



**RWTHAACHEN**  
UNIVERSITY

## Contact Details

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## Partners



## Websites

The Sirindhorn International Thai-German Graduate School of Engineering

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

Railway Vehicles and Infrastructure Engineering

<http://rvie.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)

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## A Joint Degree Master Program in

# Railway Vehicles and Infrastructure Engineering

วิศวกรรมยานพาหนะและ  
โครงสร้างพื้นฐานระบบราง



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- Language of Instruction: English
- Duration of Master Program: 3 years

## Course Description

King Mongkut's University of Technology North Bangkok and Chulalongkorn University are cooperating to offer together the Joint Degree Master Program in Railway Vehicles and Infrastructure Engineering (RVIE). The program is supported by rail related industries and the German Embassy in Thailand to bring about the necessary integration of great minds and experts to form a solid stepping stone for the development of rail transportation in Thailand.

RVIE focuses on the engineering aspects, design, and research and development of the complete rail systems including the rail vehicles and rail infrastructure. All classes in the program are taught by experienced lecturers from KMUTNB, CU as well as world renowned professors in the area of railway from RWTH Aachen University, Germany—a leading country in railway technology. RVIE combines the best know-how into a three-year program that includes one full year of studies in Germany.

RVIE is a true multidisciplinary program which cross combines multiple engineering topics such as civil, mechanical, electrical and power electrical, communications, mechatronics, design methodology, software, materials and production, logistics, and management, just to name a few.

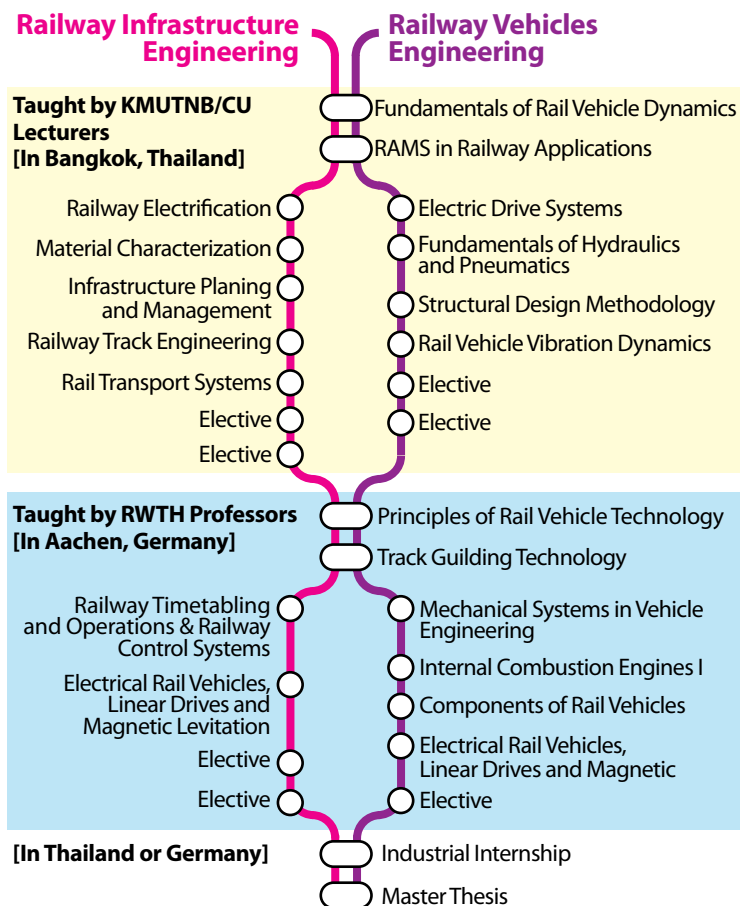
RVIE consists of two minors which are:

- **Railway Vehicles Engineering (RVE)** which is directed primarily at students with a background in Mechanical and Electrical Power Engineering
- **Railway Infrastructure Engineering (RIE)** which is directed primarily at students with a background in Civil Engineering.

