

Hockerill Anglo-European College

Technology

Years 10 & 11

2010-2012

Pathway 1 and 3 only

Students on Pathway 1 and 3 will study 6 hours per cycle and must choose either a Design Technology subject (Electronic Products, Food Technology, Graphic Products, Resistant Materials, Textiles Technology), ICT or Music Technology. The corresponding certification for each subject is explained below.

Pathway 2 and 4 only

Students on Pathway 2 or 4 will only study four hours per cycle of Arts and four hours of Technology and will therefore either be entered for the AQA Short Course (Controlled Assessment 60%, Examination 40%) or Full Course depending on performance.

During Year 10, students will broaden the skills and knowledge learnt at Key Stage 3 through a series of short tasks that combine Graphics with Resistant Materials and involve a strong element of CAD/CAM. Students will be expected to work in teams as well as individually. In Year 11, students will tackle one design brief provided by the exam board and carry it through the whole design process to completion. In the summer, there will be a written examination.

I.B. Middle Years Programme

Although at the end of Year 11 work will be assessed using examination board criteria (see below), the above courses will be taught following the aims, objectives and criteria of the I.B. Middle Years Programme, which are detailed for your information at the end of this section.

Teaching Staff

Design Technology:	Mr. A. Russell	Head of Design Technology Department Resistant Materials
	Mr. A.S. Whiteley	Pastoral & Learning Co-ordinator Electronic Products
	Mrs. F. Whiteley	Food Technology
	Mr. J. James	Head of Art Department Graphic Products
	Mrs. R Abraham	Textiles Technology
	Mr. G. Dinwiddy	Graphic Products
ICT:	Mrs. R. Davis	Head of ICT Department
Music:	Mr. P. Foulkes	Director of Music
	Mr. O. Bond	Music

Pathway 1 and 3 only

DESIGN TECHNOLOGY - GCSE (AQA)

Design Technology is able to offer a wide selection of options for students to follow to full GCSE certification:

Electronic Products
Food Technology
Graphic Products
Resistant Materials
Textiles Technology

Design Technology is an exciting subject that spans the curriculum, drawing on and linking a range of other subjects. It is principally concerned with identifying needs, generating solutions in the form of designs, planning and making, before finally testing and evaluating them.

As of September 2010, Design Technology on Pathways 1 and 3 will be delivered in 6 lessons per cycle, including at least one double lesson for practical work. During Year 10, the lessons will primarily focus on improving and widening students' skills bases and subject-specific knowledge through a mix of shorter design/make activities and theory sessions. During Year 11, students will tackle one brief set by the exam board, completing the entire Design Cycle in college according to AQA's Controlled Assessment Policy (60% of GCSE). Finally, students will sit a 2-hour paper (40% of GCSE) in the summer, which will include a brief design activity.

Electronic Products. Students will extend their knowledge of electronic components to solve design problems. Specific areas of study will include prototype circuit modelling with discreet components, the use of computer-aided design to enable printed circuit boards to be developed and constructed, fault finding and testing. Success at Key Stage 4 will rely on a thorough understanding of the design and make process.

Food Technology. Food Technology involves learning about foods, ingredients, processes and techniques. By experimenting, testing and investigating products, students will have an insight into how products are made in industry, as well as in a test kitchen. The course gives students an opportunity to be creative when designing new products whilst at all times developing skills which enable them to make high quality food products. There is a focus on understanding about diets and health and how to make choices as consumers. When completing their controlled assessment task in Year 11, the students follow the design process as they work on their design task. The final individual design portfolio is a reflection of the student's application and effort throughout the course and should clearly chart their progress throughout the whole design task.

Graphic Products. Students opting for Graphical Products will build on the core graphical skills and the course will be focused on topics such as technical illustration (both by hand and using CAD); nets; paper and card engineering; smart materials; packaging; and printing. The course also studies a small number of key designers and students will be expected to know and understand their work and style. CAD/CAM is used heavily and students will use Photoshop and 2D Design extensively. During Year 10, students will work on one large project and several smaller ones, as well as studying theory. Project work will be undertaken individually, but research, presentations, and designing may sometimes be done in pairs or groups. In Year 11, students will choose one of the exam-set design briefs for their assessed major project. At the end of Year 11, the work is exhibited to the rest of the College.

Resistant Materials Students will be able to develop graphical and practical skills, including CAD/CAM, more fully. During Year 10, students will complete up to 7 projects of varying lengths using the mediums of wood, metal and thermoplastics. For each project, relevant areas of knowledge are covered and suitable technical drawing techniques are taught. The course is predominantly practical and the projects have been designed so that every graphical technique, software package, hand tool and piece of machinery in the department is experienced before students choose one of the

exam-set design briefs for their assessed major project in Year 11. At the end of Year 11 the work is exhibited to the rest of the College.

