

14.0

VIRTUAL WINTER SCHOOL 14 - 17 DECEMBER 2020

**AN IMMERSIVE LEARNING ADVENTURE FILLED WITH CULTURAL AND
INTELLECTUAL INSIGHTS BECKONS.
WHAT ARE YOU WAITING FOR?**





WHO WE ARE

The Technical University of Munich (TUM) was founded in 1868 and is regularly placed among the best universities in Germany and worldwide. It is the only university to have won recognition as a German 'Excellence University' in every round since 2006. TUM has produced 17 Nobel Prize winners since 1927.

Technical University of Munich (TUM) Asia was set up in 2002 as the first academic venture abroad by a German university, blending German academic excellence with industry relevance in Asia. Its partnerships with top Asian universities and industry leaders combine German engineering with Asian relevance to equip talents for industry and research sectors in the world.



ABOUT

TUM ASIA VIRTUAL WINTER SCHOOL 2020

Experience an engaging and unforgettable time in a one-of-a-kind virtual learning experience during your school break this Winter! The TUM Asia Virtual Winter School 2020 is designed to be an enriching programme for international students from all walks of life, embracing a mix of academic topics alongside insights into German language and Singapore culture.

INDUSTRY 4.0 & 3D PRINTING

As we increasingly embrace globalisation and digitalisation, manufacturing processes are becoming revolutionised by Industry 4.0 trends. In this Virtual Winter School, learn more about the importance and relevance of 3D printing, cyber security* and smart transportation in today's world, while enjoying a refreshing online taster of Singapore's unique cultural heritage and the German language!

TOPICS COVERED

- Evolution of Manufacturing Paradigm
- Aerospace Engineering: Lightweight Structural Design
- Materials in 3D Printing and Considerations for 3D Printing
- Introduction to Cyber-Security
- Smart Transportation
- An Immersive Tour of Singapore, the Smart City
- Introduction to German Language

**Topics subject to change*

PROGRAMME SCHEDULE (Subject to change)

Monday 14 December	8.30am - 10.30am	Welcome to TUM Asia Virtual Winter School! LIVE! - An Immersive Tour of Singapore, the Smart City
	11am - 1pm	Introduction to the German Language
	2pm - 4pm	Aerospace Engineering - Lightweight Structural Design
Tuesday 15 December	9.30am - 11.30am	Evolution of Manufacturing Paradigm
	2pm - 4pm	Enabling Technology of Industry 4.0
Wednesday 16 December	9.30am - 11.30am	Introduction and Fundamentals of 3D Printing Technologies
	2pm - 4pm	Materials in 3D Printing and Considerations for 3D Printing
Thursday 17 December	9.30am - 11.30am	Smart Transportation
	2pm - 4pm	Student Presentation



Andreas Hermanutz
TUM Asia

Aerospace Engineering: Lightweight Structural Design

Increasing environmental awareness and expected growth in air traffic are driving the need for improved and innovative aircraft designs and technologies. Nowadays, modern composite designs show significant potential in wing development by tailoring the wing to a specific intended behaviour like passive load alleviation or aeroelastic stabilization by using anisotropic stiffness properties of the structural layout. The lecture series Aerospace presents influences on the design of lightweight structures and discusses the use of typical aerospace materials and their application.



Dr. Andreas Rau
TUMCREATE

SMART Transportation

New technologies like fast communication (G5) and autonomous vehicles will change the transport system in the future. However, is technology enough to solve problems of our transport system like increasing energy demand and congestion? The presentation will show how these new technologies can be used to make the transport system smart and what else we need to do to make the transport system better.



Dr. Lee Jia Min
Nanyang Technological
University

3D Printing

3D printing, a process that build parts in a layer-by-layer manner, has evolved from being just a prototyping tool in product development, to making actual parts that are used in aerospace, etc. 3D printing provides manufacturing advantages such as reduced production cost, reduced lead time, customizability and increased design freedom.

The course provides an introduction on 3D printing technologies and the current landscape of 3D Printing. The students will learn about the technologies involved in 3D printing, materials available in 3D printing and considerations when planning for 3D printing.



Dr. Jesmond Hong
TUM Asia

Advanced Manufacturing and Introduction to Industry 4.0

To provide an overview of the four Industrial Revolutions. Students will also understand the evolution of the manufacturing paradigms and the changing roles of customers. The nine pillars of Industry 4.0 will be briefly discussed, with particular focus on augmented reality, additive manufacturing and autonomous systems.

TESTIMONIALS



“Though the classes were not directly related to my university major, I can safely say that they were some of the best classes I have ever attended.”

Rongxuan Ye, China



“The classes were so interesting that I did not doze off during any of the sessions.”

