

Academic Promotion Application Form – Non Professorial

This should be completed by the member of staff who is applying for promotion with comments from the Head of Department, and **submitted with an up-to-date CV** in the approved style (available on the Academic Processes webpage) to the Academic Processes Team in Human Resources.

Prior to completion of this document, please read the document providing details on criteria and evidence and the standards matrix.

Name of Employee	FVL	Department	WMG
Current Appointment	Teaching Fellow	Level of Promotion applying for?	7
FTE	100 %	Career track (R&T- T-focussed, R-focussed)	Teaching focused
Previous appointments held at University of Warwick (please indicate if any of these appointments were part time)	Research Assistant (Part-time), School of Engineering.		
Please detail any significant periods of leave (e.g. parental, sickness)			

Please summarise achievements in the following areas of activity:

Research and Scholarship
Minimum threshold requirement for the level of promotion for which you are applying: 2
Score which you believe your experience demonstrates: 4 (with elements of 5)
<p>I have <i>demonstrated ability to undertake, disseminate and publish original, high-quality research</i> which makes a significant contribution to [both] the discipline and pedagogy. This is evidenced not only through the successful completion of my PhD but also through my active involvement in pedagogical research and scholarship, which has led to <i>innovation in learning and teaching</i> within my current role at WMG.</p> <p>I have a proven track record of publications, demonstrating my <i>ability to sustain the publication of research that is clearly of national standard</i>. My PhD research advanced the state-of-the-art in acoustic sensors, including the publication of 4 refereed journal articles and 6 international conference papers. More importantly, it resulted in an international patent and the foundation of a £1.2 million spin-out company (Sorex Sensors Limited). A photograph of my fabricated microsensor (final outcome of my PhD work) features on the company website. Although I am now in a teaching-focused position, my expertise in sensors is recognised within the department. I was invited to disseminate my work to researchers in the microfluidics and sensors research group, with which I have established a research collaboration, providing support to a PhD researcher.</p> <p>As evidence of my <i>ability to access external funding for research related activity</i>, I was awarded a £100k scholarship from the Mexican Council for Science and Technology and secured the Arthur Shercliff travel Scholarship, which funded my one-week collaborative work at the Technical University of Madrid, thus establishing a new international research partnership with Warwick.</p> <p>Evidence of my <i>research-based innovation in learning and teaching</i> can be found in my participation at the “Excellence & Innovation in Evidence-Based Teaching” symposium (March 2021) organised by the WMG Education Research Group (ERG), where I disseminated my pedagogical research on asynchronous learning activities. Full results of this work are submitted for publication in the Journal of Scholarly Innovation in Engineering, Technology and Management Education (under review).</p> <p>In my previous institution, I was part of the team that pioneered the development of engineering remote laboratories to enhance practical teaching and learning in higher education. At the time, this was innovative work which allowed the university to share lab resources across five university sites and thus enable students to gain access to state-of-the-art equipment for the development of practical skills. This work resulted in one book chapter and 11 international conference papers.</p> <p>I have been involved in <i>leadership in team-based research and scholarship</i>. As early as my PhD, I led the research work from Warwick within the European FP7 project Multi-Sensor Platform for smart building management (MSP). The success of this project led to further collaborative research funding for the University through the COMET programme.</p> <p>More recently, I led a pedagogical research project (Summer 2021) as part of the Education Innovation Group (EIG) internship programme. This project investigated student engagement with the asynchronous interactive activities I had developed and implemented during the academic year 2019/20 in Degree Apprenticeships (DAs). A publication from this work is currently in preparation. The findings from this research informed the recent design strategy of DAs delivered in a more consistent blended learning approach; in particular, for the newly launched Applied Professional Engineering Programme (APEP).</p> <p>Degree apprentices study part-time at university while working full-time in industry. My <i>scholarship and research-based innovation in learning and teaching</i> can be recognised through my engagement with industry subject experts and the successful supervision of 13 BEng projects. I take these opportunities to continuously update my understanding of the subject and incorporate this expertise into my teaching. My active involvement in student projects has twice led to receiving personal invitations (not a common occurrence) to visit the apprentices’ workplace, where I had the opportunity not only to talk with their line managers but also to observe practical demonstrations of their work-based projects.</p>

Teaching and Learning

Minimum threshold requirement for the level of promotion for which you are applying: 5

Score which you believe your experience demonstrates: 5

I am able to **design, deliver, evaluate, and assess teaching to a high standard** and engage effectively with students. This can be evidenced by the following:

- Achievement of the “Stars of 2020 Award” – WMG departmental recognition for my commitment and outstanding contributions to teaching.

“They [FVL] deliver high quality content, using different online tools to create interactive technology-enhanced teaching materials without compromising the student experience”

(Anonymous, WMG Stars of 2020 Award ceremony)

- Accreditation as Fellow of the Higher Education Academy (FHEA) – successfully evidenced my engagement with all the areas of activities against the UK Professional Standards Framework.
- Completion of the [Academic and Professional Pathway for Teaching Excellence](#) (APPTE) programme – demonstrated my commitment to an evidence-informed approach in my teaching practice engaging with colleagues in an interdisciplinary context.
- Development of interactive learning resources for the *enhancement of teaching and student engagement* – with the move to fully online learning forced by Covid-19, I took the initiative of adapting my teaching materials, pioneering in the use of interactive videos developed to foster a flexible yet engaging learning environment for apprentices. Prepared to a high-quality standard, these innovative resources improved student experience across a wide range of modules.

