UNIVERSITY OF SUSSEX

1 Advertisement

Ref: 1455

School of Engineering and Informatics
Department of Engineering and Design
Lecturer/Senior Lecturer or Reader in Electronic Engineering (Permanent, full time)

Salary range:
Lecturer: starting at £39,324 and rising to £46,924 per annum
Senior Lecturer/Reader: starting at £48,327 and rising to £55,998 per annum

Applicants at either Lecturer, Senior Lecturer or Reader level will be considered. The successful candidate will be appointed at the level appropriate to their skills, abilities and qualifications.

The Department of Engineering and Design wishes to appoint a Lecturer, Senior Lecturer or Reader in Electronic Engineering. This is one of seven positions being advertised that are linked to further major investments, supported by a recent £10m grant for a new centre encompassing computing, robotics, electronics and mechatronics.

The successful applicant will have research interests that align to one of the Department’s buoyant and far-reaching research groups and who would strengthen our internationally leading research activity.

The successful applicant will be expected to teach at undergraduate and postgraduate level in areas such as electrical circuits and devices, electronic devices, circuit prototyping, embedded systems, sensors, and programming, typically in C.

Applications should be accompanied by a full CV and statements of future research plans, and where applicants could contribute to teaching across the School.

Informal enquiries may be addressed to Dr D Roggen, Head of Sensor Technology Research Group, D.Roggen@sussex.ac.uk or Professor D J Mynors, Head of School, D.J.Mynors@sussex.ac.uk.

Closing date for applications: 26th January 2017.

The selection process requires candidates to be available on: 27th February 2017.

For full details and how to apply see www.sussex.ac.uk/jobs

The University of Sussex is committed to equality of opportunity

The School is committed to equality and valuing diversity, and currently holds an Athena SWAN Bronze Award. Applications are particularly welcomed from women and black and minority ethnic candidates.
2. **Senior leadership and management**

The Vice-Chancellor is the senior academic officer and, as Chief Executive, is responsible to the University Council for management of the University. He is supported by an executive group which includes the three Pro-Vice-Chancellors, the Registrar and Secretary, the Director of Finance and the Director of Human Resources. The Heads of the Schools of Studies at Sussex report to the Pro-Vice-Chancellors.

The Registrar and Secretary heads the Professional Services of the University. In addition, under the University Statutes, the Registrar and Secretary is Secretary to the University Council. The Director of Finance reports to the Vice-Chancellor. The Director of ITS reports to the Registrar and Secretary, and the Librarian reports to one of the Pro-Vice-Chancellors.

3. **The School of Engineering and Informatics**

The School of Engineering and Informatics covers the disciplines of computer, electrical and electronic engineering, mechanical, and automotive engineering, product design, digital media, computer science and informatics. Sussex was ranked 19th in the UK in the just released Complete University Guide 2017.

Distinctive characteristics of the School are: creativity, interdisciplinarity, strong links with industry, and an international outlook in both research and teaching. £10m (£4.9m from HEFCE) is being invested in a new Computing, Robotics, Electronics and Mechatronics Centre (CREaM) as a result of a 60% surge in applications for the School's degrees.

The School offers a range of undergraduate and postgraduate degrees in its areas of expertise, often in collaboration with other schools at Sussex, to create a distinctive focus that addresses the needs of industry, commerce and society. Examples include joint degrees with the MSc in Evolutionary and Adaptive Systems (EASY) that includes modules from the Schools of Engineering and Informatics and Psychology; and the MScs in Engineering Business Management, and Management of Information Technology, which were developed in collaboration with the School of Business, Management and Economics.

This interdisciplinary approach also applies to our research, with current and recent externally funded projects with researchers in a wide range of other subject areas including: geomorphology, media practice, medical imaging, neuroscience, anthropology, English literature, epidemiology, geography, international development, mathematics, psychiatry, psychology and sociology.

The School has strong links with industry, and has an established Strategic Advisory Board. Innovative research across the School has led to a number of patents which are being commercialised including: novel electric potential sensors (EPS) licensed to Plessey Semiconductors and marketed as the EPIC sensor chip; and University spin-out companies, including InCrowd, which is deploying delay-tolerant networking to provide smartphone connectivity in large crowds, and TexRAD, which has developed software for the analysis of medical images and has recently demonstrated the ability to detect brain texture anomalies in Asperger’s Syndrome patients. These developments have been supported by the University's Enterprise fund. The EPS sensor technology was awarded the IET Innovation award for ‘Measurement in Action’, and was shortlisted for two other IET categories and for a THES award.

