

The School of Electrical and Electronic Engineering

The Faculty of Engineering and Physical Sciences at the University of Manchester (formerly UMIST) has a strong tradition of collaboration with industry, encompassing sponsored research and commercial application of results. Its School of Electrical and Electronic Engineering has an exceptionally high proportion of postgraduate activity. The Manchester Centre for Electrical Energy (MCEE) combines the activities of the University's Electrical Energy and Power Systems (EEPS) Group and the Power Conversion (PC) Group. It has 19 academic staff with approximately 60 PhD students and 20 RAs and research staff. During the past 40 years, it has established itself as one of the longest continuously active university-based research centres in electrical power engineering anywhere in the world. The School houses the National Grid Centre for High Voltage Research and the Rolls Royce University Technology Centre in Electrical Engineering for Extreme Environments.

Power Conversion Group

Power electronics research at Manchester is principally based in the Power Conversion Group which is active in many areas, undertaking both fundamental and applied research that covers:



The Intelligent Electrical Power Networks Evaluation Facility (IEPNEF) Control Room

- Power Electronics Enabled Electrical Systems for Aircraft, Vehicles and Marine
- Wind Turbine Systems and Condition Monitoring
- Power Electronics in Powers Systems (HVDC, FACTS and Custom Power)
- Converter Circuits and Systems
- Motor Drivers and Actuators
- Superconducting Devices
- Supercapacitor and Battery-Based Energy Storage Systems

The Rolls-Royce UTC

Rolls-Royce opened a new University Technology Centre (UTC) at the University



Testing on a Fuel-Cell Powered Taxi

of Manchester in 2004 to pursue research into innovative electrical technologies for aerospace, marine and energy applications.

The Centre designs electrical systems for air, sea and land vehicles which operate in 'extreme environments' like those experienced by planes at altitudes of



Multi-Phase Marine Converter Testing

60,000ft and by ships in freezing waters. The Centre houses a state of the art laboratory – the Intelligent Electrical Power Networks Evaluation Facility (IEPNEF) – in which all of these conditions can be tested.

This major Rolls-Royce £1M plus facility has been installed as part of a national project to devise and develop more-electric technologies for future aircraft, marine and land-based vehicles.