



Singapore

WINTER SCHOOL 2024

About Our University

The Technical University of Munich (TUM) was founded in 1868 and is one of the most research-intensive and innovative universities in Europe. It is ranked top 10 in Europe in QS World Ranking 2024, Times Higher Education (THE) 2023, and Shanghai Ranking 2022, and has produced 18 Nobel Prize winners.

To bring German academic excellence beyond borders, TUM Asia was established in 2002 and is most successful overseas campus of any German university. Apart from providing bachelor's and master's degrees conferred by TUM and jointly with renowned universities in Singapore, TUM Asia also offers executive education courses in areas like Industrie 4.0, Precision Engineering, and Railway and Logistics. To boost competencies in the manufacturing industry, the Competence Centre for Digitalisation, Technologies and Innovation (CDTI) was set up in collaboration with FESTO Singapore to provide lifelong learning courses. To date, more than 2,300 students from 35 countries have graduated from TUM Asia, establishing their footholds in various industries.

In 2010, TUMCREATE was founded as a multidisciplinary research platform to foster bilateral research exchanges between TUM and

and world's leading universities, local institutions, public agencies and industry partners to contribute towards the sustainable transformation of societies. It is funded by the National Research Foundation Singapore, making advances in research topics like urban mobility, food science and technology, biomedical technology and preventive healthcare, and energy.

To know more, visit <https://tum-asia.edu.sg>



DigiPen Institute of Technology Singapore is a specialized university for the digital economy, with a focus on computer science, embedded systems engineering, UX/UI design, and digital art and animation.

Our educational philosophy focuses on team projects and applied learning. Students are taught to be problem solvers and innovators through real-world projects, ultimately graduating as sought-after professionals in various digital domains such as games, enterprise software, virtual reality, finance, digital entertainment, automotive technology, and more.

Winter School 2024

TUM Asia Winter School 2024 will be delving into global hot topics such as sustainability, transportation, and Industry 4.0. Participants will also have the unique opportunity to embark on industrial visits to prominent industrial leaders like Siemens AMTC and Mazak. Beyond the classroom, students can explore the rich cultural landscape of Singapore and feast on the diversified cuisines available, during their free time.

And to end the programme on a high note, we will be making a special visit to Singapore's only brewery and restaurant, Paulaner Bräuhaus. Participants will not only learn about the art of beer-making, but also engage in Bavarian cultural activities and indulge in an authentic Bavarian meal complete with freshly-made beer.

This comprehensive experience promises a blend of education and cultural exploration, making the Winter School 2024 a distinctive and enriching opportunity for all. Apply now to be part of this unforgettable learning journey.





**ENGINEER
YOUR
DREAM TO
SUCCESS**
for a
sustainable
TUMorrow

Programme Schedule

MON 22 / 01	AM <i>Welcome Activities</i>
	PM <i>Lecture</i> <i>Demand Management - How to Reduce Congestions and Make the Transport System More Efficient?</i>
TUE 23 / 01	AM <i>Lecture</i> <i>Business Value drivers of Industry 4.0</i>
	PM <i>Siemens AMTC</i>
WED 24 / 01	AM <i>Lecture</i> <i>Smart and Sustainable Manufacturing</i>
	PM <i>Mazak Singapore</i>
THU 25 / 01	AM <i>Lecture</i> <i>Navigating Sustainability: From Consumption to Entrepreneurship in Singapore</i>
	PM <i>Lecture</i> <i>Computer Vision for Smart Manufacturing and Smart Transportation</i>
FRI 26 / 01	AM <i>Student Presentation</i>
	PM <i>Paulaner Bräuhaus</i>

**Schedule may be subjected to change*

Industrial Visits

SIEMENS AMTC

The Siemens AMTC (Advance Manufacturing Transformation Centre) is a hybrid competence centre that provides guidance, support and training to manufacturing facilities in Southeast Asia on their journey of adoption, transition and transformation towards advance manufacturing.

Visitors will have the opportunity to explore and experience array of advanced manufacturing technologies and solutions. This includes automation systems, robotics, Additive manufacturing technologies, digitalization tools, and other cutting-edge technologies relevant to the manufacturing industry.



MAZAK SINGAPORE

Yamazaki Mazak Singapore was founded in May 1992 in the Jurong industrial district of Singapore, the center for large number of international corporations. Its purpose is to serve as a Southeast Asian base, with Sales, parts & service, manufacturing and R&D functions. This facility specializes in the production and sales in the international market of compact, high precision CNC turning centers and machining centers. The Research and Development center provides high value added engineered solutions for our machines and are working closely with our engineering headquarters in Japan to develop system machines equipped with advanced technologies.

