## MEng 4 / MSc Project Proposals from Staff

## 2014/15

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| **Member of Staff** | **Project Proposal** | **Suitability** |
| **CCC** | **Radio frequency amplifier for a two-port antenna** |  |
| **CCC** | **Lens-Horn Antennas** |  |
| **CCC** | **Metasurface Waveguides** |  |
| **DJ** | ***Optimal sizing and location of distributed generation in a distribution network with Plug in Hybrid Electric vehicles (PHEVs)*** |  |
| **DJ** | **Congestion management in a distribution network with dynamic line ratings** |  |
| **DJ** | **Splitting distribution networks with the supports of strategic Micro Grids** |  |
| **DJ** | **Value of energy storage in security constrained Micro Grids** |  |
| **DJ** | **Ferro-resonance in Micro-Grid-connected distribution networks**  |  |
| **DJ** | **Security constrained integration of wind and PV in power systems**  |  |
| **DJ** | **Stochastic modelling of a Micro Grid for reliability assessment in a distribution network** |  |
| **DJ** | **Demand characterisation and management in a smart city** | MSc |
| **DJ** | **Protection coordination in a smart Micro Grid** | MSc |
| **DJ** | **Reliability in a distribution network with change in weather conditions and intermittent generation of power** | MSc |
| **DP** | ***Mammography Screening (available for two students)*** |  |
| **DP** | **Counting Tree Canopies** |  |
| **DP** | **Heating Boiler Controller for Buildings with a Large Thermal Mass** |  |
| **DP** | **Semi-Autonomous Motorised Model Bicycle**  |  |
| **MA** | ***Human echolocator signal properties*** |  |
| **MA** | **Classification of wind turbine faults with Doppler radar**.  |  |
| **MA** | **Near-range MIMO radar beamforming with uniform linear arrays** |  |
| **MA** | **2-D scanning MIMO radar** |  |
| **MAB** | **Sensorless Field Oriented Control with Joint Flux and Rotor Speed Observer for rotor speed and flux reference trajectories tracking in Induction Motor** |  |
| **MAB** | ***Field Oriented Control with Reduced Order Rotor Flux Observer for rotor flux reference trajectories tracking in Induction Motor*.** |  |
| **MAB** | **Sensorless Field Oriented Control with Joint Rotor Resistance and Rotor Flux Observer for rotor speed and flux reference trajectories tracking in Induction Motor.** |  |
| **MC** | **Simulation of ultrasonic signals reflection from the rough surfaces** |  |
| **MC** | **Study of the statistical methods of surfaces classification** |  |
| **MC** | **Remote road surface identification using radar and sonar sensors data** |  |
| **MC** | **Designing surfaces recognition system, based on the analysis of the reflected radar signals** |  |
| **MJL** | **Candled powered phone charger.** |  |
| **MJL** | **Stepper motor controlled tuneable waveguide filter** |  |
| **MJL** | **Study of small microwave resonators.** |  |
| **MJL** | **Temperature dependence of the response of microwave waveguide filters**  |  |
| **MO** | **Control of spherical omidirectional robot** |  |
| **MO** | **Implementation of a client-server architecture with customer profiling** |  |
| **MO** | **Object Tracking From video sequences** |  |
| **PAS** | **Modeling of a waveguide circulator** |  |
| **PAS** | **Improved Resonators for use in Klystrons or Magnetrons** |  |
| **PAS** | **Coupled Cavities for use in Travelling Wave Tubes (TWT)** |  |
| **PAS** | Gain Phase Meter & Directional Couplers |  |
| **PAS** | Energy Harvesting using Piezo Devices |  |
| **PJ** | ***Automatic Detection and Identification of Non-Speech Sounds* (1 or 2 projects)** |  |
| **PJ** | **Music Pattern Processing (1 or 2 projects)** |  |
| **PRA** | **Electromagnetic Cable Location Technology** |  |
| **PRA** | **Underground Communication Link** |  |
| **PRA** | **Dual-Channel Arbitrary Function Generator** |  |
| **PRA** | **Receive Signal Digitisation** |  |
| **PRA** | **Sonar Receive Signal Processing** |  |
| **PRA** | **FPGA Data Fusion and Separation** |  |
| **PRA** | **Bicycle mounted road condition monitoring** |  |
| **PRA** | **Any Form of Underwater of Underground Geophysical Sensor** |  |
| **PT** | ***High-voltage DC/DC converter with digital output voltage monitoring*** |  |
| **PT** | **Power converters for electric substations of AC railways at 25kV, 50Hz** |  |
| **PT** | **Condition monitoring systems of power converters of wind turbines** |  |
| **PT** | **Harmonic compensation with the active front-end converters of renewable power sources** |  |
| **PT** | **Design of traction converters with wide-bandgap switching devices** |  |
| **RJS** | ***Development and evaluation of mobile Augmented Reality techniques for aircraft maintenance and component location awareness****.*  |  |
| **RJS** | **A miniaturised metal detection / magnetometer system for small ground-based robot vehicles.** |  |
| **RJS** | **Further development of a head-slaved miniature telepresence unit for ground-based robot vehicles** |  |
| **RJS** | **Development of a breathing-controlled interface for "incentive spirometry" and early ventilator weaning applications for patients in Intensive Care**. |  |
| **RJS** | **Visualising Radiation Sources from Small Unmanned Air Vehicles**.   |  |
| **SH** | **Electric Railway power supply condition monitoring using high frequency time delay reflectometery**  |  |
| **SH** | **Fuel Cell Hybrid Railway Vehicle Power System Optimisation.**  |  |
| **SH** | **Performance Analytics applied to large energy datasets in the railway sector.**  |  |
| **TC** | **Automated Reconstruction of Broken 3D Objects”** |  |
| **TC** | **Audio-band Echolocation Navigation Aid** |  |
| **TC** | **Ambulatory Monitoring of Physiological Data** |  |