



Person Specification for Lab Demonstrator (MSc Electronics and Telecommunication Engineering)

Specification	Essential	Desirable
Knowledge and Qualifications	BEng/BTech in Electronics, Electrical, Telecommunications/Communications, Computer Engineering, or a closely related field from a reputable university.	MSc (or equivalent practice) in Electrical Engineering or Computer Science; relevant professional certifications (Linux, networking, SDR, etc.).
Experience	<p>Technical expertise/experience in as many as possible of the following fields:</p> <ul style="list-style-type: none"> ➤ Electrical and electronic principles using PSPICE/LTSPICE/MULTISIM ➤ C/C++ programming (embedded/real-time preferred) ➤ Digital principles/digital design using VHDL programming (FPGA/CPLD) ➤ Experience with software (e.g., C/C++, MATLAB/Simulink, LabVIEW, Python, PSPICE or Proteus, Quartus/ModelSim, Multisim) ➤ Embedded Linux and on-board programming (e.g., Raspberry Pi) and Linux networking/SSH ➤ Python for wireless links, sensor interfacing and data acquisition ➤ Hands-on setup and troubleshooting of wireless/RF experiments; basic digital modulation/demodulation and measurement practice ➤ Ability to support project-based laboratory assessment workflow (logbooks, demos, oral presentations) under module leader guidance 	<ul style="list-style-type: none"> ➤ Software Defined Radio (SDR) experience (e.g., USRP/RTL-SDR/HackRF) and toolchains (GNU Radio and/or MATLAB/Simulink/Python) ➤ Experience supporting Wireless Sensor Networks practical implementation and simulation activities ➤ Industrial/consultancy experience and/or contribution to income generation ➤ Experience in new technology in learning and teaching, including audio/video and virtual learning environment (VLE)
Interpersonal Skills	<p>Team player/leader Prepared to work flexibly Enthusiastic about postgraduate teaching and education Ability to teach/support at different levels (including Level 7) Committed to highest standards in teaching and research Strong problem-solving and communication skills in laboratory environments</p>	



Research	Experience in conducting applied and/or theoretical research relevant to telecommunications, embedded systems, wireless sensor networks, or related areas.	Publications in refereed international journals and/or conferences; ability to contribute to research projects and attract research funding.
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JOB DESCRIPTION

Lab Demonstrator

Grade: Lab Demonstrator

Reporting to: Head of Electrical and Electronics Department

Post Holder: Lab Demonstrator in Electrical and Electronics Engineering Department

Salary and Benefits: As per contract

Effective Start Date: TBC (appraised annually)

Description

The Academic Departments of the College are governed and managed by the Head of Department. Lab Demonstrator is a specialist laboratory teaching-support role within the Academic Departments, focused primarily on MSc (Level 7) delivery for the MSc Electronics and Telecommunication Engineering programme. The role supports module leaders in preparing, delivering, and maintaining advanced communications laboratory activities (including Raspberry Pi based embedded/wireless sensor platforms and Software Defined Radio (SDR) experiments), and provides technical guidance to students undertaking practical work and project-based assessments.

The post holder will contribute to: (1) learning and demonstration, (2) student academic support and engagement, (3) laboratory readiness and safety, (4) maintenance of laboratory computing images, networks and equipment, (5) support for project demonstrations, logbooks and oral defences (non-marking), and (6) compliance with College quality assurance standards and the requirements of the Ministry of HERI and any franchise/awarding body policies. The post holder is also expected to maintain stock/inventory records for assigned labs and coordinate, with module leaders, the timely specification and procurement of required laboratory resources.



Duties and Responsibilities (Lab Demonstrator)

1. Raspberry Pi Lab Setup & Maintenance: Build and maintain a standard lab image (OS, Python, libraries, debugging tools, SSH, networking, user management); manage SD cards, backups, and controlled updates for reliability.
2. SDR Laboratory Setup & Maintenance: Prepare and maintain SDR platforms (e.g., USRP/RTL-SDR/HackRF) and toolchains (GNU Radio and/or MATLAB/Simulink/Python); ensure drivers, calibration basics and safe RF practice are in place.
3. In-Lab Teaching Support: Deliver short technical demonstrations, guide students through practical tasks, and troubleshoot software/hardware issues during MSc lab sessions (e.g., Wireless Sensor Networks, Embedded Real Time Control Systems, System Design Using HDLs).
4. Support for Wireless Sensor Network (WSN) and embedded implementations: Assist students with sensor interfacing and data acquisition, real-time/low-power constraints, and debugging of software and hardware prototypes.
5. Project & Practical Assessment Support (non-marking): Prepare demo checklists, verify equipment readiness, and assist module leaders during demo/presentation sessions, oral defences, and logbook workflow; provide formative feedback under the direction of the module leader.
6. Hardware Integration: Support integration of sensors and modules (GPIO, I2C, SPI, UART), networking, and, where applicable, SDR/camera/antenna modules as per laboratory inventory; ensure repeatable setup procedures.
7. Documentation & Lab Content: Produce and maintain installation notes, lab manuals, clean reference code, and Git-based templates for student projects; maintain version-controlled repositories and update guidance based on delivery feedback.
8. Software and simulation support: Assist with the setup and support of software used across MSc labs and projects (e.g., MATLAB/Simulink, Python, LabVIEW, PSPICE/LTSPICE/Multisim, Quartus/ModelSim) and ensure students can run approved experiments and simulations.
9. Quality assurance and academic standards: Ensure that QA standards are maintained and complied with in teaching support, laboratory delivery, assessment support and student guidance activities, in line with College and awarding body requirements.
10. Records, attendance, and coordination: Maintain accurate records as required (attendance where applicable, laboratory usage and booking), and coordinate with module leaders regarding lab schedules, resources, and risk assessments.



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11. Inventory, procurement and supplier liaison: Maintain stock registers; ensure sufficient equipment and consumables; collect laboratory resource requirements from module leaders; liaise with suppliers and support the quotation/purchase process in accordance with College procedures.
12. Safety & Asset Management: Ensure ESD/electrical safety and general laboratory safety; report faults and incidents; recommend low-cost compatible components; enforce safe handling of RF and electronic equipment.
13. Professional development: Engage with College and Department staff development activities and fully participate in the Staff Appraisal Scheme and teaching observation schemes, within published College policies and procedures.
14. Contribution to programme development and outreach: Support the development of new and innovative MSc laboratory activities (e.g., advanced communications and SDR labs), and contribute to student recruitment/open days and related events when requested.
15. Compliance and conduct: Ensure compliance with the College's Staff Code of Conduct and the College's Disciplinary and Grievance Procedures for staff and students as approved and published by the College.

Education, Qualifications, Person Specification, and Skills (Technical Teaching Assistant):

1. Experience and ability to support MSc/BEng (Level 6 & 7) laboratory teaching and project-based modules, including hands-on troubleshooting and student guidance during advanced communications experiments and demonstrations.
2. Possess an undergraduate degree in a relevant subject area (e.g., Electronics/Electrical/Telecommunications/Computer Engineering) from a recognized Higher Education institution; a relevant MSc and/or industry experience is desirable.
3. Excellent verbal and written communication skills, interpersonal skills, and experience of supporting learning, teaching, and assessment activities in higher education (including use of VLE and educational technology).

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