The Cyber Factory in Yamazaki Mazak Singapore is an advanced manufacturing facility where the total factory integration is the key. This factory will realize a quantum leap in productivity in terms of output rate. Machine tool components are produced in the absolute minimum in-process time with reduced operator requirements as well.



“As a premier teaching institution that seeks to provide German academic excellence in Asia, our lecturers and professors possess years of experience that aid their effectiveness in teaching.”



Our Speakers



Dr. -Ing. Andreas Rau

TUM Asia, Head of Education and Research (Civil Engineering)

Dr. Andreas Rau is a transportation engineer working at Technical University of Munich Asia, Singapore as the Faculty Head and Principal Investigator (Rail, Transport & Logistics). He was Principal Investigator of the Rapid Road Transport Group in TUM CREATE Singapore from 2011 till 2021.

His significant research experience contributed in public transport planning, development and implementation workshops and research projects funded by public transport authorities, and education institutes in Germany and Singapore. With a strong academic and teaching background, Dr. Rau was the Founding Director of MSc programmes at TU München and TUM Asia, Singapore. He is a frequent speaker in seminars, conference and training from all around the world.

Dr. Rau's research interests are in the area of public transport planning, especially for developing and emerging countries. This stretches from the network planning, the creation of integrated transport chain to the optimization of bus lines. The scheduling of transit lines for buses and trains, from the design of the timetable till the creation of duties and rosters for the drivers are also topics covered by Dr. Rau. Assessment methods for transport infrastructure and policies for a sustainable transport system development are research interests of Dr. Rau as well.



Mr. Eldhose Abraham

TUM Asia, Training & Development Consultant

Eldhose Abraham is an experienced Solution Architect with a proven track record of guiding organizations through successful digital transformations. With expertise in Industry 4.0, Internet of Things, and sustainability, Eldhose possesses a deep understanding of emerging technologies and their impact on business operations.

Currently serving as a Training and Development consultant at TUM Asia, he is responsible for developing curriculum and content for various courses on digital transformation and Industry 4.0, catering to both graduate students and industry professionals.

Prior to his role at TUM Asia, Eldhose spent five years as a Solution Architect at Emerson Automation Solutions, where he led the design and development of Industrial IoT solutions and served as a technical lead in executing digital transformation projects.

With over a decade of experience in industrial automation, Eldhose has a strong background in designing, developing, testing, and commissioning industrial automation systems.



Dr. Liu Fang

Associate Professor, DigiPen (Singapore)

Dr. Liu Fang is an associate professor in the Department of Computer Science at DigiPen Institute of Technology Singapore. She has 20 years of experience in teaching, and currently lectures machine learning and deep learning modules. Prior to joining DigiPen (Singapore), she was with Huazhong University of Science and Technology in China, where she taught C programming, algorithms, artificial intelligence, and more for both undergraduate and graduate students.

Liu Fang graduated with a Ph.D from Huazhong University of Science and Technology in 2002. Her Ph.D. thesis is about clustering algorithms in data mining. She also served as the technical leader of research projects in areas of vision-based recognition and detection.



Dr. Chen Lujie

Associate Professor, DigiPen (Singapore)

Dr. Chen Lujie received his bachelor's degree in mechatronics from Nanjing University of Technology, China in 2001 and his Ph.D. in Optical Metrology from the National University of Singapore in 2006. His research interests lie in the fields of computer vision, computer graphics, and medical imaging.

Prior to joining DigiPen (Singapore), Lujie was an assistant professor at the Singapore University of Technology and Design for nine years and a post-doctoral associate at Cambridge University from 2007 to 2010. He has also worked as a software engineer in image processing, computer graphics, and computer vision technologies in the industry.

Lujie joined DigiPen (Singapore) in 2021 and teaches topics related to computer vision and video processing in the MS in Computer Vision program. What he enjoys most about teaching is interacting with students and helping them with their course projects.





Mr. Nithin Narayanan

La Empresa, CEO

Nithin Narayanan is the founder and CEO of La Empresa Pte Ltd, a dynamic innovation-based tech company headquartered in Singapore. La Empresa's focus spans across manufacturing management, software development, and electronics manufacturing, positioning them at the forefront of technological advancement. Nithin is deeply engaged in advancing his knowledge and expertise through doctoral studies in business administration with a specialization in Leadership and Management. He has completed his Masters in Business Administration (Northumbria University of Newcastle, the UK) and his Bachelors degree in of Mechanical Engineering with a specialisation in Mechatronics (Nanyang Technological University, Singapore). His versatile skill set extends and not limited to agile team facilitation and being a certified SAFe5 Agilist, showcasing his adaptability and commitment to adopting the latest methodologies. Apart from his role as an industry leader, he is a PMP certified project manager with an impressive 12-year industrial experience across diverse sectors.