Module	Comments
WM306	<i>“The lecturing (especially FVL’s pre-recorded lectures which were excellent and by far the best I’ve had whilst at university) was good.”</i> <i>“I thoroughly enjoyed and engaged with FVL’s more scripted and interactive form of recorded lecture, and I wish more lectures would adopt a similar style when recording lectures.”</i> <i>“Your recorded lectures have been the best of any lecturer across the course.”</i>
WM112	<i>“People enjoyed FVL’s lectures, both content and format, as the content was detailed and thorough, and the interactive way in which it was delivered was good and engaging.”</i> <i>“FVL was really good. Her interactive lectures were brilliant, and she explained things very clearly.”</i>
WM102	<i>“I must say that FVL’s lecture videos were extremely well thought out and of very high quality”</i> <i>“Maintain the high quality of the presentations and use these as a template for other modules.”</i>
WM212	<i>“People loved the format of the pre-recorded lecture and thought it was engaging”</i> <i>“The interactive questions throughout the pre-recorded lecture were really helpful”</i>

(Anonymous students, module feedback)

I evidence my *ability to collaborate with colleagues to inform the enhancement of own and other’s teaching practices* by:

- Sharing good practice with WMG teaching staff through internal meetings and dissemination in the ERG symposium. As a result, my innovative approach strongly *influenced teaching* across WMG – the use of interactive videos is now adopted, and the student-friendly arrangement of my Moodle sites is now used as the standard format in APEP modules.
- Active engagement with the EIG in the design of the “Electrical and Electronic systems 1” module for the new APEP course – ensuring the module was constructively aligned, mapped to relevant [apprenticeship standards](#) and that Knowledge, Skills and Behaviours (KSBs) were met at programme level. This engagement *changed academic practice*, enabling clear communication of these core

aspects to all degree apprentices, thus facilitating guidance on their professional and academic development.

- Collaboration with industry partners to *enhance apprenticeship teaching* – I led the design of the electronics aspects of the APEP Practical Skills Workshop, a bespoke course to close the competence gap for entry level apprentices. Liaising with external company management (JLR, WMG Academy), I ensured the workshop underpinned relevant KSBs and activities were linked to workplace needs.

Acting above my Teaching Fellow position, in the past 2 years I have led four modules: Electrical and Electronic Principles ([WM102](#)), Electrical and Electronic Systems ([WM306](#)), Electrical and Electronic Systems 1 ([WM176](#)) and Electronics Manufacturing and Assembly ([WM355](#)); the latter was a brand new module, which I designed and delivered from scratch, actively engaging with industry subject matter experts to ensure contents are driven by industrial needs.

Impact, Outreach and Engagement

Minimum threshold requirement for the level of promotion for which you are applying: 2

Score which you believe your experience demonstrates: 3

I can demonstrate I am *developing a reputation and recognition with key stakeholders for the broader value of specialist activity* through the following:

I actively *participate in outreach and public engagement activities* to promote STEM subjects to audiences of children and the wider community, encouraging young people to pursue a career in Engineering. Examples include providing support in training sessions for the continuing professional development (CPD) of school teachers and running activities for children in outreach events such as [Family days](#).

I support *national student recruitment* through my participation in university open days, where I advertise the general structure of Degree Apprenticeships, promote the WMG Apprenticeship programmes and showcase the new Degree Apprenticeship Centre building to prospective students, parents, and advisers, encouraging participation in Higher education. My continuous involvement promoting these programmes lead to me featuring on the front cover of the [DTS student handbook](#), supporting the marketing team.

My ability to *set up and develop relationships with external organisations* can be evidenced by:

- Hosting tours around WMG buildings for external delegates – promoting WMG’s facilities, research activities, and education provision to encourage strategic partnerships with university visitors.
- Engagement with external companies such as JLR and Dyson – travelling to the company sites to boost the collaboration between the WMG education team and the industry. Recently, I took part of the academic procession at the [graduation ceremony](#) of the first ever cohort of apprentices at the Dyson Institute of Engineering and Technology.

My expertise in the sensors field is acknowledged through regular *invitations to peer-review journals* ([IEEE Sensors Letters](#)) and conference papers ([IEEE Sensors Conferences](#)) for which I provide in-depth and constructive reviews.

I took a leading role in the organisation of the [ISSUV summer school 2018](#), encouraging gender diversity in Engineering and participation of women in STEM and I have collaborated within the organising (and technical programme) committees of several other international conferences.

