustrate the importance of good leadershjp and planning in urban development. This course will help students understand how Singapore approaches its urban challenges, such as housing, transport, environmental degradation, job creation and the management of diversity. Through the careful examination of these empirical, Singapore-specific issues including visits to relevant agencies and organizations, broader questions that will have direct relevance to the development processes of other cities will be raised.	12	Graded	Subject to review/ approval by SUTD
9	LYKCIC	02.546	Creating the Frontiers of the No-Code Smart City	For far too long, the smart city has emphasized smart technology over smart people. With Gen AI, especially no-code Gen AI, we can finally move the emphasis back to smart citizens creating the future of the smart city. This course is thus a hands-on course in turning insights into creations. Every class will start with a discussion around the theory for and practice of leaders to design, build, and manage an economically competitive, socially inclusive, and technologically astute city and citizenry. These discussions span topics from strategy to stories, resilience to reskilling, and infrastructure to industrial revolution. Following the discussion, students will apply what they learned, to hands-on work with the instructor(s) to push the frontiers of what citizens can create for the smart city using no-code Gen AI (and AI and other tech in general). We go beyond the simplistic – sometimes gimmicky – generation of text, code, images etc to embedding this task of generation into the process and system of designing solutions for people. Where available, these solutions will be tested against users and stakeholders with real needs, and a substantial portion of the grades will be based on how well those needs are met. By the end of the course, we want to make possible what was once impossible (e.g. see Six Impossibles), and develop a sublime sophisticated new understanding of where smart cities are limited and/or limitless (e.g. Limit and Limitless).	12	Graded	Subject to review/ approval by SUTD

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10	LYKCIC	02.548	Advanced Urban Analysis - Environmental Sustainability	This course introduces graduate students to the emerging field of urban sustainability from a combined academic-practical perspective. The course provides students with the theoretical and methodological tools with which to explore the potential for a sustainable urbanism. Approaches to foster more sustainable and resilient forms of urbanization and urban life in different sectors of urban operation (i.e. building, energy, transportation, water, waste, food, etc.) will be introduced and evaluated.	12	Graded	Subject to review/ approval by SUTD
11	LKYCIC	02.502	Imagining Resilient Cities	The term "resilience" has been applied in various fields, including ecology, biology, psychology, urban planning, and international politics. This course examines the theoretical framework and practical application of resilience building within the dimension of urban planning and policy. The course can be divided into two main sections: introductions to climate change, disaster, and adaptation; and thematic topics of vulnerability, adaptation, and resilience. Topics include climate change, vulnerability, justice, governance, participatory planning, local knowledge, and community resilience. In addition to discussing concepts, techniques, and tools, case studies with a reflective focus will be used to describe a variety of opportunities and challenges in the face of uncertainty. As a research seminar, students in this course will be active participants through photography presentations, oral discussions, fieldwork, and analytical essays to reflect and present the depth and breadth of knowledge and insights to the class on resilient cities.	12	Graded	Subject to review/ approval by SUTD
12	EPD	30.505	Design Science	Introduction of participants through pre-sen-ta-tion of their projects; the nature of de-sign and de-sign re-search; con-cepts and models and schools of de-sign and de-sign-ing; Design Research Meth-od-ol-o-gy (DRM); defining own project; iden-tifying areas of re-le-vance and own con--tri-bu-tion; formulation of research questions/hy-po-the-ses; establishing reference mod-els; re-search ty-pes; descriptive de-sign research (data col-lec-tion, ana-ly--sis, interpreta-tion, drawing conclusions); re-lating data collection methods to research ques-tions/hypotheses; the nature and use of theo-ries in de---sign; prescriptive phase of design re-search – de-vel-oping knowl-edge, meth-ods, models, tools; vi-sua-li-sing main research ob-ject(s) of own pro-ject; eval-ua-ting re-search re-sults; writing a thesis or other pub-li-ca--tion; research ethics. https://epd.sutd.edu.sg/graduate-courses/30505-design-science/	12	Graded	Subject to review/ approval by SUTD
13	ISTD	51.502	Systems Security - Professional	This course covers the design and implementation of secure computer systems. The course covers modern topics of computer security, including threat modeling, memory safety, network security, mobile security, privacy, security engineering, hardware security, and Bitcoin. It also discusses common frauds on the Internet and the related ecosystem, security of widely used computer platforms and user authentication.	12	Graded	Subject to review/ approval by SUTD
14	ISTD	51.503	Secure Software Engineering - Professional	This course is an introduction to a variety of topics related to secure software engineering, from secure requirement engineering, secure software design, secure coding to secure testing. Students will be exposed to advanced techniques and tools on tackling these problems and through project work learn how to develop research ideas on solving real-world problems of software systems.	12	Graded	Subject to review/ approval by SUTD
15	ISTD	51.508	Secure Cyber Physical Systems - Professional	This graduate level course develops a foundation for research on Cyber Physical Systems. The topics covered include architecture and types of CPS, programming CPS, modelling CPS, attacker models and attack types, attack detection methods, common industrial communication protocols, resilience assessment, tools for CPS design and assessment, and group project.	12	Graded	Subject to review/ approval by SUTD