The Objective of this four-year, full-time degree is to produce graduates with a thorough understanding of physics and all the transferable skills associated with a physics degree and associated skills in IT and mathematics, combined with a good background in astronomy and astrophysics as a specialisation (i.e. a physics “major”, astronomy “minor”). The courses taught within the degree programme provide the students with skills in the following areas:

- Computer programming and computational physics
- Image processing and analysis
- Signal acquisition instrumentation
- Optical instrumentation and photonics design, validation etc.
- Statistical analysis

Programme Summary

During the first two years, courses are provided in classical and modern physics as well as in mathematics, electronics and computing. From second year on, in addition to core physics modules students take courses in subjects such as instrumentation, optics, computing, mathematics, space science & technology, astronomy and astrophysics and have options to take further modules in advanced areas such as digital signal processing. There is a strong emphasis on developing practical laboratory skills and other generic, transferable skills such as report writing, oral presentation, group work and project planning skills throughout the course.

An important element of Physics programmes at DCU is the emphasis placed on project work, report writing, oral presentations and laboratory skills throughout the four-year programme.

Relevant work experience through DCU’s INTRA programme is an integral part of most undergraduate and some postgraduate degree programmes. Students from the BSc Physics with Astronomy are eligible to participate in an eight month INTRA placement at the end of third year, from February to September inclusive, or in February to May period to prepare for, execute, and then report on a work performed during and after a field trip to a foreign observatory.

Work Areas

Students from the BSc Physics with Astronomy will have the ability to work in roles listed below:

- Manufacturing
- Optoelectronics
- Medical Physics
- Radiation Protection
- Energy Sources & Conservation
- Optical instrumentation/design
- Electronics
- Information Technology
- Aerospace Engineering
- Meteorology
- Signal acquisition/processing
- Statistical analysis
- Telecommunications
- Software Engineering
- Environmental Engineering
- Process Control & Instrumentation
- Image processing and analysis

Student Availability

Students are available for interview from October onwards. Please post vacancies on the INTRA online website at www.intra.dcu.ie, or send details to:

INTRA Unit, Student Support & Development, Dublin City University, Glasnevin, Dublin 9, Ireland.
Phone: 00 353 1 700 5514
Fax: 00 353 1 700 5505
Website: www.intra.dcu.ie
<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics Laboratory</td>
<td>Laboratory General Physics</td>
<td>Semester 1</td>
<td>Core Modules</td>
</tr>
<tr>
<td>Mathematics for Physicists</td>
<td>Linear Mathematics</td>
<td>Quantum Physics II</td>
<td>Intro to Differential Equations &amp; Apps to Mechanics</td>
</tr>
<tr>
<td>Introduction to Computing</td>
<td>Advanced Programming</td>
<td>Astronomical techniques</td>
<td>General Relativity &amp; Cosmology</td>
</tr>
<tr>
<td>Physics 1</td>
<td>Electromagnetism</td>
<td>Wave Optics</td>
<td>Electrodynamics</td>
</tr>
<tr>
<td>Intro to Programming</td>
<td>Digital and Analogue Electronics</td>
<td>Statistical Physics</td>
<td>Applied Spectroscopy</td>
</tr>
<tr>
<td>Electricity and Magnetism</td>
<td>Space Science &amp; technology</td>
<td>Stellar Physics</td>
<td>High Energy Astrophysics</td>
</tr>
<tr>
<td>Inorganic &amp; Physical Chemistry</td>
<td>Relativity, Nuclear &amp; Particle Physics</td>
<td>General Relativity &amp; Cosmology</td>
<td>Professional Development</td>
</tr>
<tr>
<td>Thermal &amp; Physical Properties of Matter</td>
<td>Calculus of Several Variables</td>
<td></td>
<td>Final Year Project</td>
</tr>
<tr>
<td>The Universe</td>
<td>Vibrations &amp; Waves</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physics of Renewable Energy</td>
<td></td>
<td>Option Modules</td>
</tr>
</tbody>
</table>

**BSc Physics with Astronomy**

| Semester 2                     |                                |                                |
| I N T R A                      |                                |                                |

**Option Modules**
- Plasma Science & Technology
- Digital Signal Processing
- Biophotonics
- Quantum Electronics