Collegiality, Leadership, Management	
Minimum threshold requirement for the level of promotion for which you are applying: 2	
Score which you believe your experience demonstrates: 3	
<p>I have demonstrated the ability to organise and manage activity in support of academic processes, showing emerging leadership ability within the immediate group, as evidenced by:</p> <ul style="list-style-type: none"> ▪ Member and rotating chair of the WMG Course and Module Approval Panel – helping to raise the quality and range of education provision, by guiding module owners in correct mapping of module learning outcomes with respect to apprenticeship standards and new AHEP requirements. ▪ Elected representative of early career teachers to the WMG Assembly – directly feeding back recommendations on departmental initiatives to the WMG Executive. I contributed to the improvement of the Hybrid working and return to campus policies and to ensure effective communication across the department. ▪ Participation in staff recruitment – providing feedback as an observer in interviews for various teaching positions. <p>As evidence of my <i>successful initiatives and innovation in administrative processes</i>:</p> <ul style="list-style-type: none"> ▪ Member of the exam-task group formed by the WMG UG Directors – to establish standard guidelines and forms for the assessment approval process. ▪ Formula booklet upgrade – Updated and consolidated the electronics chapter of the student formula booklet for Y1/Y2 degree apprenticeship modules, enhancing the assessment experience of students. ▪ Producing guidance documentation for staff – created written guidance on the use of Moodle for communicating with specific student groups. The guidance has been widely used by many teaching and admin colleagues as an effective and immediate solution to a reoccurring issue. ▪ Lab equipment procurement – successfully obtained £2.5k fund for an electronics soldering station to expand the electronics-based equipment for practical-based learning and teaching support. ▪ Lab equipment inventory – within my discipline group, I created a local inventory of equipment to tackle existing operational issues in equipment tracking and booking. <p>I am the personal tutor of 20 UG and 12 PG students. I provide academic guidance and pastoral support, which has become increasingly relevant since the covid pandemic started in light of continuous change in circumstances and teaching delivery modes.</p>	

Minimum score required	14	Total Score <i>Please add your scores from each of the four areas</i>	15
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PERSONAL DETAILS

Full Name and Title: FVL

Department: Warwick Manufacturing Group (WMG)

Title of current appointment: Teaching Fellow

Education/qualifications:

- PhD in Engineering, entitled “CMOS compatible Solidly Mounted Resonator for air quality monitoring”. (University of Warwick, Dec 2017)
- Bachelor of Science with distinction in Mechanical and Electrical Engineering (Univesidad Veracruzana, Mexico, 2012). Final project: Development of engineering remote laboratory for teaching and training in higher education. Including one-year International Exchange Programme (Europa Universität Viadrina, Germany, 2011)
- Postgraduate Award in Transferable skills in Science (University of Warwick, 2017)
- Postgraduate Award in Teaching and Learning in Higher Education (University of Warwick, 2016)

Appointments held:

Sept 2018 – present: Teaching Fellow, Warwick Manufacturing Group

Mar 2018 – Jun 2018: Senior Graduate Teaching and Research Assistant, Universidad Veracruzana, Mexico. *Key responsibilities:* Research work on wireless sensor modules and IoT, supervision of four final project students, lecturing Level 4 students (electrical circuits and programming).

Oct 2017 – Dec 2017: Research Assistant (part-time), School of Engineering, University of Warwick, UK. *Key responsibilities:* Sensor module design and testing at European partner university on the Horizon 2020 Project: Mobile Robots with Novel Environmental Sensors for Inspection of Disaster Sites with Low Visibility (SmokeBot).

2014 – 2017: Graduate Teaching Assistant (part-time), School of Engineering, University of Warwick, UK. *Key responsibilities:* demonstration duties in practical lab sessions, development of New Style Tutorial Solutions (NSTS strategy), exam invigilation and supervision of third year undergraduate project students.

Membership of learned or Professional societies:

July 2021 – present: Fellow of the Higher Education Academy (FHEA)

2012 – present: Member of the Institute of Electrical and Electronics Engineers (IEEE)

2014: Founding member of the IEEE student branch of the University of Warwick.

2012: Interim chair of the IEEE student branch FIME Xalapa, Universidad Veracruzana

2014 – 2017: Member of the Institution of Engineering and Technology (IET)

RESEARCH AND SCHOLARSHIP

A proven track record of publications in the areas of the scholarship of teaching and learning, acoustic wave sensors, smart sensor networks and electronic systems. Overall, these publications include: 1 published international patent, 6 refereed journal papers, 1 book chapter and 17 international conference papers. A total of 182 citations and h-index of 8 for publications since 2015 (Google scholar).

In addition to the written publications, I disseminate the results of my research work through presentations at international conferences. From the conference proceedings listed below, I have presented those marked with a **(P)**, with a total of 7 oral presentations and 1 poster presentation.

Publications:

