

# BSC (HONS) INDUSTRIAL PHYSICS - CK409

## Programme Requirements

Code	Title	Credits
<b>Year 1</b>		
Students take <b>60</b> credits as follows – all listed core modules ( <b>55</b> credits) and <b>5</b> credits of elective modules:		
<i>Core Modules</i>		
CM1006	Introduction to Chemistry for Physicists and Mathematicians <sup>1</sup>	10
MA1011	Mathematical Methods I <sup>1</sup>	5
MA1012	Mathematical Methods II <sup>1</sup>	5
PY1052	Introductory Physics I <sup>1</sup>	10
PY1053	Introductory Physics II <sup>1</sup>	10
PY1055	Environmental Instrumentation and Pollution Monitoring <sup>2</sup>	5
PY1056	Instrument Measurement Principles <sup>2</sup>	5
PY1057	Introduction to Industrial Automation <sup>2</sup>	5
<i>Elective Modules</i>		
Students take modules to the value of <b>5</b> credits from the following:		
CS1061	Programming in C (5) <sup>1</sup>	
CS1065	Computer Applications Programming (5) <sup>1</sup>	
CS1068	Introductory Programming in Python (5) <sup>1</sup>	

### Year 2

Students take **60** credits as follows:

#### Core Modules

EG2001	Engineering Mechanics with Transform Methods <sup>1</sup>	5
MA2071	Multivariable Calculus <sup>1</sup>	5
MA2054	Ordinary Differential Equations <sup>1</sup>	5
PY2102	Introduction to Quantum Physics <sup>1</sup>	5
PY2103	Electrostatics and Magnetostatics <sup>1</sup>	5
PY2104	Introduction to Thermodynamics and Statistical Physics <sup>1</sup>	5
PY2105	Introduction to Computational Physics <sup>1</sup>	5
PY2107	Experimental Physics I <sup>1</sup>	5
PY2108	Experimental Methods I <sup>1</sup>	5
PY2109	Introduction - Process Control <sup>2</sup>	5
PY2110	Water Quality Instrumentation (potable and waste water) <sup>2</sup>	5
PY2111	Industrial Automation & SCADA <sup>2</sup>	5

### Year 3

Students take **60** credits as follows:

#### Core Modules

PY3121	Optics <sup>1</sup>	5
PY3103	Electromagnetism <sup>1</sup>	5
PY3108	Experimental Methods II <sup>1</sup>	5
PY3110	Digital Systems and Interfacing <sup>2</sup>	5
PY3111	Industrial Communications and Networks <sup>2</sup>	5
PY3112	Programming for Measurement <sup>2</sup>	5
PY3113	Air Quality and Gas Analysis Instrumentation <sup>2</sup>	5
PY3114	Work Placement / Project (extended) <sup>2</sup>	15

PY3115	Introduction to Quality Systems <sup>2</sup>	5
PY3116	Process Control Systems <sup>2</sup>	5

### Year 4

Students take **60** credits as follows:

#### Core Modules

PY3105	Introduction to Condensed Matter Physics <sup>1</sup>	5
PY4108	Introduction to Lasers and Photonics <sup>1</sup>	5
PY4118	Physics of Semiconductor Devices <sup>1</sup>	5
PY4119	Air Quality <sup>2</sup>	5
PY4120	Advanced Signal Processing <sup>2</sup>	5
PY4121	Advanced Industrial Automation <sup>2</sup>	5
PY4122	Advanced Programming for Measurement <sup>2</sup>	5
PY4123	Process Analytical Technology <sup>2</sup>	5
PY4124	Advanced Process Control <sup>2</sup>	5
PY4125	Major Research Project <sup>2</sup>	15

**Total Credits** **240**

<sup>1</sup> Module run by UCC as coordinating institution.

<sup>2</sup> Module run by MTU as coordinating institution.

## Examinations

Full details and regulations governing Examinations for each programme will be contained in the *Marks and Standards Book* and for each module in the *Book of Modules*.