



MSc in Astronomical Instrumentation and Technology

Modern astronomical observatories use sophisticated suites of instruments, and rely on cutting edge optics, electronics and computing hardware and software. There is an increasing demand for scientists and engineers having an understanding of these technologies. This Masters provides advanced courses, which together with an instrumentation-related research thesis will train students to a high level in this exciting area. This will enhance their prospects of obtaining funding for doctoral research or to be employed in any of these key technologies.

Course Facts

Course level: Level 9

Duration: 1 year full time from September to September.

Entry Requirements: 2.1 Degree in Physics or relevant Engineering.

Fees: For details please refer to the NUI Galway fees website nuigalway.ie/courses/fees-and-funding/fees.html

Applying: www.pac.ie/nuigalway

PAC Code: GYR25 (Full-time), GYR26 (Part-time)

Closing Date: Typically end of June, although late applications may be considered if places are available.



Images: ESO / T. Preibisch, C. Malin, G. Hüdepohl, G. Beccari.

Why study this programme?

This Masters will provide students with an in-depth understanding of the technology used in modern astronomical observatories. As such graduates of the proposed MSc programme will in demand by national and international technological industries as well as by research institutes, observatories and University research groups. The combination of advanced modules and a research project leading to a thesis will also effectively bridge the gap between undergraduate study and a PhD.

Programme outline

The 12 month programme will have 90 ECTS comprising a 60 ECTS research project and a 30 ECTS taught component. There will be 20 credits of core modules divided between Advanced Astronomical Instrumentation, Modern Observational Astronomy and Principles of Optical Design and Image formation. The remaining credits correspond to transferable skills plus Engineering modules relevant to astronomical instrumentation and astrophysics modules.

Advanced Astronomical Instrumentation will cover all instruments from Gamma rays to radio waves. A key component of the module will be a workshop on astronomical instrumentation. Key instrument developers will host these workshops at which they will share their expertise in instrument development. Together with local staff they will lead the students in group design projects (worth 5 credits), where the students will be tasked with developing the design for new instruments and defending the design in a 'design review'. Modern Observational Astronomy will cover the areas of most active current research in Astronomy, including exoplanets, pulsars, galactic evolution, cosmology, gravitational waves.

Employment and career opportunities

High tech companies such as Medical device manufacturers, industries involved in Space, aeronautics as well as the IT sector all require students who are highly trained in relevant disciplines, have keen problem-solving skills and proven to be capable of researching a relevant topic. This Masters provides all of these skills and sets students apart from the crowd. In addition, the next generation of ground and space-based observatories require teams of scientists and engineers capable of building and using advanced instrumentation.

Find out more/ Enquiries to:

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