1. S. Fieldhouse, FVL (2021). "Asynchronous Learning Activities and Gamification in Engineering Degree Apprenticeships", *Journal of Scholarly Innovation in Engineering, Technology and Management Education*, 10 pages (under review). *Personal estimated contribution as 70% for the design, development, and implementation of the asynchronous activities.* (Refeered Journal)
2. S. Fieldhouse, FVL (2021). "Asynchronous learning in Degree Apprenticeships"- This publication is currently in preparation for submission to the *IEEE Transactions on Education*. *Personal estimated contribution as 50% for the design, data collection and paper editing.* (Journal)
3. FVL, M. Cole, E. Iborra, M. De-Miguel Ramos, J. W. Gardner (2019), "A solidly mounted resonator with CMOS-fabricated acoustic mirror for low-cost air quality monitoring", 20th International Conference on Solid-State Sensors, Actuators and Microsystems & Eurosensors XXXIII, Berlin, Germany. *Personal estimated contribution as 90%.* (Conference proceeding)
4. M. Cole, J.W. Gardner, FVL, S. Thomas (2018), "Bulk acoustic wave resonator-based sensor", PCT International Patent publication number WO 2018/055414. *Personal estimated contribution as 60% for design, lab research, data collection, writing.* (International Patent)
5. J. García-Guzmán, FVL, J. A. Vélez-Enríquez, L. A. García-Mathey and A. Ramírez-Ramírez (2017). "Remote Laboratories for Teaching and Training in Engineering" in *Mechatronic Systems in Engineering*, IntechOpen, pp. 48 – 63. *Personal estimated contribution as 40%.* (Book chapter)
6. W. Xuan, M. Cole, J. W. Gardner, S. Thomas, FVL, X. Wang, S. Dong, J. Luo (2017), "A film bulk acoustic resonator oscillator based humidity sensor with graphene oxide as the sensitive layer", *Journal of Micromechanics and Microengineering* 27(5), *Personal estimated contribution as 15 % for experimental setup and lab research.* (Refeered Journal)
7. FVL, G. Rughoobur, S. Thomas, A. J. Flewitt, M. Cole and J. W. Gardner (2016). "Design and modelling of solidly mounted resonators for low-cost particle sensing", *Measurement, Science and Technology* 27(2). *Personal estimated contribution as 90%.* (Refeered Journal)
8. S. Thomas, M Cole, FVL, J. W. Gardner (2016). "High frequency surface acoustic wave resonator-based sensor for particulate matter detection", *Sensors and Actuators A: Physical* 244, pp. 138-145. *Personal estimated contribution as 50%.* (Refeered Journal)
9. S. Thomas, FVL, J. Theunis, J. Peters, M. Cole, J.W. Gardner (2016). "Particle sensor using solidly mounted resonators", *IEEE Sensors Journal* 16(8), pp. 2282-2289. *Personal estimated contribution as 80 % for sensor design, testing, paper writing.* (Refeered Journal)
10. FVL, M. Cole, S. Thomas, J. W. Gardner (2017), "Indoor air quality monitor based on solidly mounted resonators for the detection of VOCs", *IEEE Sensors Conference 2017, Glasgow, UK.* *Personal estimated contribution as 90 %.* (Conference Proceeding)
11. S. Thomas, M. Cole, FVL, J.W. Gardner, J. Peters and J. Theunis (2016), "A low-cost acoustic microsensor based system-in-package for air quality monitoring", *IEEE Sensors Conference 2016, Orlando, USA.* *Personal estimated contribution as 40 %.* (Conference Proceeding)
12. J. García-Guzmán, A. Mendoza-Gutiérrez, J. A. Vélez-Enríquez, FVL, A. Ramirez-Ramirez (2015), "Multiphysics modelling of a resistive polymeric sensor for VOC", *IEEE International Conference on Industrial Technology, Spain.* *Personal estimated contribution as 30 %.* (P) (Conference Proceeding)
13. FVL, S. Thomas, M. Cole and J.W. Gardner (2014), "Particle detection using acoustic wave technology for air quality monitoring", *Third Scientific Meeting COST Action TD1105 EuNetAir, Istanbul, Turkey.* *Personal estimated contribution as 90 %.* (Conference Presentation)
14. FVL, S. Thomas, M. Cole, J. W. Gardner (2014), "Finite element modelling of particle sensors based on solidly mounted resonators", *IEEE Sensors Conference 2014, Valencia, Spain.* *Personal estimated contribution as 90 %.* (P) (Conference Proceeding)