The School is, for administrative purposes, comprised of two departments: the Department of Informatics and the Department of Engineering and Design. Staff teach across the School, and undertake research on cross-School, as well as cross-University projects.
Following a recent Professorial appointment, the School has just launched a major new School-wide research group in Creative Technology.

The Group brings together a number of academics working in the areas of human-centred technology, product design, experience design, tangible and physical computing, games, digital media, digital cultural heritage, child-computer interaction, broadcast technologies and social innovation.

3.1 Department of Informatics

The Department of Informatics is highly rated for its teaching and research. Its researchers work in an environment that was deemed to be wholly 4*/3* (world-leading/ internationally excellent) in the REF 2014.

Sussex was ranked in the top 25 in the UK in The Guardian University Guide 2014. Our students are highly employable: in early 2014, 95% of our previous year's graduates were employed, and of those, 100% were in professional or managerial jobs.

The Department maintains a strong emphasis on interdisciplinary teaching and research, and has substantive links with almost all other Schools of study at Sussex. Its research spans the theoretical and applied.

The Department’s research is organised into three groups:

- Data Science (www.sussex.ac.uk/calps/)
- Evolutionary and Adaptive Systems (www.sussex.ac.uk/easy/)
- Foundations of Software Systems (www.sussex.ac.uk/foss/),

and also plays leading roles in cross-disciplinary research centres:

- Sackler Centre for Consciousness Science (www.sussex.ac.uk/sackler/)
- Centre for Computational Neuroscience and Robotics (CCNR) (www.sussex.ac.uk/ccnr/)
- Centre for Cognitive Science (COGS) (www.sussex.ac.uk/cogs/)
- Sussex Neuroscience (www.sussex.ac.uk/sussexneuroscience/).

The Department has long-standing collaborations with a range of external organisations including Animazoo, the Clinical Practice Research Datalink, and American Express, which has sponsored over 120 MSc students in Informatics over the past 10 years.

The Department currently has 420 undergraduates, 80 taught postgraduates, and 60 doctoral students. Undergraduate courses, accredited by the relevant professional institutions where appropriate, and have an industrial placement year option, include:

- MComp (Hons) / BSc (Hons) Computer Science
- BSc (Hons) Computer Science and Artificial Intelligence
- BSc (Hons) Computing for Business and Management
- BSc (Hons) Computing for Digital Media
- BSc (Hons) Games and Multimedia Environments
- MEng (Hons) / BEng (Hons) Computer Engineering (a cross-School course between the Department of Informatics and the Departments of Engineering and Design).

The Department’s masters level courses are in the process of being reviewed as part of a cross-School process, the courses currently include:

- MSc Advanced Computer Science
Department of Engineering and Design

The Department of Engineering and Design has a strong reputation for excellence in research and teaching. Its research outputs were rated as 88%, and impact as 90% 4*/3* (world-leading/internationally excellent) in the REF 2014. In the 2014 NSS engineering students registered an 86% satisfaction level with respect to learning resources. Mechanical Engineering ranked 15th for graduate prospects, in the Complete University Guide 2015 and an overall ranking of 18th in the just released 2016 Guardian University Guide; with Electrical Engineering ranked 14th for student satisfaction in the Complete University Guide 2014.

The Department's students won the automotive category of the Telegraph UK STEM Awards 2014 sponsored by McLaren Group (link to video).

Research activity is focused on mechanical engineering (turbomachinery, dynamics and control, and tribology); and electronic engineering (sensor technology, image and signal processing, and mobile digital communications). There are strong collaborations with industry, including Jaguar Land Rover, General Electric, Plessey Semiconductors and Meggitt Sensing Systems.

The Department's research is organised into four groups:

- Dynamics, Control and Vehicle Research Group (www.sussex.ac.uk/dcv)
- Industrial Informatics and Signal Processing Research Group (http://www.sussex.ac.uk/iisp/)
- Sensor Technology Research Centre (www.sussex.ac.uk/strc/)
- Thermo-Fluid Mechanics Research Centre (http://www.sussex.ac.uk/tfmrc/)

The Department currently has 495 undergraduate students, 62 taught postgraduate students, and 43 postgraduate research students.

