

Participants

The course is open to German* and Indian Master and Ph.D. students in academic fields of engineering, environmental and social sciences (specialization in sustainable development is desirable). Knowledge in the field of electrical engineering and power grids is of advantage. The number of participants is limited to a maximum of 30 (15 German / 15 Indian).

*Non-German students and university graduates can apply if they are enrolled in a course of study at a German university with the aim of obtaining a degree at a German university.

Funding

Indian participants of the Summer School 2016 receive a travel grant (1.075 EUR), German students receive a travel reimbursement (max. 50 EUR). All students receive a scholarship for further expenses (240 EUR). Accommodation will be taken care of by the organizers (two people per room).

Application

Interested students may apply through the 2019 IGCS summer school e-application form: <https://bit.ly/2EHZfkz>

Application deadline is March 31 2019, 23:59 CET. Applications received after this date will not be considered. Please prepare the following documents to be uploaded through the a-application form: (1) CV (2) Transcript of records of last completed semester or a graduation certificate (3) Letter of recommendation from an academic supervisor. It should state your academic and personal qualification for the participation of the school (4) Passport copy (for Indian students only, German students prepare an empty page) (5) Enrolment certificate.

Evaluation of applications and admission

Positive results will be announced until mid-April 2019. We kindly ask to refrain from inquiries about the application status in the meantime.

Contact and Impressum

For all matters concerning the summer school please check the IGCS website (www.igcs-chennai.org) or contact IGCS project coordinator in Germany Mrs. Malin Praktijnjo: Malin.Praktijnjo@zhv.rwth-aachen.de

Patrons

Dr. Krishna Vasudevan, Department of Electrical Engineering, IIT Madras
Univ.-Prof. Dr. Frank Behrendt, Energy Process Engineering and Conversion Technologies of Renewable Energies, TU Berlin

Hosts at TU Dresden

Univ.-Prof. Dr. Steffen Großmann, Chair of High Voltage and High Current Engineering
Univ.-Prof. Dr. Peter Schegner, Chair of Electrical Power Supply

Local Organizer

Dipl.-Ing. Robert Adam, Chair of High Voltage and High Current Engineering (local organizer)

Layout and Design

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IGCS Summer School 2019

Smart Grids – Electricity networks as the backbone of a carbon neutral society

Technische Universität Dresden, Germany
June 15 - 26 2019



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Objectives of the winter school

Converting our actual energy systems into carbon neutral structures imply the replacement of fossil fuel powered generation to renewable generation. This revolution can be seen by Germany exiting nuclear power generation until 2022 and exiting coal based power generation until 2038. In India the share of renewable energy resources in the energy mix has reached 33% in 2018 and will develop further. To anticipate the social development, India will install additional 100 GW of solar power generation, whereas 40 GW is dedicated to rooftop solar in rural areas and city districts where social development is needed. In terms of the power grids it can be stated, that these developments forcing the grids towards a major transition.

The need of integrating renewables, spread of power electronics in all types of applications, climate change, communication technologies, use of electric vehicles requires new concepts and technologies to enable a reliable and resilient power grid. Power grids are poised to become smarter in order to be able handle all these new requirements.

The 2019 IGCS summer school will look at various aspects of smart grids:

- Concepts of electrical energy networks
- Stakeholder interaction: transmission systems, distribution systems, rural electrification
- Sector coupling: energy conversion, storage, utilization
- Grid components
- Power grids under the aspects of economy, ecology and regulation

Lectures

The mornings will be reserved for lectures and talks given by experts in the different domains of the program and coming from Germany and India, as well as from academia and industry. The resource personnel for the summer school includes faculty of Technische Universität Dresden and Indian Institute of Technology Madras (Chennai), renowned guest professors from India and Germany, as well as representatives/experts from industry.

Group projects

In the afternoons, the participants will work in small groups of 4-5 member on dedicated projects to gain intensified learnings on the topics and practical approaches of R&D project work. The project work will be based on the "Action Learning"-Methodology and agile project execution concepts. The work groups will pitch for the topic out of given proposals. Each team will have a mentor from the lecturers to support them throughout the whole course. The following preliminary topics are proposed:

- Sector Coupling
- E-Mobility
- Rural Electrification and Social Aspects
- DER-Integration
- Dynamic Loading of Grid Components and Systems
- Ecology Drives Economy

A day-to-day schedule will be provided at the start of the school.



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Indo-German Centre for Sustainability

The IGCS is a joint Indo-German centre developing fundamental and applied interdisciplinary research, teaching and training, and dissemination of information in the area of sustainable development. The IGCS wishes to be one of the premier centres of excellence in the field of engineering and environmental sciences. It aims at offering cutting edge solutions in sustainable research through bilateral relations between India and Germany. IGCS is coordinated by RWTH Aachen University and IIT Madras.

IGCS Centre Coordinators

Univ.-Prof. Dr. BS Murty, Department of Civil Engineering, IIT Madras

Univ.-Prof. Dr. Klaus Reicherter, Department of Neotectonics and Natural Hazards, RWTH Aachen University

IGCS Area Coordinators

Univ.-Prof. Dr. F. Behrendt, TU Berlin

Univ.-Prof. Dr. N. Fohrer, Kiel University

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