



## **JOB DESCRIPTION**

**Assistant Professor in Physics  
School of Physical Sciences  
Faculty of Science & Health  
Fixed Term Contract up to January 2024**

### **Introduction**

Dublin City University [www.dcu.ie](http://www.dcu.ie) is a young, dynamic and ambitious University with a distinctive mission to transform lives and societies through education, research and innovation. We are a research-intensive, globally-engaged institution, distinguished by both the quality and impact of our graduates, and focus on the translation of knowledge into societal and economic benefit. Excellence in education and research activities has led to DCU's consistent presence in the rankings of the world's top young universities. Over its relatively short history, DCU has developed a strong reputation nationally and internationally for pioneering innovations in higher education.

### **School of Physical Sciences**

The School of Physical Sciences [www.dcu.ie/physics](http://www.dcu.ie/physics) at Dublin City University has a high standing within Ireland and internationally, for both its teaching and research activities. There are more than fifty researchers within the School's research groups including postgraduate students, postdoctoral researchers, research officers, research technicians and administrators. Physics research at DCU covers astrophysics, plasma and laser-plasma physics, biomedical/optical physics, microsystems, materials physics and physics education as its main priority areas. The School hosts several research centres and notably the National Centre for Plasma Science and Technology (NCPST) [www.ncpst.ie](http://www.ncpst.ie). Research in physics education takes place within the university approved Centre for Advancement of STEM Education ([www.castel.ie](http://www.castel.ie)) which focuses on research in STEM education at all educational levels. The School has been very successful in winning substantial research funding and programme grants from Science Foundation Ireland (<http://www.sfi.ie>), the Higher Education Authority PRTL programme ([www.heai.ie/PRTL](http://www.heai.ie/PRTL)), Enterprise Ireland [www.enterprise-ireland.com](http://www.enterprise-ireland.com) and the EU Horizon2020, in addition to postgraduate scholarships and postdoctoral fellowships

The School of Physical Sciences offers four undergraduate degree programmes: BSc in Applied Physics, BSc in Physics with Biomedical Sciences, BSc in Physics with Astronomy, BSc Physics with Data Analytics, all of which are entered via a Physics General Entry programme. The school also contributes to the concurrent BSc Science Education programme and leads the pathway for qualification as a second level physics teacher.

The School of Physical Sciences wishes to recruit a new temporary appointee at Assistant Professor Level with expertise in Physics/Physics Education to support the delivery of a new Professional Diploma in Teaching Physics (PDTP) programme which is designed to upskill post-primary teachers to meet current Teaching Council subject requirements in Physics at the highest level. The PDTP programme has been approved by the Department of Education and Skills and this Award will be delivered by DCU in collaboration with partners in the University of Limerick (UL) and NUI Galway (NUIG). The programme will ensure that successful candidates:

- Acquire the theoretical and experimental knowledge of physics as well as pedagogical content knowledge that is necessary for effective physics teaching at post-primary level;
- Demonstrate an ability to connect physics content modules and the school physics curriculum;
- Develop a high standard of practical competence in physics teaching as reflective practitioners during their programme of study.

### **Relationships**

The position will report to the Head of School and work closely with other colleagues, particularly the PDITP Programme Coordinator. Building positive relationships with professional support staff as well as technical and pedagogical specialists and engagement with key stakeholders within and outside of DCU is an important aspect of this role.

### **The Role**

The appointee will be expected to support the School in implementing an innovative programme for upskilling second level teachers, specifically:

- Designing and delivering physics modules and physics practicals using a blended approach of online and face-to-face delivery.
- Implementation of innovative pedagogical approaches to teaching, learning and assessing physics
- Engaging with university-wide elements of the programme including inter-institutional cooperation, project evaluation and reporting.

The role includes teaching, supervision of laboratory sessions, student mentoring and supervision of taught projects and research.

The role will encompass activities across the three domains, as follows:

#### **- Teaching and Learning**

The appointee will be expected to contribute directly to undergraduate and postgraduate degree programmes and to prepare, deliver and assess a range of core subjects in a manner consistent with DCU's high academic standards and in a hybrid environment which involves campus and elements of remote delivery. The appointee would also be expected to undertake various administrative duties and assist the School to deliver on the innovative curriculum project. The total teaching hours and responsibilities will be defined by the Head of School in line with normal workload allocation. Teaching extends to assisting innovation in curricula development.

Typical activities include:

- Preparation and teaching of physics lecture modules for both face-to-face and online delivery
- Coordination and delivery of physics laboratories, and contribution to development of undergraduate physics laboratory activities.
- Developing and delivering new or reconceptualised modules and resources.
- Designing and assessing student learning including the use of online strategies and applications.
- Using a wide range of teaching and assessment methodologies, which foster conceptual comprehension of physics and applications of physics.
- Co-designing with other academics and industry partners a suite of tools and initiatives that assists the transversal skills pathway and embedding transversal skills development, diagnostics and assessments into new and existing programmes
- Proactive engagement with the evaluation and reporting programme outcomes.
- Engagement with professional development for teaching particularly to increase use of innovative pedagogical approaches.

- **Research and Scholarship**

The appointee will be expected to engage strongly with research activities and have the desire and capability to partner effectively with DCU colleagues engaged in physics and/or physics education research in the School of Physical Sciences and/or CASTeL. The appointee will contribute to an active and vibrant programme of research activities aligned with one or more the physics research areas in the School of Physical Sciences.

- **Contribution to the School, Faculty, University and Profession**

The appointee will undertake administrative functions related to the activities of the School of Physical Sciences and Faculty of Science and Health. Such duties will be assigned by the Head of School and may include programme coordination; participation in University committees; representation of the School in marketing to and recruitment of students; participation in open days; organisation of conferences and seminars, etc.

**Applicant Requirements**

**Essential Criteria**

- Applicants must hold an honours degree in physics, physics education or equivalent, and a minimum qualification of a Masters degree in physics or a related area.
- Applicants must have the ability to teach a broad range of physics topics at honours undergraduate physics level in their area of specialization and contribute to the future development of the School's teaching.
- Applicants must demonstrate experience in the delivery of undergraduate lecture and laboratory physics, ideally including experience in innovative pedagogies and/or assessments and/or online methods.
- Applicants must have a demonstrable comprehension of teaching within post-primary Schools.
- Applicants must demonstrate the ability to conduct programme administration and management in a public service university environment;
- Applicants must demonstrate a strong commitment to work with colleagues within existing research groups, as well as a willingness to develop and lead new activities as appropriate;
- Applicants must demonstrate excellent communication and social skills consistent with the highest quality of teaching and learning, as well as evidence of successful teamwork and a collegial approach.

**Desirable Criteria**

- PhD in physics or a related area
- Applicants must ideally have a minimum of three years' relevant Postdoctoral research experience and a demonstrable track record of high quality and original research, as evidenced by regular publication in high impact physics journals, a significant citation rate, presentations at top international conferences and the ability to attract research funding.

**Mandatory Training**

The post holder will be required to undertake the following mandatory compliance training: GDPR, Orientation, and Compliance.