THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

Introduction to the Fundamentals of Power System

CPD Course, 22-23 June 2026

The Power, Energy & Control Engineering Discipline at the school of Electrical Engineering and Computer Science (EECS), University of Queensland (UQ) is pleased to announce a two-day face-to-face CPD course in Brisbane focusing on the fundamentals of power system.

This course will deliver the theoretical background information necessary along with the "hands-on" experience through industry standard simulation platforms and experimental test benches to understand the fundamentals of power systems.

This course is aimed at engineers/professionals from both electrical and non-electrical background working on power systems, specifically for the personnel from industries aligned with power system planning, operation, management, and maintenance.

This two-day face-to-face course will bring industry professionals together for dialogue and sharing of knowledge to better understand the fundamentals of power systems along with its modelling and operational aspects.

Key Outcomes

- Learn the basics of power system like phasor diagrams, per-unit, three phase source and load connections, and power calculations.
- Understand the modelling of power system components like generator, transmission line, load, transformer, etc.
- Learn about the transmission line compensation techniques and distribution line voltage compensation techniques.
- Be informed of the Y-bus matrix and power system load flow analysis technique.
- Understand the theory, modelling, and operation of synchronous machines.

Who should attend

- Young engineers just starting out in their career in power system and engineers from other backgrounds.
- Consultants and designers in the power system, renewables, manufacturing, mining, industrial and infrastructure groups.

Practical Component

The course will have a half-day simulation (through industry standard software) and practical component at the end of each day, giving attendees the opportunity to gain hands-on experience with some of the concepts discussed during the course.

Presenters

The presenters are the experts from the University of Queensland (UQ) and an industry expert from TNSP.

- Prof. Tapan Saha is a Professor of Electrical Engineering in the School of EECS at UQ and the leader of Power, Energy and Control Engineering discipline.
- A/Prof. Ruifeng (Richard) Yan is an A/Prof. in the School of EECS at UQ and is an ARC Future fellow.
- Dr. Feifei Bai is a Senior Lecturer in the School of EECS at UQ.
- Dr. Ramesh Bonu is a postdoctoral research fellow with the School of EECS at UQ
- Dr. Jagath Fonseka is a Senior System Performance Engineer with Powerlink Queensland.

Cost

$1600 + GST per person

REGISTRATION

Registration

Registrations close 5PM, ***12 June 2026***
(Unless all places are filled earlier).

Venue

Hawken Engineering Building (50),
Room S-202, Staff House Road,
University of Queensland,
St Lucia, Brisbane, Queensland

Enquiries and Further information:

Email: ruifeng@eecs.uq.edu.au

Day-1: Monday 22 June 2026	
08:30 – 09:00	Welcome address and registration (Prof. Tapan Saha)
09:00 – 10:30	Introduction to power system modelling (Prof. Tapan Saha)
10:30 – 11:00	Morning tea
11:00 – 12:30	Transmission line compensation (Prof. Tapan Saha)
12:30 – 13:30	Lunch
13:30 – 15:00	Simulation (PSSE) and laboratory session 1 (Dr. Ramesh Bonu and Dr. Feifei Bai)
15:00 – 15:30	Afternoon tea
15:30 – 17:00	Simulation (PSSE) and laboratory session 2 (Dr. Ramesh Bonu and Dr. Feifei Bai)
Day-2: Tuesday 23 June 2026	
09:00 – 10:00	Power System load flow analysis (Prof. Tapan Saha)
10:00 – 10:30	Morning tea
10:30 – 11:30	Synchronous generator (A/Prof. Richard Yan)
11:30 – 12:30	Industry guest lecture (Dr. Jagath Fonseka)
12:30 – 13:30	Lunch
13:30 – 15:00	Simulation (PSSE) and hardware session 1 (Dr. Ramesh Bonu and Dr. Feifei Bai)
15:00 – 15:30	Afternoon tea
15:30 – 17:00	Simulation (PSSE) and hardware session 2 (Dr. Ramesh Bonu and Dr. Feifei Bai)