The Department’s undergraduate courses, all of which are accredited and have an industrial placement year option, include:

- MEng (Hons) / BEng (Hons) Automotive Engineering
- MEng (Hons) / BEng (Hons) Electrical and Electronic Engineering
- MEng (Hons) / BEng (Hons) Mechanical Engineering
- BSc (Hons) Product Design.

The Department’s masters level courses, the majority of which are also accredited, are in the process of being reviewed as part of a cross-School process, the courses currently include:

- MSc Advanced Mechanical Engineering
- MSc Engineering Business Management
- MSc Robotics and Autonomous Systems

Detailed information about the Department can be found at www.sussex.ac.uk/engineering
LECTURER: CORE JOB DESCRIPTION

Job Title: Lecturer in Electronic Engineering

Grade: Lecturer B, Grade 8

School: School of Engineering and Informatics

Location: University of Sussex Campus

Responsible to: Head of School

Direct reports: n/a

Key contacts: Students, other members of Faculty within the School and University, School Officers, academics in the field in other institutions.

Role Description Lecturer B is a career-grade teaching and research position. Post-holders will be expected to take full responsibility for the design, management and delivery of their own teaching, be able to demonstrate an established research portfolio, and a growing reputation in their field of study. They will also be expected to provide support and guidance to less experienced members of staff.

PRINCIPAL ACCOUNTABILITIES

1. To design and deliver high-quality teaching programmes that are attractive to students.

2. To engage in individual and collaborative research activity resulting in high-quality publications to be submitted to the REF at acceptable levels of volume and academic excellence, and to obtain research funding and/or knowledge exchange income as appropriate to the discipline.

3. To contribute fully to the School and University by playing a significant role in working groups, committees, and other School and University activities.

KEY RESPONSIBILITIES

1. Teaching & Student Support

1.1 Engage in the planning, delivery and assessment of innovative high-quality undergraduate and postgraduate teaching, in liaison with the relevant programme and course convenors.

1.2 Identify, design, develop and manage new curriculum proposals that are attractive to students.

1.3 Develop high-quality inclusive teaching materials, methods and approaches, take responsibility for their quality, and ensure that they meet defined learning objectives.
1.4 Ensure that teaching materials remain up-to-date and relevant, incorporating advances in the subject area into the course of study, and utilising appropriate technology.

1.5 Set, mark, and assess coursework and examinations; select appropriate assessment instruments and assessment criteria, and provide constructive and comprehensive feedback to students.

1.6 Undertake continuous professional development to maintain an understanding of appropriate pedagogy in the subject area.

1.7 Supervise the work of undergraduate and taught postgraduate students, providing advice on study skills.

1.8 Contribute to the accreditation of courses and quality-control processes.

1.9 Undertake and complete administrative duties required in the professional delivery of teaching.

1.10 Undertake academic advising duties, and provide first-line support for sensitive issues, referring on as appropriate to services providing further assistance.

1.11 Adopt an approachable and accessible attitude towards students, offering office hours, informal advice etc.

2. Research, Scholarship & Enterprise

2.1 Contribute to School research strategy and themes.

2.2 Develop research objectives and proposals for own or joint research.

2.3 Conduct research projects individually and in collaboration with others.

2.4 Assess, interpret and evaluate outcomes of research, and develop ideas for their application.

2.5 Produce high-quality research outputs that have impact in the field, for publication in monographs or recognised high-quality journals, or performance/exhibition, as appropriate, and contribute to the School’s REF submission at acceptable levels of volume and academic excellence.

2.6 Lead small research projects and/or identified parts of a larger project, including supervising the work of others and managing or monitoring a research budget, if appropriate.

2.7 Make presentations at conferences, or exhibit work in other appropriate events, and identify ways to disseminate research outputs informally via the internet, the media, and other forms of public engagement.

2.8 Identify sources of funding and secure or contribute to the process of securing bids.

2.9 Identify and secure opportunities for enterprise activity, knowledge exchange income and/or consultancy.
2.10 Actively build internal and external contacts, and play a key role in internal networks and relevant external networks in order to, for example, identify sources of funding, secure student placements, and build relationships for future activities.

