## University of Bath KTP Programme

**Federal-Mogul Controlled Power Ltd. (referred to as F-M CP),**

**KTP Associate – Project Engineer (Hybrid Emissions)**

## The Company

In November, 2017 Controlled Power Technologies became Federal-Mogul Controlled Power Ltd (referred to as F-M CP), a unit of Federal-Mogul Powertrain.

Federal-Mogul Powertrain is a leading global supplier of technologies and components in the passenger car, light and heavy-duty commercial and off-highway vehicle markets, and also operates in the power generation, aerospace, marine, rail and industrial sectors.

CPT was established in 2007 and the award winning team grew from 4 employees to more than 50 supporting product development and validation, prototype manufacture, and customer application encompassing a diverse range of engineering disciplines including:

• Electro-magnetic optimization  
• Power and control electronics design and development  
• Control system and software development including simulation, test and implementation  
• Mechanical design  
• System integration

The technical development centres are based in Laindon (Essex, UK) and Coventry (UK). The manufacturing process development and pilot manufacturing/assembly line are based in Laindon with test facilities in both UK locations.

Now with more than 37,000 employees worldwide, 100 manufacturing facilities and 14 technical research and development centres located in 21 countries across the globe, the company are the heart of powertrains, big and small.

## <http://www.federalmogul.com/en-US/OE/Brands/CPT/Pages/CPT-Home.aspx>

The role is full-time and will be based at F-M CP Ltd premises in Laindon, Basildon, Essex.

**What is a KTP?**

Knowledge Transfer Partnership (KTP), a government funded scheme brings together universities and businesses to work jointly on a development project that is strategically important to the future of an organisation. Throughout the project the KTP Associate will play a key role in managing and implementing strategic development in the business and transferring knowledge between the University and the business.

**Partnership objectives**

This project aims to investigate the use of mild-hybrid solutions with internal combustion engines, utilising simulation, testing and data analysis techniques, to optimise performance for real world fuel economy/emissions. The partnership will develop new products designed to meet emission targets.

The company is committed to remaining a world leader in technology for the internal combustion engine and requires that F-M CP Ltd becomes a sustainably profitable global centre of excellence for driveline electrification within the group. To achieve this F-M CP Ltd needs to continue to develop its world class mechatronics products and development capability, across mechanical, electronics and control/software engineering disciplines while the global vehicle industry continues to explore different strategies for low and zero carbon emission solutions.

## Partnership management

The KTP Project is delivered by an Associate and is managed through the Local Management Committee (LMC). This is chaired by the senior company executive and comprises the Company and Academic leaders/supervisors and a KTP Advisor (Innovate UK representative). The LMC meets every four months and is responsible for programme direction, ensuring that all parties gain maximum benefit and for authorising expenditure. Associates are expected to prepare an executive summary, to report on progress for the LMC meeting and this must be circulated in advance to LMC members. They are also expected to make a formal presentation on some aspects of their work at this meeting.

The academic knowledge will be provided by Professor Chris Brace who is a Professor of Automotive Propulsion and Deputy Director of the Powertrain Vehicle Research Centre from the University of Bath’s Department of Mechanical Engineering. He leads a wide portfolio of powertrain-based research projects with a common theme around the design of advanced

product validation techniques that allow more efficient product development processes. In particular, the migration of validation activity to earlier in the product development cycle by intense use of engine dynamometers, along with impact of Real Driving Emissions legislation on the powertrain validation requirements is a strong focus of recent research.

Dr Richard Burke will also provide further academic knowledge; his research is focussed on the characterisation of powertrain systems under dynamic conditions which are a closer representation of real world usage. The main aims are the reduction of CO2 emissions and fuel consumption through the physical understanding of a wide range of components and the interactions that occur when coupled together as system. His research interests include heat transfer, fluid dynamics, combustion and control effects during transient duty cycles. Richard is also leading research aimed at the design and validation of control schemes for electrically assisted propulsion of off highway machines.

A monthly progress meeting is held with the Company and Academic Supervisors. The Associate is expected to arrange and document these meetings. The Associate is required to maintain a log of the tangible benefits of the project and to provide internal seminars for other members of University and Company staff, based on knowledge acquired through attendance at courses and conferences.

**The ideal candidate will:**

* Possess a first degree (BSc/BEng) in a subject relevant to the project/research activity
* Possess a strong electronics or control systems background with previous automotive or research project experience in hybrid automotive systems.
* Show a good level of experience of working in an industrial automotive setting with internal combustion engines and electrical machines.
* Have some basic skills in hybrid systems.
* Possess the ability to rapidly fill knowledge gaps in dynamic emissions control of internal combustion engines and have the confidence to quickly assess the most promising solutions.

**In addition:**

* The Associate is expected to play a major role in coordinating the stakeholders involved in this project, so must have good communication and organisation skills.

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***KTP Associate – The benefits***

* Accelerate your career
* Gain valuable experience and marketable, highly transferable skills
* Take early responsibility for a high profile project
* Receive mentoring from the company and an experienced academic team
* Opportunity to gain a professional qualification
* Receive practical and formal management training and development
* Enjoy an excellent chance of a permanent post with the company

It is essential that you understand how KTP works with business and the University, and the vital role you will play if you successfully secure a KTP Associate position. Further information about KTPs and the advantages of being a KTP Associate can be found at <http://ktp.innovateuk.org/>

## Associate’s expectation

The Associate will have the opportunity to pursue another higher degree as a member of staff of the University. Bath provides an MPhil in Knowledge Transfer specifically for KTP Associates. The Associate will be encouraged to gain membership of a relevant professional body to enable them to work towards Chartered status. They may undertake several selected course activities as well as general courses at the University as a member of staff.

Within the limits of commercial confidentiality, the Associate will have the opportunity to deliver papers at conferences and will be expected to co-author articles.

On successful completion of the project, it is likely that the Associate will be offered a permanent position with the Company. However, if due to unforeseen circumstances this is not possible, the Associate will still have acquired invaluable commercial experience through close involvement with the senior management of the Company. Experience of project management will be gained, as well as knowledge of the daily running of a successful business.

**Salary and conditions of employment**

The post is fixed term for the duration of 24 months.

The salary is £31,000 to £35,000 p/a depending on qualifications and experience and the reward package includes a pension contribution and separate £4,000 personal training and development budget.

The Associate will be appointed by the University as a member of staff with the Department of Mechanical Engineering, responsible to the appointed academic supervisor. The contract of employment is for 24 months. There is a probationary period of six months, during which time the contract may be terminated by either side with one month’s notice. Thereafter, the required notice period to be given by either side is three months. The University requires a mid-probationary report after three months and a full probationary report at six months.

In other respects, the Associate will be treated as a Company employee and works full-time at the Company’s premises in Laindon, Basildon Essex.

The project may require some periods of time to be spent at the University and could involve overseas travel. The conditions of work, including work hours and holiday entitlement, will be those applying to Company employees. An annual appraisal is carried out with the Academic and Company Supervisors. This is used to identify the Associate’s training requirements in relation to programme tasks and their personal development plan.

Whilst there is no commitment on the Company to retain the Associate at the end of the programme, it is expected that the Associate will be made aware of future prospects at their annual appraisal. KTP appointments cannot normally be extended beyond the end of the project.

***It should be noted that this KTP Associate post entails the development and application of knowledge for commercial outcome and that the Associate will be embedded in the company for the KTP duration. It is technology transfer focussed and not suitable for candidates primarily seeking an academic research or teaching career within the University.***