

**An Roinn Oideachais agus Scileanna**

**Department of Education and Skills**

**Subject Inspection of Metalwork and Engineering  
REPORT**

**Coláiste Dún Iascaigh  
Cahir, County Tipperary  
Roll number: 76063D**

**Date of inspection: 16 May 2011**



**A N R O I N N | D E P A R T M E N T O F  
O I D E A C H A I S | E D U C A T I O N  
A G U S S C I L E A N N A | A N D S K I L L S**

**REPORT**  
**ON**  
**THE QUALITY OF LEARNING AND TEACHING IN METALWORK AND**  
**ENGINEERING**

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**INFORMATION ON THE INSPECTION**

<b>Date of inspection</b>	16 <sup>th</sup> May 2011
<b>Inspection activities undertaken</b> <ul style="list-style-type: none"><li>• Review of relevant documents</li><li>• Discussion with principal and teacher</li><li>• Interaction with students</li></ul>	<ul style="list-style-type: none"><li>• Observation of teaching and learning during four class periods</li><li>• Examination of students' work</li><li>• Feedback to principal and teacher</li></ul>

**MAIN FINDINGS**

- Students' project work was completed to a high standard and exhibited good levels of accuracy, surface finish and design competency.
- A significant proportion of students choose higher-level in certificate examinations and attainment at both levels is good.
- Examples of effective teaching strategies were most clearly evident in the junior cycle lessons observed.
- Management is supportive of the subject particularly in relation to resources and allocations.
- The specialist room is very well equipped and is maintained and managed effectively.

**MAIN RECOMMENDATIONS**

- Differentiated teaching methods should be employed to ensure that students of all abilities are fully included in lessons.
  - Monitoring and assessment of students' written work should be increased in order to maximise students' learning through the provision of developmental feedback.
  - Active and independent learning strategies should be employed regularly in theoretical lessons to promote the development of collaborative and self-directed learning skills.
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## **INTRODUCTION**

Colaiste Dún Iascaigh offers Metalwork as an optional subject at junior cycle and Engineering as an optional subject in fifth and sixth year. Currently Engineering is not offered as part of the school's optional Transition year (TY) programme. The school serves students with a wide range of educational needs from its urban and rural hinterland and has a current enrolment of 635. The board of management was given an opportunity to comment in writing on the findings and recommendations of the evaluation; a response was not received from the board.

## **TEACHING AND LEARNING**

- Three lessons were observed during the course of the evaluation. Of these three lessons, two were theoretical in nature, while the third focused on developing students' practical skills. The quality of teaching and learning observed in the three lessons varied considerably. Good practices were evident most clearly in the junior cycle lessons; there is scope for significant development at senior cycle.
- The practical lesson observed was very well structured and included a short introduction that reinforced prior learning and outlined clear success criteria for the lesson. Skill development was fundamental to this lesson and students executed prescribed tasks to a high standard.
- Students received very good levels of oral formative feedback throughout the practical lesson enabling them to improve their skills through repetition and self-assessment. Students' rapid progress and their accuracy in manufacture demonstrated good levels of learning and skill development. Additional feedback should now be given to students regarding the quality of their written exercises to enhance and reinforce their theoretical learning.
- Where theoretical content was being revised, a traditional approach was taken. This didactic approach often created a passive learning environment. To develop a more participative learning environment, efforts should be made to stimulate discussion, dialogue and the application of knowledge. Some possible strategies include utilising pair or group work in short focused activities.
- In one lesson students were divided into higher and ordinary level groups. Students following the ordinary level course were given a written activity to complete while the students following the higher level course revised the topic of metallurgy under the teacher's direction. As the majority of teacher instruction was given to this group, some of the students who were requested to complete the written activity became distracted and their level of engagement diminished as the lesson progressed. To counteract this, planned differentiated and active teaching methodologies should be implemented in order to maintain students' interest in tasks and to further include all students in the learning process equally.
- When utilised, targeted questioning to individual students was effective. In the practical lesson observed additional questioning should have been incorporated into demonstrations more frequently in order to gauge students' understanding and to ensure that students remained focused.
- Information and communication technology (ICT) resources were used in some lessons. Interactive and animated clips should also be sourced to enhance the prepared electronic presentations and to help students visualise complex concepts. This would have helped with the explanation of topics such as dendritic growth in molten metals.

- Classroom management was effective in most instances. The implementation of the recommendations made relating to differentiated and active learning strategies would help minimise the opportunities for disruption caused by those students who were not fully engaged in some prescribed tasks.
- Students' project work was finished to a high standard. Very good efforts have been made to improve students' design skills and project work. This has resulted in good skill development among students in these specific areas.
- Students' outcomes in certificate examinations are positive with a good uptake of higher level at both Junior and Leaving Certificate levels. A good range of grades have been achieved in recent years with the majority of students choosing higher level examinations.

#### **SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT**

- Metalwork and Engineering receive appropriate time allocations at both junior and senior cycle.
- In line with the school's practice on subject choice and the creation of option bands, students receive good levels of information regarding the subjects upon entry into first and fifth year. To further enhance these practices senior management should consider including elements of Engineering in the Technology module in TY.
- The specialist room is very well resourced. Safety awareness is promoted effectively through the use of appropriate safety signage, personal protective equipment and safety posters. The storage methods employed for consumables and equipment are easily accessible and promote good workshop techniques. Information and communication technology resources are readily available in the specialist classroom and are easily integrated into lessons.
- Senior management has encouraged and facilitated the subject department's attendance at recent continuing professional development courses provided by the Technology Subjects Support Service. The subject department's involvement in the local Engineering and Technology Teachers Association also promotes good levels of communication and collaboration in the locality.

#### **PLANNING AND PREPARATION**

- The subject department has developed a subject plan that outlines the planned delivery of the subjects at both junior and senior cycle. Primarily this plan details how and when theoretical content is delivered. Teachers' individual planning outlines comprehensive practical skill development schemes including a wide variety of age and skill appropriate project work. To enhance these plans consideration should be given to identifying time-specific theoretical learning outcomes and desired skill attainment.
- The subject department's analysis of attainment in certificate examinations is a positive exercise. This analysis enables the subject department to reflect, adapt and modify methodologies based upon student outcomes.
- Planning and preparation of the lessons observed was good. However, additional consideration should be given to the further inclusion of all students particularly in

theoretical lessons. This will help to create more inclusive learning environments and engaging learning activities.

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The draft findings and recommendations arising out of this evaluation were discussed with the principal and the subject teacher at the conclusion of the evaluation.

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