15. S. Thomas, FVL, W. Ludurczak, M. Cole and J.W. Gardner (2014), "Design, modelling and development of low cost high frequency piezoelectric particle sensor", EMR-S 2014 Spring Meeting, Lille, France **(P)**. *Personal estimated contribution as 50 %.* *(Conference Proceeding)*
16. J. García-Guzmán, E. Moctezuma-Monge, FVL (2014), "FPGA implementation of a smart home lighting control system", IEEE 4th International Conference on Consumer Electronics–Berlin (ICCE-Berlin). *Personal estimated contribution as 30 %.* *(Conference Proceeding)*
17. J. García-Guzmán, H. R. Morales-Andrade and FVL (2013), "FPGA implementation of a smart control system for traffic lights in a 4-way intersection", XIII Congreso Nacional de Ingeniería Eléctrica y Electrónica del Mayab (CONIEEM 2013), Mérida, México, pp. 701-709. *Personal estimated contribution as 30 %.* *(Conference Proceeding)*
18. A. Ramírez-Ramírez, J. A. Vélez Enríquez, J. García-Guzmán, D. A. Zamora-García, FVL (2013), "Monitoreo, protección y control remoto de dos motores eléctricos mediante instrumentación virtual", XIII Congreso Nacional de Ingeniería Eléctrica y Electrónica del Mayab (CONIEEM 2013), Mérida, México, pp. 553-560. *Personal estimated contribution as 20 %.* *(Conference Proceeding)*
19. FVL, J. García-Guzmán, J. Vélez Enríquez, S. Leal-Ortíz and A. Ramírez-Ramírez, "Electropneumatic system for industrial automation: a remote experiment within a web-based learning environment", Procedia Technology 7 (2013), pp. 198-207. **(P)** *(Conference Proceeding)*
20. FVL, Jesús García-Guzmán, Alfredo Ramírez-Ramírez, Jorge A. Vélez Enríquez (2013), "Remote laboratories for teaching and training in engineering", Eleventh Latin American and Caribbean Conference for Engineering and Technology (LACCEI 2013), Cancún, México.
21. S.L. Tan, J. Garcia-Guzman and FVL (2012), "A wireless body area network for pervasive health monitoring within smart environments", 2012 IEEE International Conference on Consumer Electronics (ICCE-Berlin), Berlin, Germany pp. 47-51. *Personal estimated contribution as 30 %.* **(P)** *(Conference proceeding)*
22. J. García-Guzmán, FVL, F. H. Silva-Del-Rosario, A. Ramírez-Ramírez, J. Vélez Enríquez and E. J. Álvarez-Sánchez (2012), "Virtual environment for remote access and automation of an AC motor in a web-based laboratory", Procedia Technology 3, pp. 224-234. *Personal estimated contribution as 40 %.* *(Conference proceeding)*
23. J. García-Guzmán, FVL and A. Ramírez-Ramírez (2011), "A comparison of responses of voltage propagation in transmission lines using Wave Digital Filters", Advances in Computer Science and Electronic Systems-Research in Computing Science 52, pp. 215-225. *Personal estimated contribution as 50 %.* *(Conference proceeding)*
24. J. García-Guzmán, FVL, J. A. Vélez-Enríquez and A. Ramírez-Ramírez (2011), "A wave digital filter model of a vibrating piano string based on the one-dimensional wave equation", 2nd International Congress on Instrumentation and Applied Sciences (ICIAS 2011), Puebla, México. *Personal estimated contribution as 50 %.* **(P)** *(Conference proceeding)*
25. J. García-Guzmán, FVL and A. Ramírez-Ramírez (2010), "Modelling voltage propagation in transmission lines using wave digital filters", 1st International Congress on Instrumentation and Applied Sciences (ICIAS 2010), Cancún, México. *Personal Estimated contribution as 50 %.* *(Conference Proceeding).*

Research grants and contracts:

I have successfully obtained departmental funding (£2.5k) to purchase laboratory equipment (soldering station and electronics test equipment) used in the development of teaching resources as well as during practical lab sessions to support the development of practical skills in the degree apprenticeship programmes. To conduct my research related activity, I have successfully access external funding, including a total of six grants, as detailed in the following table.

No.	Date Awarded	Project Title/Details Duration of Award	Funding Body	Total Awarded
1	2017	Arthur Shercliff Travel Scholarship: Fabrication of CMOS acoustic sensors at the Technical University of Madrid	University of Cambridge, UK.	£1.4k
2	2013 - 2017	Grant for PhD research at The University of Warwick, UK	Mexican Council for Science and Technology (CONACYT) and School of Engineering, Warwick.	£100k
3	2015 - 2017	Complementary grant for PhD research.	Mexican Secretariat for Public Education (SEP)	£10k
5	2014	Travel Grant: EuNetAir COST Meeting at Istanbul, Turkey	COST Action TD1105	£1k
6	2011 -2012	Research Internship on Remote Laboratories.	Universidad Veracruzana, Mexico	£1k

TEACHING AND LEARNING

Departmental Duties:

	<i>Length of Course (Contact hours)</i>	<i>Number of Students (approx.)</i>
Lecture Courses:		
Module leader:		
▪ WM102 “Electrical and Electronic Principles”	22 hours	95 (UG)
▪ WM306 “Electrical and Electronic Systems”	5 hours	15 (UG)
▪ WM355 “Electronics Manufacturing and Assembly”	18 hours	6 (UG)
Module contributions:		
▪ WM216 “Applied Programming 2”	2 hours	45 (UG)
▪ WM112 “Electrical and Electronic Circuits and Devices” (Dyson Programme)	3 hours	35 (UG)
▪ WM112 “Electrical and Electronic Circuits and Devices” (Ford Programme)	3 hours	20 (UG)
▪ WM212 “Electrical and Electronic Application”	2 hours	45 (UG)
Tutorial/Seminars/Practical:		
▪ WM102 “Electrical and Electronic Principles”	24 hours	95 (UG)
▪ WM306 “Electrical and Electronic Systems”	12 hours	15 (UG)
▪ WM355 “Electronics Manufacturing and Assembly”	15 hours	6 (UG)
▪ WM216 “Applied Programming 2”	8 hours	45 (UG)
▪ WM112 “Electrical and Electronic Circuits and Devices” (Dyson Programme)	2 hours	35 (UG)
▪ WM112 “Electrical and Electronic Circuits and Devices” (Ford Programme)	2 hours	20 (UG)
▪ WM212 “Electrical and Electronic Application”	2 hours	45 (UG)
▪ WM350 “Work Based Project” (Dyson Programme)	7 hours	2 (UG)
▪ WM3A2 “Individual Work-Based Project” (AEP)	2 hours	1 (UG)
<i>TOTAL (Contact hours)</i>	126 hours	

Through my current role as Teaching Fellow, I teach students at undergraduate level in the degree apprenticeship programmes at WMG. These programmes combine working in industry with part-time studying for an engineering degree. Students are able to gain practical skills and knowledge, applying their learning into practice at their workplace.