RVIE cooperates research problems from rail related industries into the learning process. Students will be seamlessly integrated into research projects under the guidance of their lecturers and industry experts from which they will acquire technical knowledge and teamwork skills. Through this learning scheme, companies and students can get to know each other's potential which may result in career opportunities. Graduates from the RVIE program will enjoy vast opportunities as thousands of job positions in the rail industry in Thailand and SEA are in urge to be filled in the coming decades.

RVIE is part of the German Thai Railway Partnership (GTRP). One of its key targets is to address human resource development, engineering R&D, and knowledge transfer. GTRP is an active group with members from universities, rail related government organizations and industries from Thailand and abroad. GTRP is under direct support from the Ministry of Transport and the German Embassy in Thailand.

## Course List



**Elective Courses for Railway Infrastructure:** Probability Statistics and Decision for Civil Engineering, Computer Programming and Computer Tools for Graduate Research, Finite Element Method for Civil Engineers, Mechatronic Systems in Vehicle Engineering, Structural Design Methodology, Components of Rail Vehicles, Electrical Rail Vehicles, Linear Drives and Magnetic Levitation, Advanced Special Topics in Railway Track Engineering

**Elective Courses for Railway Vehicles:** Computer Aided Engineering Tools I&II, Finite Element Method, Railway Timetabling and Operations & Railway Control Systems, Mechanical Behaviour and Degradation, Vehicle Crash and Human Body Simulation, Railway Electrification, Material Characterization, Infrastructure Planning and Management, Railway Systems, Railway Track Engineering, Rail Transport Systems, Advanced Special Topics in Rolling Stock Engineering

**Common/Shared Elective Courses:** Dynamics and Vibrations, Fundamentals of Internal Combustion Engines, Fundamentals of Electrical Power Engineering, Vehicle Acoustics, Environmental Sustainability in Transport Engineering, Quality Engineering for Railway Engineering

## About Us

### KMUTNB

King Mongkut's University of Technology North Bangkok (KMUTNB) is a leading technology university in Thailand. Its three campuses are in the North of Bangkok, Prachinburi and Rayong province. The educational system emphasizes development of people in science and technology to become technicians, technologists, engineers, technical teachers and also administrators in the education business and industry.

### TGGS

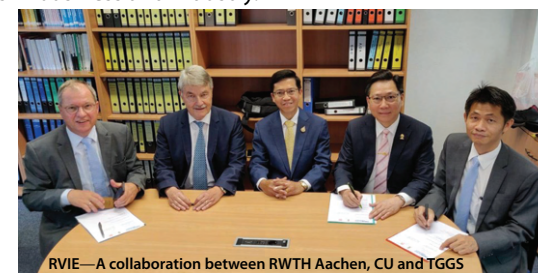
The Sirindhorn International Thai-German Graduate School of Engineering (TGGS) is a public-private partnership established with strong support from the Thai and German government for engineering education, technology, innovation, and business development in Thailand and South-East Asia. Its industry-oriented 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.

### Chulalongkorn University

Currently, Chulalongkorn University (CU) is composed of 19 faculties, 23 colleges and research institutes with over 37,000 students, including 24,620 undergraduates and 10,530 postgraduates (7,990 in the Master's Degree and 2,540 in the Doctoral Degree programs), and over 2,800 faculty members. As the year 2017 marks the beginning of the second century of CU, new strategies have been formulated for 2017-2020 to raise the university to many aspects of excellence according to the vision of CU as a world-class national university that generates the knowledge and innovation necessary for the creative and sustainable transformation of Thai society.

### RWTH Aachen University

With its 260 institutes in nine faculties, RWTH Aachen is among the leading European scientific and research institutions. 45,377 students in 157 courses of study are registered for the winter semester of 2017/18, including 9,651 international students from 131 countries. Teaching at RWTH Aachen is first and foremost application-oriented. Its graduates are therefore sought-after as junior executives and leaders in business and industry.



RVIE—A collaboration between RWTH Aachen, CU and TGGS