

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Construction Studies and
Materials Technology (Wood)
REPORT**

**Coláiste Mhuire
Askeaton, County Limerick
Roll number: 71700F**

Date of inspection: 2 December 2010



**AN ROINN DEPARTMENT
OIDEACHAIS OF EDUCATION
AGUS SCILEANNA AND SKILLS**

REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN CONSTRUCTION STUDIES
AND MATERIALS TECHNOLOGY (WOOD)

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Coláiste Mhuire, Askeaton. It presents the findings of an evaluation of the quality of teaching and learning in Construction Studies (CS) and Materials Technology (Wood) (MTW) and makes recommendations for the further development of the teaching of these subjects in the school. The evaluation was conducted over one day during which the inspector visited classrooms and observed teaching and learning. The inspector interacted with students and teachers, examined students' work, and had discussions with the teachers. The inspector reviewed school planning documentation and teachers' written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal and the subject teachers. The board of management was given an opportunity to comment in writing on the findings and recommendations of the report; a response was not received from the board.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

CS and MTW are part of a range of technology subjects in the balanced curriculum of Coláiste Mhuire, a community college operating under the auspices of County Limerick Vocational Educational Committee (VEC). The other technology subjects provided by the school are Metalwork and Technical Graphics (TG) in junior cycle and Engineering and Design and Communication Graphics (DCG) in senior cycle.

Collaborative planning within the subject department takes place formally on a termly basis and is supplemented by regular *ad hoc* meetings throughout the year. The teachers of CS and MTW alternate in the role of subject coordinator and their work in relation to coordination of the subject department is appropriately collaborative.

The teachers of CS and MTW have been actively engaged in a wide range of continuing professional development (CPD) activities. In a whole-school context, these professional development opportunities have dealt with many aspects of teaching and learning. Commendably, one of the teachers has also provided a number of CPD sessions for colleagues. In addition to participation in whole-school CPD, the CS and MTW teachers have also pursued other, subject-related, CPD opportunities including those provided through the Technology Subjects Support Service, T⁴, and the advanced *Solidworks* evening course provided in conjunction with the teacher professional networks.

The allocation of teaching time for the subjects in junior cycle and senior cycle is appropriate. Four periods per week are provided in each year in junior cycle and five periods per week in senior cycle. Transition Year (TY) is allocated two periods per week. The teaching time is structured to provide a double-period lesson each week for each class group. This provision facilitates the completion of practical projects.

Teachers are deployed to teach the subjects in line with their qualifications. However, at the time of the inspection, the teachers of MTW and CS were not deployed to teach TG or DCG for which they are also qualified. In the interests of skills transfer, subject development, flexibility and continuity within the teaching team, consideration should be given to deploying teachers of MTW and CS to teach each of the subjects for which they are qualified where this is consistent with the subject interest of the teachers concerned.

Two well appointed woodwork rooms accommodate the teaching of MTW and CS. These rooms were well organised, neat and tidy and supported a comfortable and welcoming learning environment.

Appropriate resources, including project materials and consumables needed for the teaching of the subjects, are provided as required. Clear requisitioning procedures, in line with established VEC practice, are in place and effective collaboration between the subject teachers, in close cooperation with management, ensure that these procedures work well.

The information and communication technology (ICT) facilities available for the teaching of MTW and CS are very good. The school and subject department are actively engaged in further improvement of these facilities to keep pace with technological developments. Access to the computer room and the DCG room, for which a booking system is in place, provides for internet-based research and completion of project work by students. The woodwork rooms are both equipped with data projectors and each teacher has a laptop computer. The *SolidWorks* programme is installed for student use and students are introduced to it in TY. The placing of a small number of computers in each of the woodwork rooms should be considered, within the present provision of resources, to facilitate use of ICT within lessons by students, individually or in small groups, as the opportunity is presented.

Practice regarding access to the subjects by students is very good. MTW and CS are provided as optional subjects within subject-option bands in response to the preferences indicated by students, their needs and interests. The process of subject selection in junior cycle and senior cycle begins with an open choice in which students indicate preferences in order of priority. Appropriate option bands are then devised from which students make their detailed selection. The level of uptake of both subjects indicates their popularity with students.

Students are well supported in making appropriate subject choices. Subject sampling is provided at the beginning of first year and again in TY and this provides students with experience on which to base their choices. Appropriate flexibility is exercised to allow students to change subjects following a considered change of mind within a reasonable time. Meetings are arranged for parents at appropriate stages to present information and advice regarding the subject and programme choices that are provided for students. Further support for incoming first-year students is provided by a specific programme to aid the transition of pupils from primary school to second level. This programme is delivered in a number of meetings with parents and incoming students in the course of the year preceding entry. Guidance is provided for students, by the guidance counsellor and as a part of whole-school guidance in which subject teachers play an appropriate part. Further information is supplied in booklets and by presentations by subject teachers.