Currently, I have three module ownerships and contribute to teaching delivery and marking in a range of modules in the areas of electrical and electronics engineering and programming. I teach across several UG degree apprenticeship programmes including the Applied Engineering Programme (AEP), the bespoke Dyson Engineering Degree Apprenticeship (EDA), Ford Engineering Degree Apprenticeship, and the newly developed Applied Professional Engineering Programme (APEP).

Module Leadership:

In the current academic year (21/22), I am leading three modules:

- WM176 Electrical and Electronic Systems 1 (Level 4, APEP course)
- WM306 Electrical and Electronic Systems (Level 6, AEP course)
- WM355 Electronics Manufacturing and Assembly (Level 6, Dyson course)

Module design:

During my current Teaching Fellow position, I have designed from scratch three brand-new modules:

- WM176 Electrical and Electronic Systems 1 (Level 4, APEP course)
- WM355 Electronics Manufacturing and Assembly (Level 6, Dyson course)
- WM3C8 Electronics Design and Development Principles (Level 6, APEP course)

WM176 was designed in collaboration with the industrial partner (JLR) to ensure company needs were addressed. Through active engagement with the Education Innovation Group (EIG) mapping of this module to apprenticeships standards, and knowledge, skills and behaviours (KSBs) was conducted, ensuring consistency across all the modules in this APEP programme.

WM355 was designed in consultation with subject matter experts at the Dyson, ensuring contents were driven by industrial needs. This module was successfully delivered for the first time during the academic year 19/20 and received 100% positive feedback.

WM3C8 is due to run in the academic year 24/25, but its design at this early stage was vital in the course proposal and for the appropriate degree stream within the APEP programme.

In addition to the modules above, I am leading the design of the Electronics side of a 2-week **Practical Skills Workshop**, a training course requested by the industrial partner to close the gap in practical skills for entry level degree apprentices in the new APEP programme. In the design of this workshop, I am collaborating with other colleagues in the UG Teaching team, as well as external organisations (JLR and WMG Academy for Young Engineers).

Start of 2020 WMG Award

My outstanding contributions and commitment to teaching has led to a departmental recognition through my achievement of a Stars of 2020 WMG Award. This was awarded to only 20 recipients across the entire department.

Fellow of the Higher Education Academy (FHEA):

Through the completion of the Warwick Academic and Professional Pathway for Teaching Excellence (APPTE) Programme (June 2021), I demonstrated my commitment to an evidence-based teaching approach within my discipline, collaborating and sharing good practice with colleagues across the University in an interdisciplinary context. Through my engagement with the scholarship of teaching and learning I demonstrated my ability to design, deliver and assess teaching to a high standard, successfully evidencing engagement against the UK Professional Standards Framework (UKPSF) for teaching and learning in higher education, achieving the status of Fellow (FHEA) by Advance HE.

Innovation and Impact in Teaching:

I have pioneered the use of digital technologies to enhance student learning. In particular, I take an initiative approach to exploit the capabilities of the University's Virtual Learning Environment (Moodle) to provide support for remote learning, encourage students to engage with the resources and improve their overall learning experience:

- *Interactive Lecture Videos* (Sep 2020 to date)
As a result of Covid-19 and the move to online learning, I took the initiative to create interactive lecture videos, with embedded questions, which were produced to a high quality. These allowed apprentices to work at their own pace and remain engaged with the contents. I have shared this good practice with other discipline groups, where some tutors have adopted this approach.
- *Gamification Elements* (Sep 2020 to date)
Other gamification elements, such as earning badges (through the completion of formative assessments) and progress bars have also been included in the Moodle sites, to motivate students during these exceptional times. Other technologies such as the use of VEVOX polling software have also been used, with positive feedback received from students.
- *Laboratory Equipment* (Jan 2020)
I obtained funding (£2,500) to purchase laboratory equipment available to staff for the development of teaching materials and lab projects. The equipment and developed resources will help student develop the practical skills as part of their degree apprenticeship standards.
- *Moodle Site Organisation* (Sept 2019 to date)
I introduced the use of banners in the module Moodle sites to provide a clear structure to the learning resources (guide students through files and activities). These banners I created are now the standard format used across all modules in the new APEP course.
- *Software/Hardware Tutorials* (Sep 2019 to date)
I have created tutorials on the use of software packages (Multisim circuit simulation) and laboratory equipment (NI ELVIS II+ quick start guide), which are now used as a standard across the electrical modules.
- *Simulation Software*
I make use of design and simulation software such as Multisim and Altium Designer in the classroom to analyse and design electronic circuits. I encourage students to use these tools to compare to their theoretical results and analyse the behaviour of electrical circuits, developing these skills.

The excellence of my teaching can be recognised through the very positive feedback received from students regarding the structure, arrangement, delivery, and the high quality of the teaching resources in my modules, which students have expressed, makes it very helpful to identify key concepts, locate the resources and revise the module contents. Relevant feedback comments below.

"By far the best delivered module [WM102] of this academic year, it's very clear as a student the amount of effort put into delivering this."

"Hi FVL, just wanted to drop you a chat to say thank you for a great year, thank you for all your hard work it's very clear the time you invest in us and I'm sure I speak for the whole cohort when I say we're all very grateful. It's a shame you're not teaching us again next year, you're one of our better Lecturers! Thank you again and best wishes for the future."

