Postgraduate Scholarship Information Sheet

Scholarship Project Title	Development of an electronic data acquisition module and interfacing with agricultural sensors
Advert Reference number	CW_2025_12 _SPONS
Supervisor(s)	Dr Brince Kunnel, Dr Richie Hackett, Dr John Carroll (SETU Carlow, Wexford)
Research Group	Sensors and Interfacing
Department /School/Faculty	Faculty of Engineering and Built/Electronic Engineering and Communications
Duration	2 Years/24 Months
Status: Full-time / part-time	Full Time
Funding information	MSc Scholarship funded by an external funding agency
Value of the scholarship per year for two years	Stipend: €24,000 (Full-time) per annum Fees: € 5,750 (Full-time) per annum
Closing date and time	Wednesday, 1 July at 4pm Irish Time
Interview date	*July 2026*
PhD commencement date	September 2026

Project Key Words: *Agricultural Sensors, Electronics interfacing, Embedded development, Circuit design, Software development*

Post summary

Applications are invited to undertake a 2-year full-time MSc by Research. The successful candidate will work on the MSc project "Development of an electronic data acquisition module and interfacing with agriculture sensors".

The primary objective of this project is to design and develop agricultural sensors with electronics interfacing.

The selected candidate will work on the development of sensor interfacing with wireless electronics and real-time data acquisition. This will be followed by laboratory testing, and the results will be compared with standard laboratory-based analysis to assess accuracy. The candidate will also work on sensor calibration and on software development for display and evaluation.

Person specification

Qualifications

Essential

Undergraduate degree in Electronics Engineering/Electronics and Communications Engineering/Electronics and Instrumentation Engineering/ Electrical Engineering/Electrical and Instrumentation or other relevant discipline

Experience in PCB design and Embedded programming

Desirable
First-class/Second-class undergraduate degree
Experience and working in PCB design and Embedded development
Experience in software development, sensor interfacing, and data acquisition

Knowledge & Experience

Essential

- Knowledge in sensors and interfacing Circuits
- Demonstrated knowledge of analog circuit design, including knowledge of common modules: operational amplifiers, transimpedance amplifiers, transconductance amplifiers, ADCs, DACs, etc.
- Knowledge and experience in embedded system design and programming for sensor interfacing
- Knowledge and experience in using PCB design tools
- knowledge of signals and systems.
- Knowledge and experience in software development and data analysis using Python or MATLAB

Desirable

- Knowledge of electrochemical sensing technologies
- Knowledge in agriculture sensors
- Engagement with research innovation in sensor electronics
- Demonstrated experience of typically 1+ years in PCB design and layout; familiarity with EMI/EMC mitigation
- Experience in multidisciplinary research projects in industry or academia and grant proposals

Skills & Competencies

Essential

- Embedded system design using microcontrollers
- Circuit design, multilayer PCB design, and SMD soldering
- Software development and real time sensor data acquisition
- Embedded programming, creating libraries, and Bluetooth communication interfacing.
- Python programming
- Using test and measurement equipment like oscilloscopes, waveform generators, etc
- Problem-solving skills, attention to detail, and a results-oriented mindset
- Applicants whose first language is not English must demonstrate on application that they meet SETU's English language requirements and provide all necessary documentation. See Page 7 of the Code of Practice
- In order to be shortlisted for interview, you must meet the SETU English speaking requirements so please provide evidence in your application.

Desirable

- Entrepreneurial skills and creativity
- Passion for learning and working in interdisciplinary environments
- Ability to deliver high-quality work on time with minimal supervision
- Familiarity with electrochemical sensors and common testing techniques

- Skilled in writing reports and results, manuscripts
- self-motivated and able to demonstrate initiative
- A commitment to personal growth and development
- Skilled in the chemical/agricultural sector
- Skilled in sensor development
- Skilled in 3D printing

Further information

For queries relating to the funding programme, please email: brince.kunnel@setu.ie

University Website https://www.setu.ie/

Application procedure

Complete the online Application Form from the SETU website quoting the advert reference number from above.

Please ensure that you upload all supporting documents as part of your submission.

Please note that applications must be submitted by this route.

For queries relating to the application and admission process please contact the Postgraduate Admissions Office via email researchadmissions@setu.ie or telephone +353 (0)51 302883.

University Website: https://www.setu.ie

The University will short-list and interview those applicants who provide the most suitable information in terms of experience, qualifications and other requirements relevant to the post.

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