2.11 Supervise doctoral students as part of a supervision team.

2.12 Contribute to a relevant national professional body or recognised events.

2.13 Continually update knowledge and understanding in field or specialism, and engage in continuous professional development.

2.14 Conduct risk assessments, and take responsibility for the health and safety of others, if required.

3. Contribution to School & University

3.1 Attend and contribute to School meetings.

3.2 Engage in activities beyond day-to-day teaching duties, for example Admissions Days.

3.3 Assist with undergraduate and postgraduate recruitment.

3.4 Play a key role in School or University working groups or committees, as required.

3.5 Advise and provide support to less experienced colleagues.

3.6 Undertake additional administrative duties, as required by the Head of School.

4. Role-specific duties

4.1 Engage with and contribute to the activities and running of your research group.

4.2 Design and deliver specialist courses in for example power electronics, and electrical machines at all levels and including CPD courses.

4.3 Supervise project students at all levels (PhD, MSc, undergraduate, including summer placements).

4.4 Maintain an active and dynamic research programme within power electronics.

4.5 Seek and engage in collaborative research at national and international level, in synergy with the main research objectives of the School.

4.6 Seek leadership roles in external research collaboration, both nationally and internationally.

4.7 Engage with external organisations with a view to formalising knowledge transfer activities.

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.
INDICATIVE PERFORMANCE CRITERIA

- A record of development of new modules/groups of modules, course or significant components of schemes of study or CPD courses.
- Proven and sustained track record of successful teaching at the levels appropriate for the post.
- A high standard of teaching performance as judged by standard evaluation methods.
- Evidence of using feedback information from a range of sources to improve the student experience.
- Evidence of using knowledge arising from research and scholarship to enhance teaching and curriculum development.
- Evidence of engagement in advising students and proactively responding to student problems.
- Regular published output of original research at international level (refereed journal papers, monographs, book chapters, text-books).
- Other evidence of original research contributions to the field, such as through invited conference contributions, membership of editorial panels etc.
- Evidence of successful postgraduate masters and doctoral research supervision i.e. to completion.
- Sustained success in obtaining competitively awarded research grants and contracts, and knowledge exchange income.
- Involvement in the creation, transfer and use of the results of research through a range of knowledge exchange activities.
- Success in transferring research results to commercial, professional, public sector or other practical use.
- Evidence of contributions to a relevant national professional body or recognised event.
PERSON SPECIFICATION FOR LECTURER

ESSENTIAL CRITERIA

1. Educated to doctoral level in a relevant discipline.
2. Excellent interpersonal skills, with the ability to engage with students using a variety of different methods.
3. Experience of teaching at undergraduate and taught postgraduate level.
4. Evidence of significant independent contribution to the design and execution of research.
5. An emerging track record of publications in reputable journals and other appropriate media of similar standing.
6. Excellent presentation skills, with the ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences.
7. Ability to work individually on own initiative and without close supervision, and as part of a team.
8. Ability to exercise a degree of innovation and creative problem-solving.
9. Excellent organisational and administrative skills.
10. Ability to prioritise and meet deadlines.
11. A willingness to participate in support activities beyond normal classroom duties.
12. Excellent IT skills, with the ability to produce high-quality learning support materials.

ESSENTIAL ROLE-SPECIFIC CRITERIA

1. Evidence, by publication or otherwise, of successful research in a field appropriate for the position of a lecturer in electronic engineering.

DESIRABLE CRITERIA

1. Strong track record in internationally recognized research in electronics.
2. Demonstrated history of work that has or shows promise for an impact on society beyond the academic sector.
3. Experience of successful curriculum design or re-design.
4. A recognised higher education teaching qualification.
5. Experience of generating research or knowledge exchange income.
6. Experience of supervising postgraduate research students.
7. Experience of teaching at undergraduate and graduate level.
8. Demonstrated history of work that has or shows promise for an impact on society beyond the academic sector.

READER/SENIOR LECTURER: CORE JOB DESCRIPTION

Job Title: Reader/Senior Lecturer in Electronic Engineering

Grade: Grade 9

School: School of Engineering and Informatics

Location: University of Sussex Campus

Responsible to: Head of School

Direct reports: n/a

Key contacts: Students, other members of Faculty within the School and University, School Officers, academics in the field in other institutions.