"WM102 module had one of the best delivery experiences. I enjoyed the lectures being broken up into digestible chunks."

"I have just received my feedback for my WM102 assignment, and it was excellent. It is what all modules should aim to provide."

"Really enjoyed the lectures provided throughout the year. Really informative and helped when revising for exams and coursework."

"I very much enjoyed the content FVL directed. Difficult electronics material was made very engaging and easy to learn."

"I thought FVL's lectures were very good, easy to follow and learn from. Each concept was very well explained."

"Thanks for all your help during this very stressful time, it's very appreciated by us apprentices who are still working full time jobs alongside this course."

(Anonymous Year 1 students, module feedback)

Research supervision – Taught course (UG and PG):

Current Research (BEng/MSc) Students

Individual (unnamed)	Start Date	Qualification aimed for	Anticipated Completion Date	Individual/Joint Supervisor
A × 8	Oct 2018	BEng (Applied Engineering)	Sept 2019	Individual
B × 2	Oct 2019	BEng (Applied Engineering)	Sept 2020	Individual
C	Oct 2019	MSc (Energy and Power Engineering)	Sept 2020	Joint
D × 2	Oct 2020	BEng (Applied Engineering)	Sept 2021	Individual
E × 1	Oct 2020	BEng (General Engineering)	Sept 2021	Individual

Number of successful project research students since 2018: **13 UG students and 1 PG student**

Number of unsuccessful project research students since 2018: **0**

As part of my departmental duties, I supervise undergraduate students in their final work-based projects (WBP). I regularly meet with my project students to discuss their topic, their research approach, progress and provide support and suggestions throughout the completion of the project. Additionally, I have co-supervised a master student from the School of Engineering.

"Hi FVL, just received the mark for my WBP [Work-based project] Final Report. I'm really pleased with the result! Thanks so much for all your help with the WBP!"

"Just submitted my report and wanted to say a huge thank you for the support you have given me over the past few months."

"Thank you for the quick and in-depth response, it was really helpful!"

(BEng project student feedback)

IMPACT, OUTREACH AND ENGAGEMENT

Outreach activities and student recruitment:

I am an enthusiastic engineer who likes to promote STEM and Engineering subjects to various audiences. Right from the very start, when I joined WMG (Sept 2018), I actively participated in a variety of outreach activities and events in the department targeted to a variety of audiences including young children, school teachers and external delegates:

- *Sept 2021: Academic procession at Graduation Event in Dyson*

The first ever cohort of degree apprentices from Dyson (a partner company) recently graduated. Alongside another small group of colleagues, I represented the University and the UG teaching team by taking part in the academic procession at their graduation ceremony, which took place at the Dyson Institute of Technology (Malmesbury).

- *Feb 2020: National Degree Apprenticeship Week*
Lead role in the development and delivery of two electronics-related activities for a group of 38 school children and teachers visiting the Degree Apprenticeship Centre building during the Degree Apprenticeship Insight Day. To encourage the interest in electronics in young students, I designed and organised the activities, created the worksheets and helped setting up the equipment. Positive feedback was given during the event by the teachers as an engaging and well-organized activity.
- *Dec 2019: WMG Tours for visiting delegates and new students*
Under the supervision of Dr Paul Marshall (Head of strategic partnerships), I have assisted hosting external visitors from different sectors to WMG, organising and guiding these delegates to the different buildings. I promote the overall scope of activities (research and education) around WMG, encouraging new partnerships with external organisations.
- *Oct 2019: Open Days at the new Degree Apprenticeship Centre (DAC)*
I provide support in national student recruitment during university open days where I promote the general format of degree apprenticeship programmes and the WMG courses to prospective undergraduate students, their parents and school advisers explaining the course structure, and curricula of specific programmes, also showcasing the DAC building.
- *Sept 2019: Participation in Family Day*, a university-wide event for families in the local area. I collaborated with other academic staff to run the “Egg drop” activity, where we explained car crash structures to young children. I was actively involved welcoming the families, explaining the activity, and handling the equipment to inspire the next generation of engineers.
- *Apr 2019: Design and development of solar car*
To encourage young pupils in the local area, I took the initiative to design in collaboration with a colleague a mini solar car, for which the first prototype was completed after discussion with Prof. Margaret Low, where the use of recyclable materials in its construction was key. Unfortunately, further development was paused for this activity due to other teaching commitments.
- *Sept 2018: Support to marketing and communications team* for the UG Degree apprenticeships programmes. As a result, I feature in the cover page of the DTS programme student handbook.
- *Sept 2018: Delivery of Continuous Professional Development (CPD)* through programming workshops (Arduino and Turtlestitch) to a group of 10 trainee teachers. Shared my expertise in programming and electronic systems helping teachers to develop their software and hardware skills to be later applied within their classrooms.

