

# Construction Studies and development education



# CONSTRUCTION STUDIES AND DEVELOPMENT EDUCATION

Construction Studies concerns itself with a body of knowledge about building technology and the built environment. The teaching and learning process can promote an awareness of the built environment both today and in the past, current building practices, technological advancements in relation to building technology and the need for sustainable use and management of resources.

Construction Studies, like development education, engages and develops skills of critical thinking, reflection and problem-solving. Students are encouraged to become active learners through assignments, project work and practical tasks. These activities require skills of planning, teamwork, problem-solving and reflection, all of which are central skills of development education.

The attitudes and values which underpin Construction Studies have

direct links and similarities to those fostered by development education. Students are encouraged to explore the global dimension of topics studied, the effect of the built environment and building technologies on the planet now and for future generations. There is huge potential to encourage a sense of global responsibility and stewardship of our planet and an awareness of how the building technologies and the built environment can destroy or protect our planet. Values of social justice, human rights and equality are fostered in the areas of defining dwellings, the need for shelter and human comfort.

Construction Studies offers a variety of learning methodologies, many of which are central to those advocated by development education. The teaching approach focuses on learning by experience and practical application. Students are engaged in their learning through the use of

practical workshop tasks, creation of scaled drawings, sketching and the use of the internet as a learning tool.

Through appropriate studies and reflection as well as practical experience and project work, participants are encouraged to learn from the architectural past as well as endeavoring to appreciate and understand local and national building and crafts heritage and their influence on the present.

The project coursework in Construction Studies comprises 25% of the assessment. This offers most potential for the delivery of development education in the subject.

Students are active learners following a process indicated in the diagram below.

Topics and issues which are common to development education and Construction Studies can be easily delivered through this model.



The main categories of projects which students can choose from are as follows:

## PRACTICAL CRAFT

- *Articles of furniture*
- *Construction trade skills:* carpentry, joinery, block/brick-work, plastering, electrical, plumbing/heating
- *Heritage:* restoration, reproduction and traditional craft skills

## BUILDING SCIENCE

- *Construction models:* projects analysing any area of building construction, e.g. roofing, walls, and foundations
- *New technologies:* projects looking at new methods of building construction, e.g. timber frame, heating systems, solar power, etc.
- *Investigative:* projects analysing the materials or components involved in building construction, e.g. concrete, soil, insulation, etc.

## WRITTEN/DRAWN WITH MODEL

- *Architectural:* projects concerned with the design of domestic/ industrial/commercial buildings, including plans and a scaled model
- *Building models:* projects analysing the construction of specific historic buildings or modern constructions with a scaled model
- *Interior design:* projects looking at the architecture and design of interior spaces, with an accompanying model

Many of the above areas can be approached from a development education perspective. They provide the opportunity for the student to select a topic from the core as outlined in the template and advance its study via the project model. Also development education issues could easily be integrated into any Construction Studies project. The following examples of Construction Studies projects contain links or potential links to development education.

### Example Project No. 1 *Under Floor Heating*

In this project the student analysed under floor heating versus conventional central heating systems. This led to exploration of how homes can be heated in a sustainable manner. The student developed this project on a global scale by reference to energy needs of the developed world and its effect on developing world countries.

### Example Project No. 2 *Wind Farm - Sustainable Energy Supply*

The student investigated energy needs, from a global perspective and presented information on technologies used to protect our planet and built environment. The model consisted of a wind farm, which feeds into the Air Tricity network. This project spanned both local and global dimensions.

**Note:** Construction Studies is due to be replaced by a new subject 'Architectural Technology'. At time of printing a date has not been determined for implementation of the new syllabus.

## Useful websites

World Resources Institute  
[www.wri.org](http://www.wri.org)

Sustainable Ireland  
[www.sustainable.ie](http://www.sustainable.ie)  
(see directory for useful links)

Sustainable Energy Ireland  
[www.sei.ie](http://www.sei.ie)

Centre for Education in Built Environment  
[www.ctiweb.cf.ac.uk/](http://www.ctiweb.cf.ac.uk/)

Caillte  
[www.caoillte.ie](http://www.caoillte.ie)

Greenpeace  
[www.greenpeace.org.uk/forests/](http://www.greenpeace.org.uk/forests/)  
(click on 'Good Wood Guide')

Just Forests  
[www.justforests.org/](http://www.justforests.org/)

The Forest Stewardship Council  
[www.fsc.org](http://www.fsc.org)

Irish Wind Energy Association  
[www.iwea.com/index1.html](http://www.iwea.com/index1.html)

UN website and information  
[www.unhabitat.org](http://www.unhabitat.org)  
(under 'Products' see The State of the World's Cities Report)

Self Help International has produced a teaching resource 'Food, Land and Trees' that can be downloaded from  
[www.selfhelpintl.ie/main/curredev](http://www.selfhelpintl.ie/main/curredev)

South Africa - Townships  
[www.irishtownship.com](http://www.irishtownship.com)

