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

St Brogan’s College
Bandon, County Cork
Roll number: 70910L

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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 St Brogan’s College. 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 and examined students’ work. The inspector reviewed school planning documentation and teachers’ written preparation. Following the evaluation visit, the inspector was available to provide oral feedback on the outcomes of the evaluation to the principal and the subject teachers.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

St Brogan’s provides a wide range of technology subjects for its students in junior cycle and senior cycle. The CS and MTW subject area is represented in the Junior Certificate, the Transition Year (TY) programme, the Leaving Certificate, the Leaving Certificate Vocational Programme (LCVP) and in the Leaving Certificate Applied (LCA) programme. In addition to MTW, Technical Graphics (TG) and Metalwork form part of the junior-cycle curriculum. Together with CS, Design and Communication Graphics (DCG) and Engineering form part of the senior-cycle curriculum. Graphics and Construction Studies (GCS) is one of the specialisms in the LCA programme in the school. It is suggested that the advantages of including MTW in the Junior Certificate School Programme (JCSP) in the school be explored given that the subject is taught in a mixed-ability setting and has among its students those who are already following the JCSP in some other subjects.

Teachers are supported and encouraged to participate in continuing professional development (CPD). All members of the subject department have availed of the major subject-related CPD provided through T⁴, the Technology Subjects Support Service. Whole-school CPD is targeted and appropriate, being most recently in areas such as mixed-ability teaching, differentiation, assessment for learning and teaching methodologies. This CPD is a valuable support for the further development of practice within the subject department and it is particularly good that members of the school teaching staff have led some of the sessions.

The times allocated for teaching CS and MTW are in line with syllabus recommendations. While the allocation of one double period for MTW in first year is less than would otherwise be advised, the provision of a time allocation to experience each of the optional subjects for all students in that year has definite benefits. The first year subject plans in the technologies should adopt a
cross-curricular approach to planning for the teaching of MTW, TG and Metalwork. This cross-curricular approach, applied to the development of programmes of work, should be used to compensate in a practical way for the shorter time allocation for the individual technology subjects by avoiding duplication and integrating the teaching of shared elements of the syllabuses. Four periods per week in second year and five periods per week in third year is a good time allocation for MTW. In TY, the CS module is timetabled for three periods per week for ten weeks. This is a good allocation of time. CS is allocated five periods per week in fifth year and six periods per week in sixth year. This is an ample allocation. Double-period lessons are included for all classes which facilitates practical work in an effective way.

It is good to note that the teachers of MTW and CS are deployed to teach both subjects. This provides for the involvement of the whole subject team at both levels and the maintenance of the skills, knowledge and interests of all the teachers. Furthermore, it is very good practice that each of the teachers also currently teaches TG and most also teach DCG. One teacher teaches GCS to both LCA classes and it is suggested that this deployment should rotate to other members of the team over time.

CS and MTW are taught in two well-appointed rooms; a woodwork room and a larger construction studies room. These rooms provide a suitable setting for teaching both subjects, particularly the practical elements of the syllabuses. At the time of the inspection were clean, tidy and welcoming. The tools and equipment are very well maintained and in good condition. A central dust-extraction system services the woodwork machines that are sited in the woodwork and construction studies rooms.

Both rooms incorporate displays of subject-related material including posters, samples of students’ work and, particularly in the construction studies room, display boards showing details of plumbing, drainage, roofing and other aspects of construction. These displays greatly enhance the learning environment and their presence constitutes good practice. Tools and equipment are carefully, accessibly and conveniently stored on purpose-made racks and in lockable presses consistent with good practice. Wood and other materials for the students’ project work are appropriately stored in store rooms adjacent to the woodwork and construction studies rooms. These store rooms are very well organised.