Organisation of conferences and events:

- Oct 2019: Member of the technical Programme committee of the IEEE Conference on Engineering Veracruz (ICEV), Mexico. Responsible for reviewing and selecting paper submissions, ensuring a well-balanced conference programme.
- July 2018: Organisation of the International Summer School Universidad Veracruzana (ISSUV 2018). I took a lead role in the organisation of the event (creation of submission template, guidelines, specifications, sponsoring materials, website management, workshop. etc.). This event promoted the participation of women in STEM. I was also part of the discussion panels within the event, sharing my experience as a female engineer. The success of this first-ever summer school event led to the continuance in the following years 2019,20 and 21.
- Sept 2015: Collaboration in the organizing committee of the International Symposium on Geohazards and Geomechanics (ISGG 2015), University of Warwick, UK. Responsible of the registration desk.
- 2014: Postgraduate symposium, School of Engineering, University of Warwick – Collaboration in the organisation of the venue, including organising the poster session, editing the symposium proceedings, and assisting in the registration desk.
- Oct 2011: In charge of the registration desk and organization of the poster session for the IEEE Conference on Electric Insulation and Dielectric Phenomena (CEIDP 2011), Cancun, Mexico.

Journal and Conference papers review:

2019 to date IEEE Sensors Letters
 2018 to date IEEE Sensors Conference
 2019 IEEE International Conference on Engineering Veracruz (ICEV)

From 2018, I am regularly invited to act as a reviewer in relevant high-quality peer-review journals in the field of sensors (IEEE Sensors Letters) and conferences (IEEE Sensors Conference), with my most recent reviews completed for the IEEE Sensors Conference 2021. I was also part of the Technical Program Committee in the IEEE ICEV 2019 conference, reviewing and selecting the submitted papers for inclusion in the final program.

Collaboration with external institutions:

I continuously engage with industry partners for the development of teaching activities in the Degree Apprenticeships, maintaining strong relationships with the companies that have helped strengthen WMGs' education provision with industrial collaboration. A summary of my key contacts is given below.

Key contact	Role	Institution
Ben Fitzpatrick	Technical Electronics Engineer	The Dyson Institute of Technology, UK
Simon Wood	Senior Capability Specialist	Jaguar Land Rover, UK
Jason Kirwan	Lead teacher for Engineering	WMG Academy for Young Engineers

Furthermore, I maintain a good relationship with previous research collaborators at national and international level. Details below.

Key contact	Role	Institution
Andrew Flewitt	Head of the Electrical Engineering Division	University of Cambridge
Andrea De Luca	Chief Executive Officer	Flusso Ltd., UK
Mario De-Miguel Ramos	Chief Technology Officer	Sorex Sensors Ltd., UK
Jesús García Guzmán	Professor (Electrical and Electronics)	Universidad Veracruzana, Mx

As part of the design and development of brand-new undergraduate modules in both the Dyson EDA and the APEP courses, I continuously engaged with industry partners and subject matter experts to organise several aspects of the modules, including industrial needs, lab equipment availability, final project design and requirements, discussion on contents and syllabus, assessment components, etc. This collaboration has resulted in the successful delivery of the brand-new third year module (WM355), which obtained 100% positive feedback.

I have also established links with other industrial partners through the supervision of student work-based projects in the AEP programme. I was invited to the Jaguar Land Rover site in Gaydon in two different occasions by my project students. It is worth noting that this is not a common occurrence. During these industrial visits, I was able to observe first-hand the scope and practical aspects of their projects and discuss their progress and course of action for the successful completion of their work. Furthermore, I was able to tour around the facilities and met with the student's industrial supervisors, establishing a link between the academic and industrial parts of their studies.

COLLEGIALITY, LEADERSHIP. MANAGEMENT

Participation in departmental initiatives:

Aug 2020 – date: Member and rotating chair of the Course and Module Approval Panel.

Apr 2021 – date: Elected Staff representative of Early career teachers in the WMG Assembly (2-year appointment)

Nov 2021 – date: Apprenticeship Tutor in the Dyson Engineering Degree Apprenticeship programme.

Innovation in administrative processes:

Jan 2020 – date: Management of lab equipment inventory – created an inventory of the equipment available within the group. This provides detailed information of the characteristics, quantity, and location of the equipment. The group has benefited as members are now aware of the available resources and can plan teaching activities accordingly.

Oct 2019: Exam Paper task group for establishing guidelines and form in the assessment approval process.

Oct 2019: Student Formula booklet – **Updated** the electronics chapter of the formula booklet used by students during examinations, previous version was revised and significantly improved, enhancing student experience during exams.

Mar 2019: Guidance written documentation – As a result of Covid-19, some industry partners opted for a student break in learning. This caused an administrative challenge in student communication as materials and emails still needed to be sent to other students who were not in such break. I took immediate action to share my expertise using the Moodle platform and created guidelines to allow teaching and admin staff to send notifications and materials to the relevant groups of students. These guidelines are still used post-Covid.

Nov 2018 – date: Staff Recruitment – Observer in interview panels for various teaching positions.

Management and Collegiality:

Personal and Apprenticeship Tutor – Total of 20 undergraduate and 12 postgraduate international tutees during the 21/22 academic year.

Marking and delivery support – We have a strong collaboration environment within the Electrical and Digital Systems discipline group, where I often step in to support other colleagues when needed. For example, in the academic year 2020/21, I provided additional marking support and simulation of assessment tasks. I provide continuous support to colleagues within the discipline group providing feedback on assessments, assignments and other teaching-related activities developed for a variety of modules, even where I am not a module contributor.

Date Curriculum Vitae Prepared: January 2022