Nithin's professional journey is underpinned by a multifaceted background in Project Management, Engineering, Technology, and Operations and Manufacturing Management. Nithin won numerous prestigious accolades and awards that attest to his profound expertise in manufacturing services and management. Notably, his achievements include the Rolls Royce Gold Award for BCM & Innovation, the Rolls Royce Green Award for generating recurring savings of 1 million per year, and the Rolls Royce EVP Award for pioneering Super Polish and Mag Robots(advance manufacturing). He was awarded Lean Six Sigma Green Belt for his contributions to global business improvement, specifically in the realm of additive and advance manufacturing.

In his capacity as the Manufacturing Services Leader (Senior Manager) at Rolls-Royce Singapore, Nithin has demonstrated his prowess in overseeing complex operations and optimizing business performance. Additionally, his tenure as a Project Manager at Azbil Corporation and an Assistant Project Manager at Quantum Automation Pte. Ltd, Singapore, has fortified his ability to drive strategic initiatives and enhance overall efficiency in project and engineering management and elevating manufacturing performance. He have employed methodologies such as manufacturing value stream mapping and kaizen events to consistently improve processes. He have spearheaded the design and delivery of manufacturing services objectives through cutting-edge solutions like IoT integration, automation, and data analysis.



Ms. Suzanna Tang

CEO and Founder, Urban Origins

Suzanna is an accomplished entrepreneur and advocate for positive change, currently serving as the CEO and founder of Urban Origins. Dedicated to fostering sustainability and wellness, her consultancy curates engaging activities for corporates, creating a culture of health and sustainability in workplaces.

Suzanna holds certifications in Sustainability Strategies and Green Economy from Singapore Management University (2023) and Blockchain Technologies: Business Innovation and Application from MIT Sloan School of Management (2023). In 2015, she achieved her Bachelor of Communication Studies (Honours) with a Minor in Music from Nanyang Technological University and earned her Postgraduate Diploma in Education from the National Institute of Education, Singapore the year after.

Beyond her entrepreneurial endeavours, Suzanna is deeply committed to education and youth empowerment. As a proud mother of two and a former scholar of the Ministry of Education, she understands the importance of nurturing future generations. Suzanna embodies purpose-driven entrepreneurship. Her work creates a lasting impact, sparking positive change and encouraging the adoption of sustainable practices for a better future.

Registration Details



All undergraduate (bachelor's degree) students who are currently enrolled in a recognised university are eligible to participate in the Winter School.

All classes at the Winter School will be conducted in English. Participants should ensure that they are proficient in English (reading and writing) at university level.

1 Register

Register at the link below:

<https://tum-asia.edu.sg/tum-asia-winter-school-2024/>

Or, scan QR code to register:



Select the package you will be having:

- 1. Participation Fee + Accommodation (SGD 2,530)**
TUM Asia will arrange for participant's accommodation in Singapore.
 - Check-in: 21 January 2024 (Sunday)
 - Check-out: 27 January 2024 (Saturday)*Registration Deadline: 21 December 2023 (Thursday)*
- 2. Participation Fee (SGD 1,100)**
Participant will source for his/her own lodging in Singapore.
Registration Deadline: 8 January 2024 (Monday)

2 Payment

Upon completion of the online registration form, you will receive an e-mail with instructions on how to make payment for TUM Asia Winter School 2024.

3 Enrolment

After making your payment, you will be notified through e-mail of your successful enrolment into TUM Asia Winter School 2024.



Hotel Recommendation

Recommendation for participants who want to book the hotel by themselves. TUM Asia is working with **Village Hotel Bugis** and has reserved limited number of rooms for participants to book at a favourable rate after successful payment for the Participation Fee.

Village Hotel Bugis
 390 Victoria Street
 Kampong Glam
 Singapore 188061

It's highly advised that the participants reserve your hotel before the deadline of **28 December 2023 (Thursday)**. The number of hotel rooms is limited, and subject to availability.



ADDRESS

SIT@SP Building
 510 Dover Road #05-01
 Singapore 139660

PHONE & WHATSAPP

Phone +65 6777 7407
 WhatsApp +65 9822 5701

WEB & EMAIL

Email events@tum-asia.edu.sg
 Web <https://tum-asia.edu.sg>

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