Each of the rooms includes a fixed data projector and personal computer for teaching. A glazed area in the construction studies room houses a small number of personal computers for students’ use. To further develop the use of computer-aided design (CAD), the DCG room should be used to facilitate the introduction of SolidWorks to all students of MTW and CS, including those who might not otherwise use this software in drawing lessons. CAD drawings should then be incorporated into students’ project folders, where possible. Access to the DCG room should be arranged with reference to the timetable and to the use of this room by DCG, TG and other technologies classes.

Both subject plans, for MTW and CS, include a copy of the ‘Health and Safety Policy for St Brogan’s College’ dated 2005. The policy contains details of the membership of the safety committee and it identifies the safety officer and safety representative. The various roles in the implementation of the policy, including those of the board of management, the principal and teachers, are detailed. However, it does not include health and safety information specific to the woodwork and construction studies rooms. The subject plans also include evidence of a review of health and safety in the woodwork and construction studies rooms in the form of completed copies of the audit checklist provided by the Department and the State Claims Agency. These documents are not dated and there is no information provided on the action taken on foot of the
audits. It is recommended that a detailed health and safety statement be provided for the woodwork rooms. This statement should include analysis of the risks specific to these rooms. This statement should be included in or appended to the school’s health and safety policy which is, in itself, in need of urgent review. It is recommended that the *Review of Occupational Health and Safety in the Technologies in Post-primary Schools* (State Claims Agency, Department of Education and Science, 2005), should be consulted in detail when reviewing health and safety.

Appropriate care and attention is paid to the active management of health and safety in the woodwork rooms. The rules for the safe use of the rooms are displayed close to the entrance in both rooms. It is suggested, to further increase the students’ awareness of the rules, that copies might also be displayed in a position where they are visible to students from their benches. The rules are displayed in translation in the first languages of some newcomer students. This is very good practice that acknowledges the cultural heritage of these students and it is recommended that the rules also be displayed in Irish.

Safe operational areas are demarcated around the machines in the woodwork rooms in line with good practice. It is urged that instructional sign boards be displayed to draw students’ attention to the rationale for reserving these areas and also the implications for movement within the room. Good practice is followed regarding the provision of personal protection equipment which is conveniently available adjacent to each machine. Standard safety sign boards are displayed immediately adjacent to most machines and it is recommended that this practice be followed for all machines. It is urged that instructional sign boards be prominently displayed in the vicinity of each the machines, briefly outlining the practices and procedures for the safe use of the particular machine. The information on these sign boards should briefly summarise the points made by the teacher when the students are introduced to the use of the particular machine. This would help to maintain the students’ safety awareness and to reinforce their learning.

All students in first year study each of the subjects in the junior-cycle curriculum of the school including each of the optional subjects. This provision prepares students to make informed decisions regarding their subject choices for second year and third year. One subject is chosen from MTW, Metalwork and Home Economics. Students are initially surveyed to identify the most popular subject choices. To further improve practice regarding the design of subject-option bands they should ideally be determined annually by reference to the subject preferences expressed by the particular second-year cohort of students, within the constraints of resources and facilities. It is suggested that the school develop a policy on gender mainstreaming which includes measures to avoid gender stereotyping in students’ subject choices.

**PLANNING AND PREPARATION**

Senior management facilitates collaborative planning for the CS and MTW subject department by providing for regular subject-department meetings and providing a role for the subject co-ordinators in matters such as the compiling of subject plans and arranging for the ordering of materials and equipment. Separate co-ordinators of CS, MTW and DCG are appointed in rotation, by agreement within the subject-teaching team. The merits of having a co-ordinator for each of the three subject areas are acknowledged and this arrangement should be continued. It is recommended that there should also be an overall co-ordinator in order to further facilitate cross-curricular development between the subjects.
The subject department is well developed and effective. It includes an appropriate level of self-review and evaluation in its meetings, particularly in relation to the development of classroom facilities and the use of information and communications technology (ICT) hardware to support teaching.

