



## Contact Details

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## Website

**Mechanical Engineering Simulation and Design**

<http://mesd.tggs.kmutnb.ac.th>

**Automotive Safety and Assessment Engineering**

<http://ae.tggs.kmutnb.ac.th>

## TGGS International Programs

### International Master Programs:

- **Chemical and Process Engineering (CPE)**
- **Mechanical and Automotive Engineering (MAE)**
  - Minor:** Mechanical Engineering Simulation and Design (MESD)
  - Minor:** Automotive Safety and Assessment Engineering (ASAE)
- **Materials and Production Engineering (MPE)**
- **Electrical and Software Systems Engineering (ESSE)**
  - Minor:** Communication and Smart System Engineering (CSE)
  - Minor:** Electrical Power and Energy Engineering (EPE)
  - Minor:** Software Systems Engineering (SSE)
  - Minor:** Smart Grids Engineering (SGE)
- **Railway Vehicles and Infrastructure Engineering (RVIE)**
  - Minor:** Railway Vehicles Engineering (RVE)
  - Minor:** Railway Infrastructure Engineering (RIE)

### International Doctoral Programs:

- **Chemical and Process Engineering**
- **Mechanical and Automotive Engineering**
- **Materials and Production Engineering**
- **Electrical and Software Systems Engineering**

The Sirindhorn International Thai-German  
Graduate School of Engineering (TGGS)

King Mongkut's University of Technology  
North Bangkok (KMUTNB)

1518 Pracharat 1 Road, Wongsawang, Bangsue,  
Bangkok 10800, Thailand

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1518 ถ.ประชาราษฎร์ 1 วงศ์สว่าง บางซื่อ กรุงเทพมหานคร 10800

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The Sirindhorn International

# TGGS

Industry-Oriented Graduate Education and Research in Thailand based on the RWTH Aachen Model

Thai-German  
Graduate School  
of Engineering

## Mechanical and Automotive Engineering

วิศวกรรมเครื่องกลและยานยนต์



- Language of Instruction: English
- Duration of Master Program: 2 years

# The Sirindhorn International Thai-German Graduate School of Engineering (TGGS)



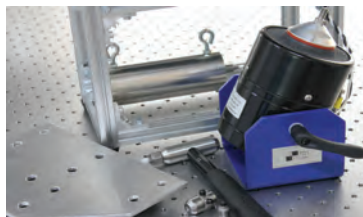
The Sirindhorn International Thai-German Graduate School of Engineering (TGGS) is a public-private partnership established with strong support from the Thai and German government for engineering education, technology, innovation, and business development in Thailand and South-East Asia. Its industry-oriented engineering master and doctorate education concept combines teaching and research based on the successful model of RWTH Aachen University, Germany, one of Europe's leading technical university.

## Course Description

The courses include lectures from visiting professors from RWTH Aachen University and also from other research institutions and industry to broaden the students' exposure to recent developments in research and industrial applications. Relatively small class sizes guarantee close student-faculty interaction. Internship and thesis abroad with our partners in Germany and elsewhere are encouraged.

The **MESD** program serves an industrial need for advanced modelling & simulation skills and the overall methodology to support an efficient and effective product development & design process. MESD graduates can simulate complex multibody & multiphysics problems with maximum accuracy and minimum computing time. Physical experiments & measurements to validate and complement simulations are acquired in MESD's labs and with industry or research institution partners during internship and thesis stages.

The **ASAE** program serves the automotive industry and the vehicle safety community. It focuses on the fundamentals of vehicle systems and modules, design for crashworthiness active and passive safety technologies. The program collaborates closely with the following institutions: RWTH Aachen, TU Graz, Malaysian Institute of Road Safety Research, ASEAN NCAP, Department of Land Transport, Thai Roads Foundation, Central Institute of Forensic Science, as well as car manufacturers such as Toyota, Mazda and Ford.



## Curriculum

Year	Course	Credits	
1	<b>1<sup>st</sup> Semester</b>	MESD	ASAE
	▪ Computer Aided Engineering Tools I	3	
	▪ Advanced Fluid Mechanics	3	
	▪ Automotive Systems Engineering		3
	▪ Introduction to Vehicle Safety		3
	▪ Finite Element Methods	3	3
	▪ Machine Design Process	3	3
	▪ Research Fundamentals in Mechanical and Structure Engineering	3	3
2	<b>2<sup>nd</sup> Semester</b>		
	▪ Industrial Design Engineering	3	
	▪ Standards and Regulations for Automotive Engineering		3
	▪ Elective Course	3	3
	▪ Elective Course	3	3
	▪ Elective Course	3	3
3	<b>3<sup>rd</sup> Semester</b>		
	Industrial Internship	4	4
4	<b>4<sup>th</sup> Semester</b>		
	Master Thesis	12	12
<b>Total Credits</b>		<b>46</b>	

**Elective Courses for MESD program:** Mechanical Behavior and Degradation, Computer Aided Engineering Tools II, Computational Fluid Dynamics, Industrial Quality System for MAE, Special Topics in MAE, Vehicle Crash and Human Body Simulation Techniques, Seminar in Mechanical and Automotive Engineering

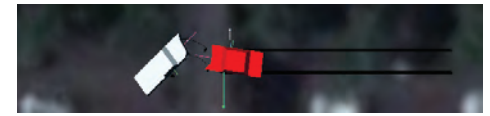
**Elective Courses for ASAE program:** Industrial Quality System for MAE, Fundamentals of Vehicle and Component Assessments, Computer Aided Engineering Tools II, Industrial Design Engineering, Special Topics in MAE, Vehicle Crash and Human Body Simulation Techniques, Seminar in Mechanical and Automotive Engineering

## Tuition Fees

Thai Students	60,000 Baht per semester
International Students	85,000 Baht per semester

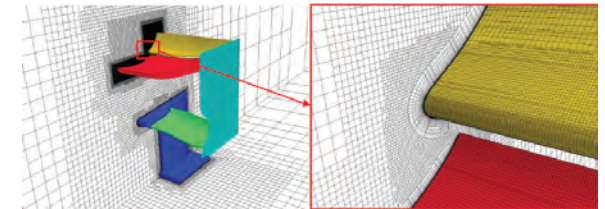
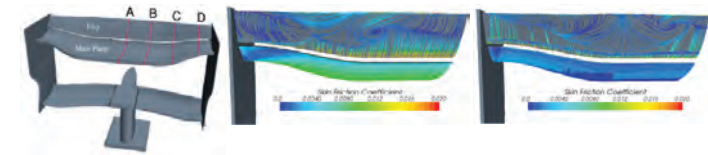
## Scholarships

For qualified students who need financial aids, the TGGS coordinators and leadership will make a serious effort to organize scholarships from industries or government organizations.



## Entrance Requirements

Bachelor Degree in Mechanical Engineering awarded by an internationally recognized university with a minimum GPA of 3.0 (or 2.75 plus adequate experience), good reading, writing and communication skills in English. To obtain the TGGS M.Eng. Degree, TOEFL 525+ or equivalent has to be passed within 2 years following registration.



## Prospects

The graduates will be able to select proper materials in difference applications and design their production processes accordingly as well as manage and control quality of the production in the industries. Moreover, they can facilitate in with appropriated calculation and simulation tools. They will also learn how to create and apply research work for the industry.