Curriculum Area	Content links to development education	Attitudes and values compatible with development education	Skills compatible with development education	Methodologies
<p>Leaving Certificate Construction Studies (based on pending Architectural Technology syllabus)</p>	<p><b>Core</b></p> <p>1. Architectural Awareness</p> <p><b>1.1 Architectural appreciation</b></p> <ul style="list-style-type: none"> <li>➤ Vernacular architecture</li> <li>➤ Formal architecture</li> </ul> <p>Students can explore architecture in a global and local environment and make comparisons between past and present</p> <p><b>1.2 Planning to build</b></p> <ul style="list-style-type: none"> <li>➤ Building for shelter</li> <li>➤ Climatic influences</li> <li>➤ Economic constraints and considerations</li> </ul> <p><b>1.4 What is a dwelling?</b></p> <ul style="list-style-type: none"> <li>➤ Comfort and privacy</li> <li>➤ Shaping the building space</li> </ul> <p>Discussion of concepts such as, what is human comfort, how do buildings in different parts of the world achieve comfort and privacy, etc.?</p> <p><b>3. The External Envelope and Superstructure</b></p> <p><b>3.1 Wall types and construction</b></p> <ul style="list-style-type: none"> <li>➤ Materials for wall construction</li> <li>➤ Openings in walls</li> </ul> <p><b>3.3 Roof design</b></p> <ul style="list-style-type: none"> <li>➤ Principles of weather protection</li> </ul> <p>Compare these topics from developed world and developing world perspectives. Discuss how different factors have resulted in different types of wall and roof design and construction.</p>	<p>Understand that the human need for shelter has developed in many ways and with great diversity throughout the world</p> <p>Understand the evolution of building types and technologies</p> <p>Appreciation of the history, scale, proportions and materials of existing buildings</p> <p>Appreciation of how the human need for shelter has developed in many ways and with great diversity throughout the world</p> <p>An awareness of the impact of environmental and climatic conditions should be developed.</p> <p>Appreciation of the need for energy conservation.</p> <p>Awareness of the importance of sustainable wood use</p>	<ul style="list-style-type: none"> <li>➤ Critically evaluate both traditional and modern building design</li> <li>➤ Model and be able to describe buildings &amp; structures</li> <li>➤ Describe the primary functions and requirements of a dwelling</li> <li>➤ Know the sources of clean water</li> <li>➤ Describe how geographic location and climatic conditions influence the design of dwellings</li> <li>➤ Recognise how planning the built environment is influenced by different issues, constraints and considerations which differ on a global scale</li> <li>➤ Conversant with the reasons for enclosure, the types of materials used and the manner in which they are assembled in order to satisfy comfortable living conditions</li> <li>➤ Contrast past and present uses of materials</li> </ul>	<p>A variety of learning methodologies are employed in the delivery of Architectural Technology.</p> <p>Students are encouraged to question, discuss and debate issues. They are also expected to draw on their own environment for concrete examples.</p> <p>Spatial development through the use of drawing and sketching is central. The students are active in their learning.</p> <p>Methodologies which enable students develop skills of problem solving can be used throughout the course.</p> <p>Project work forms a major component of Architectural Technology. Students must plan, research, design and produce a project on completion of the course. This project engages students in their learning and provides opportunities for students to investigate an area of particular interest. ICT, and CAD (Computer Assisted Design), is used in project work.</p>

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Leaving Certificate Construction Studies (based on pending Architectural Technology syllabus)	<p>4. Services and Environmental Technologies</p> <p><b>4.1 Services for domestic construction - human comfort</b></p> <ul style="list-style-type: none"> <li>➤ Conditions effecting human comfort</li> <li>➤ Water sources supply and distribution</li> <li>➤ Energy sources and environmental considerations</li> </ul>	<p><b>Be conscious of conservation issues regarding clean water and air.</b></p> <p>Awareness of the need to use natural resources wisely, having due regard for social, economic, ethical, environmental, technological and cultural factors</p> <p>Awareness of the interdependence of all people</p>	<ul style="list-style-type: none"> <li>➤ Skill of comparison using local and global examples, using the Internet and other sources</li> <li>➤ Skills of critical evaluation in discerning the impact of technologies on the environment</li> <li>➤ Identifying problems, reflecting on problems and applying a variety of perspectives/solutions</li> <li>➤ Assess the impact of energy use and waste in the developed world on the developing world. Explore how our energy needs are having long term effects on the environment and on people in the developing world. Discuss the concept of sustainable buildings as a global issue</li> <li>➤ Compare sustainable wood use with unsustainable wood use and the impact of both</li> </ul>	

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Leaving Certificate Construction Studies (based on pending Architectural Technology syllabus)	<p><b>4.2 Drainage and Waste Disposal</b></p> <ul style="list-style-type: none"> <li>➤ Clean air and water</li> <li>➤ Disposal of domestic waste</li> </ul> <p><b>7. Architectural and Craft Heritage</b></p> <ul style="list-style-type: none"> <li>➤ Built heritage - what it means</li> <li>➤ Explore, observe and record local heritage in architecture and craft</li> </ul> <p>Architecture and craft heritage could be used as a vehicle to explore the culture of other countries. For example, students might explore the history of dwelling provision in townships in South Africa, how they were formed, what factors influenced their design, construction methods, materials, etc.</p> <p>Students are required to elect two options for study as an extension of the core. The following three options have content links with development education:</p> <p><b>Option 1 Architectural Heritage and Design</b></p> <p><b>Option 2 Services and Control Technology</b></p> <p><b>Option 4 The Built Environment</b></p>	<p>Respect for the rights of all people to share the earth's resources</p> <p>A sense of stewardship of the earth's resources.</p> <p>Appreciate how the past influences the buildings of today as well as how availability of materials and technologies are reflected in the buildings and furnishings of the past</p> <p>Awareness of the impact of deforestation and the need to use wood from sustainable sources</p>		

**Assessment**

50% of total mark for terminal examination.

25% of total mark for terminal practical craft examination.

25% of total mark for project work.

Project work presents the strongest opportunity for development education issues in architectural technology. The students have a wide choice of topics from which to select a project, many of which have direct links to development education. (See previous examples.)