University of Nottingham
UK | CHINA | MALAYSIA

Role profile

Job title	Power Electronics Engineer (KTP Associate) Fixed Term	Job family and level	Off scale – KTP Associate £30,000 to £40,000
School/ Department	Faculty of Engineering	Location	NEMA Ltd, Rochdale

Purpose of role

Based at NEMA Ltd in Rochdale, you will work alongside academics from the PEMC Institute at the University of Nottingham on this Knowledge Transfer Partnership (KTP)

You will be instrumental in supporting NEMA in the delivery of its strategic ambition to develop innovative high-frequency, high-power density, wide-bandgap inverter drives for Aerospace electrical machines (motors & generators), utilising cutting-edge semiconductors, state-of-the-art control algorithms and advanced power electronic architectures.

You will engage with company members throughout the project and will be fully embedded within the team, working across the business. You will also be supported and supervised by the University's internationally leading experts in the Power Electronics Machines and Control Institute (PEMC) and have access to their world-class facilities.

A key part of your role will be to transfer and embed knowledge and expertise from the University to NEMA, delivering new skills and capabilities that enable NEMA to develop their technologies and expand their business in the aerospace sector.

This is a fixed-term contract for 36 months. It is anticipated that a permanent role will be available on successful completion of this project.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time
1	Familiarisation with commercial off-the-shelf (COTS) motor drive skills & development of training material	5
2	Going beyond state-of-the-art of inverter drives (as motor controllers) specification identification	10
3	Development of a high-frequency wide-bandgap (WBG) inverter drive demonstrator	20
4	Integration of WBG inverter drive with NEMA high-speed motor & testing	20
5	Performance testing of integrated motor-drive demonstrator	10

6	Digital Twinning of high-speed motor drive system	20
7	Reflection and further improvements to integrated motor-drive design	5
8	Involvement in commercial exploitation, reporting and dissemination	10

Person specification

	Essential	Desirable
Personal skills	• Excellent interpersonal, written, and spoken communication skills. • Strong prioritisation, organisation, and time management skills. • Able to work well in mixed teams, build strong alliances, and engage effectively with colleagues and stakeholders. • Ability to take full ownership of the project, to work independently and manage own workload to meet deadlines and to prioritise tasks. • Enthusiastic and motivated to embed new knowledge. Ability to understand, interpret and communicate complex information.	
Knowledge and experience	▪ Basic understanding of motor drive control ▪ Knowledge/experience of programming for microprocessor or FGPA control platforms ▪ Experience in the use of Power Electronics simulation & design software, such as MATLAB/Simulink PLECS, ▪ Hands-on experience in power electronics development and testing	▪ Relevant work experience (including industrial placements). ▪ Awareness and understanding of commercial drivers. ▪ Fundamental Motor Design principles, such as different motor types, winding topologies, configurations of motors, etc.
Qualifications, certification and training (relevant to role)	• Post-graduate degree in Electrical and Electronics Engineering or a closely related discipline.	
Other	▪ Have a commitment to continuing professional development. ▪ Be willing to undertake appropriate further training and to adopt new procedures as and when required. ▪ Be committed to maintaining confidentiality at all times. ▪ Have a commitment to observing Equality & Diversity policies at all times.	▪ Be willing to travel.

The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people	Is friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
Taking ownership	Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
Forward thinking	Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
Professional pride	Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
Always inclusive	Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others