Vijay R, India



HOW TO REGISTER

1. Register via the sign-up form: <https://bit.ly/TUMAsiaWS2020> or scan QR code:

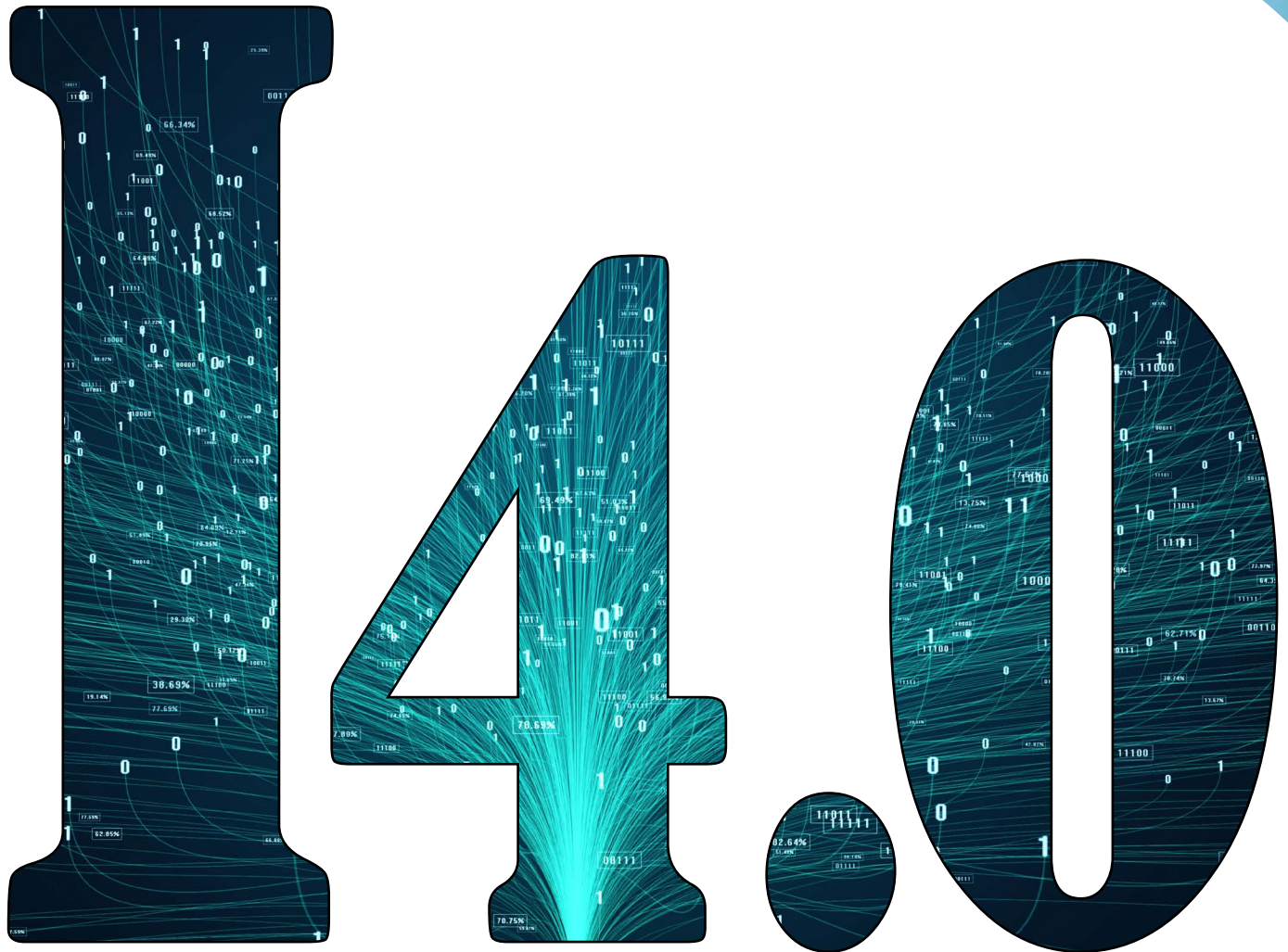


2. Complete your payment by following the instructions in the email that will be sent to you once you have completed your registration form
3. Successfully enroll in Virtual Winter School 2020 – we're excited to have you join us!

VIRTUAL WINTER SCHOOL FEES

Your registration will be complete and your place in the Virtual Winter School will be **reserved when you have made the full payment of the Virtual Winter School Participant Fee of \$400* Singapore Dollars.**

*This Fee is applicable to one participant per Fee, and the Fee is only inclusive of the virtual activity costs during the stipulated dates of the Virtual Winter School.



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