Subject planning is well advanced. Written records of subject-department planning meetings are consistent, are available to school management and provide for ongoing monitoring. Information on the provision for CS and MTW is detailed in separate written subject plans. These plans are based on a consistent model, are broad in scope and are well structured. They deal with aspects including teaching resources for the subject, provision for the special learning needs of students, reporting procedures, assessment and homework policy together with a course outline or programme of work for MTW and CS. As a next step in the further development of the subject plans it is recommended that the programmes of work be expanded to include not just content but also specific teaching methodologies and strategies to be adopted for the teaching of particular content. This development of the subject plans would provide teachers with valuable opportunities to share their own experience of approaches that they have found successful. The MTW plan includes a document on an approach to teaching design which, as an example, would provide an ideal starting point when collaboratively expanding the programme of work relating to the teaching of design. To further develop the subject plans and further improve their effectiveness they should also clearly identify the learning outcomes for students in each year of the course being followed. Care should be taken to maintain a balance between each aspect of the syllabuses—practical, design, drawing and theory—when developing the programmes of work.

The subject department tracks and analyses students’ performance in the certificate examinations. These analyses are recorded in the subject plans and they inform planning. This is very good practice.

Individual planning by teachers is in line with good practice and relates appropriately to the subject department plan. Evidence of very effective planning was particularly clearly seen in students’ coursework projects for MTW and CS. These students benefit from the short and medium term planning of their teachers which prepares them very well to undertake diverse work suited to their particular abilities and interests. Teachers prepare thoroughly for lessons and maintain individual records of students’ attendance and achievement.

The teachers of MTW and CS work in collaboration to select and develop an appropriate range of teaching resources. They utilise the ICT equipment available to them to great effect to present digital resources in their lessons including CAD-based drawings and commercially produced video recordings. Video recordings of practical work being completed on building sites is a particularly valuable resource, given the difficulties around students accessing active sites. The acquisition and use of this resource indicates very good planning practice.

**TEACHING AND LEARNING**

Based on the inspector’s observations during the evaluation, lessons in CS and MTW are well structured and paced appropriately for the students. Students are made aware of the aims of each lesson at the outset and the content of lessons is presented in a coherent manner. Continuity is maintained with previous lessons, often by means of revision prompted by teachers through skilled questioning. Students are often prepared in a structured way for the work to be undertaken in the next lesson. In a lesson involving coursework realisation, for example, worksheets were
Teachers knowledge of CS and MTW and their high level of skill in working with materials are very effectively deployed in lessons to motivate students and to enhance their learning. Since consistency is essential for student learning the teachers of MTW should collaborate in identifying common marking-out procedures and common methods of tool use that are in line with accepted educational practice. These common procedures and practices should place emphasis on developing, in the students, an appreciation of methodical, well-planned and robust approaches to completing practical tasks. This appreciation is a valuable part of students’ formation and has applications in many other areas.

Students’ initiative and creativity are well developed in CS and MTW. This is particularly well reflected in the variety of coursework undertaken in students’ design projects for the certificate examinations. The projects being realised in the lessons observed arise from the students’ own creative processes and suit the students’ own individual abilities and interest. The insistence that students follow a coherent process in developing their ideas, completing each step in a design cycle before embarking on the realisation phase, is a commendable characteristic of the subject-department approach to coursework.

The range of teaching resources commonly used in lessons includes models of building components and assemblies, displays of digital media including video and CAD drawings and worksheets that include printed CAD drawings. These resources are integrated effectively into lessons and enhance the rich learning environment.

Based on the practical woodwork lessons visited, teaching methods are varied and effective. Teacher demonstration is followed by time for students to practise the processes demonstrated. The demonstrations are well paced and do not interrupt the smooth flow of the lessons. The content is presented clearly and accessibly to the students and teachers ensure that students stay focused by the judicious use of appropriately directed questioning. The teachers provide one-to-one or small-group instruction to students, moving around the woodwork room as the students undertake the work. Teachers are mindful of the educational needs of individual students as they circulate amongst students, an approach which enables them to differentiate their inputs to meet individual learners’ needs.

