

A Student's Learning Journey

1st Year

Students develop knowledge, understanding, values and skills through engagement with learning outcomes

Learning supported by formative assessment

2nd Year

Students develop knowledge, understanding, values and skills through engagement with learning outcomes

Learning supported by formative assessment

Classroom-Based Assessment 1
Engineering in action

Teachers engage in a Subject learning and Assessment Review meeting

3rd Year

Students develop knowledge, understanding, values and skills through engagement with learning outcomes

Learning supported by formative assessment

Classroom-Based Assessment 2
Research and development

Teachers engage in a Subject Learning and Assessment Review meeting

SEC Examination
Project – 70%
Written Examination – 30%

Junior Cycle Profile of Achievement (JCPA)

Where can I get more information?

www.curriculumonline.ie

This is the website of the National Council for Curriculum and Assessment (NCCA) where you will find key documents such as the Junior Cycle Engineering specification and the Assessment Guidelines for Engineering.

www.jct.ie

This is the website of JCT schools' support service. Junior Cycle for Teachers exists to inspire, support and empower teachers in the transformation of junior cycle education in Ireland. For more information on Engineering please visit our subject site at www.jct.ie



Use the **QR Code** to go directly to www.jct.ie



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An tSraith Shóisearach do Mhúinteoirí

Junior **CYCLE**
for teachers



Junior
Cycle
Information
on
Engineering



An Roinn Oideachais
agus Scileanna
Department of
Education and Skills

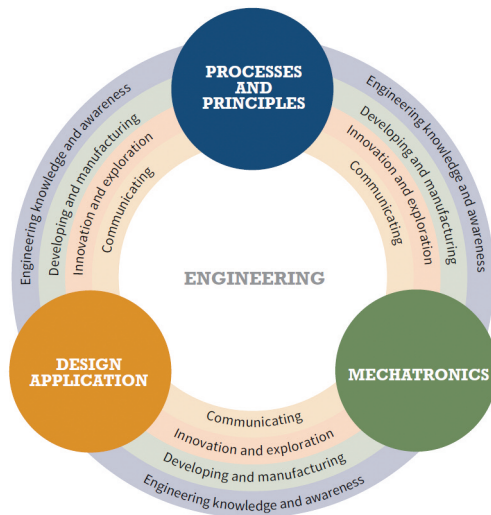
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Junior Cycle Engineering

Engineering encourages students to take an active, collaborative and goal orientated approach to problem solving. Engineering takes a reflective, systematic approach to design and design modification for the purpose of manufacturing an improved solution. Manufacturing tasks place emphasis on precision and high-quality finish. Engineering fosters an engineering mindset in all students.

Structure of the Specification



This specification focuses on developing students' understanding of and skills in, the application and impact of technologies in the world around them. This will be achieved through three inter-connected strands: **Processes and principles**, **Design application** and **Mechatronics**.

Throughout each of the strands, there are four elements: **Engineering knowledge and awareness**, **Developing and manufacturing**, **Innovation and exploration**, and **Communicating** to create a quality learning framework for student learning. Students develop an engineering mindset through engagement with the four elements.

Learning Outcomes

Learning outcomes are statements that describe what **knowledge, understanding, skills** and **values** students should be able to demonstrate having studied Engineering in junior cycle. There are thirty-six learning outcomes across the three strands in Engineering.

Learning Experiences

Students will be active participants in their learning. The focus of junior cycle Engineering is goal-oriented problem solving for the manufacture of products, with emphasis on efficiency, accuracy, precision and a high-quality finish. This project-based approach to junior cycle Engineering requires students to develop a knowledge of materials and processes.



Ongoing Assessment

A dual approach to assessment increases the prominence given to Classroom-Based Assessment (CBA) and formative assessment. The assessment of Junior Cycle Engineering for the purposes of the Junior Cycle Profile of Achievement (JCPA), will comprise of two CBAs, a state certified grade comprised from a project and a final written examination.

CBA 1: Engineering in Action

- Completed within a three-week period in second year
- Completed by students either individually or in groups
- Students investigate the applications of the principles and processes of Engineering
- Develops knowledge, understanding, skills and values across any of the strands
- Can be presented through any appropriate media

CBA 2:

Research and Development

- Completed within a three-week period in third year
- Completed by students individually
- Students carry out research based on a theme that will be reflective of an aspect of the final project

After completion of each CBA, teachers engage in a Subject Learning & Assessment Review (SLAR) meeting to discuss student learning and share effective practice. Both CBAs are assessed by teachers using features of quality as set out in the Assessment Guidelines provided by the National Council for Curriculum & Assessment (NCCA).

Project

A project is completed after the second CBA component in third year. The brief for the project is set and marked by the State Examinations Commission (SEC). The project accounts for 70% of the final SEC grade.

Final Examination

A final written examination takes place at the end of third year. It is set and marked by the State Examinations Commission (SEC). The final examination accounts for 30% of the final SEC grade. Engineering is offered at common level.

STEM

Science, Technology, Engineering and Mathematics (STEM) contribute to technological and societal changes in today's world. Junior Cycle Engineering fosters and nurtures STEM approaches to learning, skills and dispositions.