Role description: Senior Lecturer is a senior career-grade teaching and research position. Post-holders will be expected to show academic leadership in both teaching and research, and to support the management and strategic planning processes of the School and the University.

The title of Reader is awarded as a mark of personal distinction for an important contribution to the advancement of the subject. Candidates for the title will be expected to have achieved an exceptional level in research, acknowledged nationally and internationally, with demonstrated competence in teaching.

PRINCIPAL ACCOUNTABILITIES

1. To provide academic leadership in the design and delivery of high-quality teaching programmes.

2. To engage in high-quality research activity resulting in high-quality publications to be submitted to the REF or equivalent at acceptable levels of volume and academic excellence; to lead research projects or research initiatives in the School; to secure research funding and third-stream income; and to contribute to the School’s research strategy.

3. To support the management activities of the School and University, and undertake a key role in School or University working groups or committees, as required.
KEY RESPONSIBILITIES

1. **Teaching & Student Support**

1.1 Lead the innovative design, development and delivery of a range of programmes of study at various levels.

1.2 Ensure that course design and delivery comply with the University quality standard and regulations, and take responsibility for the quality of programme units.

1.3 Regularly review and update course content and teaching materials, ensuring that they remain up-to-date and relevant, incorporating advances in the subject area and utilising appropriate technology.

1.4 Set, mark, and assess coursework and examinations; select appropriate assessment instruments and assessment criteria; and provide constructive and comprehensive feedback to students.

1.5 Actively maintain an understanding of appropriate pedagogy in the subject area.

1.6 Provide academic leadership to those working within programme areas, e.g. as a course leader.

1.7 Supervise taught postgraduate students, providing advice on study skills.

1.8 Undertake and complete administrative duties required in the professional delivery of teaching.

1.9 Undertake academic advising duties, and provide first-line support for sensitive issues, referring on as appropriate to services providing further assistance.

1.10 Adopt an approachable and accessible attitude towards students, offering office hours, informal advice etc.

2. **Research, Scholarship & Enterprise**

2.1 Contribute to the development of School research strategies and themes.

2.2 Identify and develop research objectives, and proposals for own or joint research.

2.3 Carry out independent research and act as a Principal Investigator or project leader on major research projects. This may involve leading and line-managing the staff including their recruitment, probation, mentoring, performance review and staff development; managing the budget, and taking responsibility for the delivery of the programme.

2.4 Define research objectives and questions, review and synthesise the outcomes of research studies, and develop ideas for application of research outcomes.

2.5 Develop proposals for major research projects which will make a significant impact, and lead to an increase in knowledge or understanding or the development of new explanations, insights, concepts or processes.
2.6 Produce high-quality research outputs that have significant impact in the field, for publication in monographs or recognised high-quality journals, or performance/exhibition, as appropriate, and make a significant contribution to the School’s REF or equivalent submission at acceptable levels of volume and academic excellence.

2.7 Make presentations at national or international conferences or exhibit work in other appropriate events of a similar standing, and identify ways to disseminate research outputs informally via the internet, the media and other forms of public engagement.

2.8 Develop and maintain an independent research reputation by, for example, serving on peer review committees, and acting as a referee for journal articles and research grant applications.

2.9 Contribute to the internal management of the REF or equivalent assessment exercise.

2.10 Provide academic leadership to those working within relevant research areas.

2.11 Play an influential role in identifying sources of funding and secure and/or contribute to the process of securing bids.

2.12 Play a leading role in identifying and securing opportunities for enterprise activity, knowledge exchange income and/or consultancy.

2.13 Actively build internal and external contacts, and play a key role in internal networks and relevant external networks in order to, for example, identify sources of funding, secure student placements, and build relationships for future activities.

2.14 Develop links with external contacts such as other educational bodies, businesses, the public sector, and professional bodies to foster collaboration and potentially generate a source of income.

2.15 Play a role in a relevant national professional body or recognised events.

2.16 Continually update knowledge and understanding in field or specialism, and engage in continuous professional development.

2.17 Conduct risk assessments and take responsibility for the health and safety of others, if required.

3. **Contribution to School & University**

3.1 Attend and contribute to School meetings.

3.2 Contribute to the overall management of the School in areas such as budget management and business planning, as required.