In theory lessons teacher inputs are well interspersed with student activity. A very suitable video clip, through the data projector, was used in one lesson observed. This lesson, delivered to a high standard, is representative of the lessons observed in the inspection.

Given that MTW and CS are taught in mixed-ability settings through junior cycle and senior cycle, teachers should pay particular attention to the further development of students’ literacy and numeracy skills and every opportunity should be taken to engage students to this end. Definite strategies should be adopted including the display of new terminology and vocabulary in the classroom. Keyword list sheets as used in JCSP, examples of which are included in the subject plan, provide a very appropriate means of displaying new vocabulary in the classroom. As opportunities to reinforce students’ numeracy are encountered these should also be fully exploited. It is suggested that when calculations are required in a lesson, for example when marking out a piece of wood, that this calculation should be done by the students or an individual student. The teacher’s role should be to confirm the result. Such opportunities can be arranged as part of lesson planning and represent good practice.
As seen in the lessons observed in the course of the inspection, the management of the classrooms is very effective. Students follow suitable routines when locating their work pieces and tools. Students work in their assigned places and movement within the rooms is appropriately monitored and controlled. Expectations for good behaviour are clearly communicated to and willingly accepted by the students who also respond positively to their teachers’ instructions.

A very good atmosphere prevails in the classrooms, one based on mutual respect of teachers and students. It is clear that the students benefit from a positive learning environment where they experience and adopt the enthusiasm of their teachers for CS and MTW. Furthermore, the displays of students’ work and other subject-related materials help create a very effective subject-specific ambience in the woodwork rooms which supports learning. This is good practice.

Students engage in CS and MTW lessons very well. They show an appropriate understanding of their subject material. They are well organised and purposeful in their work, both written and practical and its quality indicates good progress, appropriate to their abilities, in relation to planned learning outcomes for CS and MTW.

**ASSESSMENT**

Implementation of the formal school homework policy is monitored by the subject teachers. On the basis of practice observed, the homework set is appropriately related to current class work or to revision of earlier work and it is entered in the students’ journals. This provides a good channel of communication with parents regarding the students’ work.

Formal assessment of students’ progress occurs at Christmas and in summer when internal examinations are held. Third-year and sixth-year students sit certificate examinations in summer. Common tests are set for MTW in first year where all students study the subject. While this is good practice it is urged that common examinations are also set in second year and third year.

Continuous assessment is used in MTW and CS. It is recommended, where not already the case, that this continuous assessment take account of the full range of student learning; practical, theory drawing, and design. It is further recommended that the continuous assessment account for a stated percentage of the term results at Christmas and in summer. The process followed in arriving at the aggregated term results should be included in the subject plan for MTW and CS and be made clear to the students so as to provide them with further motivation and affirmation. This approach to assessment is consistent with that recommended in the respective subject syllabuses.

Ongoing oral feedback is provided in the course of lessons. This is positive in tone and seeks to affirm students’ progress. Good quality feedback around marked Christmas test scripts was observed in one lesson. This involved teacher questioning and discussion, both of which were effective. This was good practice.

Students and their parents are kept informed of their progress by means of notes and marks in the students’ journals, by formal school reports following term tests and at parent-teacher meetings. Teachers record students’ attendance and achievement in their diaries and these records inform parent-teacher meetings. This is good practice.
The subject plan in MTW should adopt a cross-curricular approach in collaboration with TG and Metalwork to compensate in a practical way for the shorter time allocation for the individual technology subjects in first year.

A detailed health and safety statement should be provided for the woodwork rooms based on an analysis of risks specific to these rooms and should be included in or appended to the school’s health and safety policy.

The workshop rules, already commendably translated into two eastern European languages, should also be translated into Irish.

The teachers of MTW should collaborate in identifying common marking-out procedures and common methods of tool use that are in line with accepted educational practice.

Post-evaluation meetings were not held with the teachers of CS and MTW or the principal or deputy principal at the conclusion of the evaluation due to their unavailability.

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