PLANNING AND PREPARATION

Planning for the development of CS and MTW in the school is collaborative and very effective. In addition to working together as a subject team, the teachers of the subjects work closely with the teachers of the other technologies. Cross-curricular planning takes place in this context on an informal basis. It is suggested that this aspect of planning, in particular where it involves consideration of common areas such as effective teaching methodologies, suitable modes of assessment and support for literacy and numeracy, should be made more formal by arranging joint planning meetings within the time allocated for this purpose. The outcomes of such joint planning meetings should be included in the subject plans. Cross-department collaboration has been particularly valuable in relation to the DCG classroom, in the development of which the teachers of the technologies, as a group, played a central role.

Coherent subject plans are provided for CS and MTW. These plans cover the areas expected in a clear and comprehensive manner. Consistent programmes of work are included that follow the requirements of the syllabuses. Effective teaching methodologies are listed. Further development of the subject plans should include more detail of the methodologies found to be most effective and these should be linked to the teaching of specific programme content, including, in particular theory and design content.

The subjects are taught in a mixed-ability setting. This arises because of their being optional subjects but is also viewed by the school as a positive aspect of the provision. Students choose the level at which they will sit the certificate examinations in consultation with their teachers. They are encouraged to sit the subjects at the level more consistent with their ability, with the greater proportion sitting higher level.

Planning in the subject department takes account of the special educational needs of students and is undertaken in consultation with the learning support department. The level of difficulty of project work to be undertaken is differentiated to provide appropriate levels of challenge for students. Where appropriate, students have been provided with a smaller class group.

The use of ICT in the school is already at an advanced stage. *ePortal*, recently installed at the time of the inspection, had begun to be used for the recording of administrative data and teachers were being actively involved in this. The teachers of MTW and CS were uploading digital materials, that had previously been available on a shared server, to *Moodle*, the school's virtual learning environment (VLE).

The introduction of students to the use of *SolidWorks* in MTW should be considered, perhaps as part of an early student design project for modelling of an uncomplicated design idea, leading to a solution and the production of working drawings.

There is a current health and safety statement in the school which contains a section relating to MTW and CS and which is reviewed regularly. Clear and consistent policy informs practice regarding issues of health and safety in the classroom. Students were observed using personal protection equipment appropriately in the lessons visited. Appropriate standard signage further reinforces the students' awareness of safety, which is created and maintained through timely instruction in lessons. The provision of common health and safety induction sessions for all students in first year in advance of sampling of the technology subjects is particularly appropriate. Classroom rules are prominently displayed. To further improve student awareness, facilitating the encouragement of good safety practice, it is recommended that safe operational areas be

demarcated around machines. The display of instructional signboards to clarify the purpose of these areas, and the implications for student movement in the vicinity of the machines, should be used to further reinforce students' awareness. It is also suggested that the number of instructional signboards used to display the procedures and precautions to be followed for the safe use of individual machines should be increased.

Planning for individual lessons was of a high standard and resulted in lessons that were coherent and that ran smoothly. The necessary materials, tools and equipment were prepared and to hand in each of the practical lessons observed. The retrieval of students' projects, distribution of tools and their collection and storage at the end of lessons followed practiced classroom routines. Planning for the completion of coursework projects was effective and students were working to realisable deadlines.

TEACHING AND LEARNING

The teaching and learning observed in the course of the inspection was of a high standard. The teaching methodologies used in the lessons were appropriate to the needs, interests and abilities of the students concerned. In each of the lessons students were given ample time to work independently, often on the completion of individually designed projects. However, on occasion, as in the case of a model racing car being realised by first-year students, the element of design to be included was introduced towards the end of the realisation phase when the possibilities would tend to be more superficial or cosmetic. This represents a lost opportunity. It is better that the design aspect of projects be introduced when the students are being introduced initially to the project. In general, design should form a more integral part of the students' practical work.