3.3 Contribute to School-level strategic planning, and University-level strategic planning processes if required.

3.4 Engage in activities beyond day-to-day teaching duties, for example Applicant Visit Days.
3.5 Assist with undergraduate and postgraduate recruitment.

3.6 Chair and/or play a key role in School or University working groups or committees, as required.

3.7 Undertake an administrative or organisational role within the School e.g. Library Representative, Year Tutor, Exam Board Chair, or personal/academic tutoring.

3.8 Advise and provide support to less experienced colleagues, and conduct Performance and Development Reviews, as required.

3.9 Undertake additional administrative duties, as required by the Head of School.

4. Role-specific duties

4.1 Engage with and contribute to the activities and running of your research group.

4.2 Design and deliver specialist courses in, for example, power electronics, and electrical machines at all levels and including CPD courses.

4.3 Supervise project students at all levels (PhD, MSc, undergraduate, including placements).

4.4 Maintain an active and dynamic research programme within power electronics.

4.5 Seek and engage in collaborative research at national and international level, in synergy with the research objectives of the School.

4.6 Seek leadership roles in external research collaboration, both nationally and internationally.

4.7 Engage with external organisations with a view to formalising knowledge transfer activities.

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.

INDICATIVE PERFORMANCE CRITERIA

- Evidence of novel or innovative approaches to teaching supervision or assessment, including appropriate uses of technology.

- Sustained high-quality teaching across both undergraduate and postgraduate portfolios, as evidenced by surveys, questionnaires and peer review.

- Evidence of the integration of research, scholarship and professional practice with teaching activities.

- Regular published output of original research, with a significant proportion at international level (referred journal papers, monographs, book chapters, text books).

- Responsible for leading and managing a major research group.
- Sustained success in obtaining competitively awarded research and knowledge exchange grants and contracts, with evidence of leadership in securing such awards (for example, as Principal Investigator).

- A successful track record of completed postgraduate research supervision at MPhil and doctorate level.

- Significant involvement in knowledge creation and transfer in conjunction with partner organisations in industry, commerce, government or NGOs. This could be in the form of externally funded research, knowledge exchange and/or consultancy.

- Evidence of external profile, such as membership of professional body, editorial board or similar.

- Successful prosecution of a major task which facilitates School or organisational unit performance or business.

- Evidence of a capacity to contribute creatively and constructively to the management of School business.

- Evidence of successful management of more junior and/or support staff where such opportunities exist.

- Responsible and effective involvement in the broader arena of the School and/or University including, where appropriate, a role providing support, pastoral care and guidance to students or colleagues.

**PERSON SPECIFICATION FOR SENIOR LECTURER/READER**

**ESSENTIAL CRITERIA**

13. Educated to doctoral level in a relevant discipline.

14. Excellent interpersonal skills, with the proven ability to engage with students using a variety of different methods.

15. Significant experience of high-quality teaching at undergraduate and postgraduate level.

16. Experience of successful curriculum design or re-design.

17. Ability to lead and manage a major research programme.

18. Track record of significant and high-quality publications in reputable journals and other appropriate media of similar standing.

19. Successful track record of generating research and knowledge exchange income, and the translation of research results into practice.

20. Significant experience of supervising postgraduate students.

21. An emerging international reputation in the field of study.

22. Evidence of proactive contribution to School and/or University.
23. Excellent presentation skills, with the proven ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences.

24. Leadership and people management skills.

25. Ability to exercise a high degree of innovation and creative problem-solving.

26. Excellent organisational and administrative skills.

27. Ability to prioritise and meet deadlines.

28. A willingness to participate in support activities beyond normal teaching duties.

29. Excellent IT skills, with the ability to produce high-quality learning support materials.

**ESSENTIAL ROLE-SPECIFIC CRITERIA**

1. Evidence, by publication or otherwise, of successful design and implementation of electronic systems or of analysis modelling and simulation of electronic circuits and systems.

**DESIRABLE CRITERIA**

1. Strong track record in internationally recognized research in electronics.

2. A recognised higher education teaching qualification.

3. Demonstrated history of work that has or shows promise for an impact on society beyond the academic sector.