The dominant approach adopted in the lessons observed involved individual teaching as the teachers moved between students who were engaged in the realisation or investigation of individual projects, often coursework projects for the certificate examinations. This approach was effective and students remained focused on their work throughout. It is recommended, in such situations, that the use of group demonstration and investigation be explored to further differentiate the students' experiences in the classroom. In the case of a CS lesson, where students were engaged in realising architectural models of a variety of domestic houses, often their family homes, it is suggested that groups of students could be guided towards investigation of particular aspects of the building concerned. Different groups could focus on an aspect of the buildings which they were modelling, perhaps related to the construction methods, materials or components used. Changes in construction practices due to the updating of building regulations in recent years provide rich areas for such investigations. This would provide the teacher with opportunities to work with each group in turn. The groups should then occasionally report to the whole class on the outcomes of their investigations. Such an approach should provide increased opportunities for student collaboration and differentiate student activity in extended practical lessons.

The purpose of the lessons was clear from the outset. To bring further clarity to the students' understanding of their own learning purpose, it is suggested that a clear statement of the expected learning outcomes for each lesson be given at the outset and that this statement be revisited at the end of the lesson to reinforce the students' appreciation of the learning that has taken place.

Classroom management was very effective in each of the lessons observed. A sense of discipline and mutual respect was pervasive. The atmosphere was at all times pleasant and conducive to learning, as was the physical learning environment. Various appropriate subject-related materials,

including posters on health and safety in the woodwork room produced by T⁴, were displayed. Students were consistently affirmed for their efforts and encouraged to achieve high standards.

It was clear from the responses of students in the lessons observed and to the questioning of the inspector that they were learning effectively within the context of the work being set for them. Students showed appropriate understanding of related concepts and facts. It is urged, however, that the subject department consider further ways in which the challenge for more-able students could be increased. Specifically, care should be taken to provide suitable challenge in coursework to avoid these projects becoming too predictable or lacking in challenge appropriate to the ability of the individual student. The high level of enthusiasm for the subjects shown by the students provides a support for their involvement in more challenging work.

ASSESSMENT

Assessment practice in the subject department makes use of a range of assessment modes and is thorough and appropriate. Formal assessment of students' progress in CS and MTW is consistent with whole-school practice, with students sitting in-school examinations at Christmas and in summer and with further assessments formally recorded at mid-terms in autumn and in spring. Continuous assessment of students' work takes place. Each completed student project is discussed with the student. Self-assessment of the outcomes is encouraged by the teachers. A result is then recorded. Students are kept informed of their progress effectively. This is achieved orally and by means of written comments on homework and in school reports.

There was evidence of some variation in practice when linking continuous assessment marks to in-school examination outcomes. In order to further strengthen the positive influence of assessment on students' learning, it is urged that a common approach be adopted when combining students' results at examination time. The approach taken should aim for a similar breakdown of marks as in the certificate examinations, with an appropriate balance in the marks awarded for project work and at examination. The project-work assessment should include marks for both the project design and its realisation. Further benefit should be gained by making students aware of the assessment procedures being followed, by providing them with regular feedback regarding their progress and perhaps by planning with the subject departments concerned for a similar assessment approach in the other technology subjects.

Informal assessment of students' work was observed as an integral part of each of the lessons observed and provided an effective support for learning. Teachers worked individually with students and provided appropriate feedback in a positive and natural way. Students were encouraged to engage in evaluation of their own work. A slightly more formal process of self evaluation should be considered to further strengthen this aspect of the students' learning experience.

Effective record-keeping is in place in the subject department. At the time of the inspection digital recording of attendance and examinations was being introduced linked to the introduction of *ePortal*. While it was not clear whether it would be possible to support the inputting of continuous assessment marks, this was being investigated by the ICT coordinator and it was hoped that it would become part of the system.

Parents are kept informed of students' progress at parent-teacher meetings which may also be attended by students, providing a further means of communication regarding their progress.

Further channels of information for parents include written school reports following examinations and communication through the student's journal.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- The teachers have been active in a wide range of continuing professional development (CPD) activities.
- Practice regarding access to the subjects by students is very good.
- Issues of health and safety are informed by consistent policy and practice.
- A high standard of teaching and learning was observed in the course of the inspection.
- Classroom management was very effective in each of the lessons observed.
- Collaborative planning for the development of the subjects is very effective.
- Assessment practice is thorough and appropriate.

As a means of building on these strengths and to address areas for development, the following key recommendations are made:

- Consideration should be given to deploying teachers to teach each of the subjects for which they are qualified.
- Joint planning with teachers of the other technology subjects should be formalised.
- Further development of the subject plans should include more detail of the methodologies found to be most effective, linked to the teaching of specific content.
- The subject department should consider further ways to increase the challenge for more-able students.
- A common approach should be adopted when combining students' continuous assessment and examination results.

Post-evaluation meetings were held with the teachers of CS and MTW and with the principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.