Textiles Technology. Students are encouraged to consider technological advances in textiles as well as building up traditional skills, knowledge and understanding. Lessons involve a mixture of textiles theory and practical work. During year 10 students will experiment with dyes, fibres, threads, yarns, fabrics and components to add colour, pattern, shape and texture to design concepts. Students are encouraged to make creative and exciting pieces of textiles, before choosing one of the exam-set design briefs for their assessed major project in Year 11. At the end of the course the work is exhibited to the rest of the College.

If students are unsure about their Design Technology subject choice, they are advised to see the relevant member of staff as soon as possible.

COMPUTER TECHNOLOGY – AIDA (EDEXCEL)

The qualification followed at Key Stage 4 is the Award in Digital Applications (AIDA). It is equivalent to one GCSE. It requires students to study some of the practical uses of computer technology in the modern world and to apply them in an integrated assignment (called a Project Brief by the awarding body) which they must plan and monitor themselves. An ability to **organise workloads** and to meet **deadlines** is central to success in this qualification.

AIDA consists of a single unit called “Using ICT”. To meet the requirements of this unit, students use the standard suite of software applications: word processing, spreadsheet, database, presentation and web-authoring programs.

Time management is at the heart of this qualification. Students learn how to manage projects, allocating time and resources to different stages of a complex task. The Project Brief for the coursework requires students to plan for an event (for example, a Charity Event, or a Student Conference on Healthy Eating), obtain information through research and surveys, analyse the data and make recommendations for future action. Only then would they use ICT to produce the necessary documentation required by the project.

Design, planning, testing and evaluation represent a substantial part of the course. Students who choose this option must understand that **they do not spend all their time** using computers. They must be prepared to do a lot of paperwork and study the effectiveness of different publications in targeting the stated audience. This is an approach that has been started in Key Stage 3 and is developed to a much greater extent at Key Stage 4.

Organisation is crucial. There is no end of course examination. All work is ongoing coursework; students must not get behind; they must not lose any part of their work. Every piece of work matters and students must be prepared to show determination, commitment and enthusiasm if they are to keep on top of the work. Students who struggle with organisation and deadlines should consider carefully whether or not this is an appropriate option choice as it is unlikely to meet their needs.

Assessment The final e-portfolio is marked internally; coursework marks are sent away for moderation by the EDEXCEL examination board.

Footnote: Students frequently ask whether the qualification involves programming. This is not part of the qualification itself; however, there is an end-of-unit self study course in computer programming for students who complete the qualification ahead of the Easter deadline in year 11.

MUSIC TECHNOLOGY - ADVANCED SUBSIDIARY GCE (EDEXCEL)

(By invitation only, following consultation with the Director of Music, Mr. P. Foulkes)

Why Music Technology?

This syllabus plays to the strengths of the Department, which is well equipped with 15 enhanced multimedia PCs and a high quality digital and analogue sound recording studio. The Edexcel Music Technology syllabus offers a course which concentrates less on the academically rigorous side of music at this level, and more on the application of technology to music. We are offering the syllabus as a two-year course leading to the AS-level exam. 70% of the assessment is coursework-based.

How is Music Technology taught at Hockerill?

The sound recording section is taught by a weekly seminar and an afternoon practical session. The other components are taught in class time, involving formal classes, student-led presentations, workshops and one-to-one tutorials.

Who takes Music Technology?

Since a fairly high degree of musical literacy is needed, those taking the course will need to display a good level of proficiency on an instrument and some keyboard skills. You need to be comfortable and confident with computers, as most components use them as a tool to record and manipulate musical information. The qualification will be advantageous to those considering work in media or any aspect of the music industry. As a subsidiary it fits well with almost any other subject combination, and for this reason is left out of the normal blocks. This allows maximum flexibility in accommodating as many students as possible who wish to enrol

Syllabus

There are 3 units:

- (1) **Recording (40%)**
You will be required to submit two recordings which you have engineered: one, a two-track stereo recording of a Western classical piece using ambient recording techniques, and the other, a four-track recording, most likely pop or jazz, using close microphone techniques and / or direct inject units.
- (2) **Arranging and improvising using Technology (30%)**
You will submit two MIDI sequences: one of an arrangement of a short melody or folk tune, and the second, an improvised arrangement based on a popular or jazz stimulus, developed aurally, using technology to record and structure the musical ideas.
- (3) **Listening and Analysing (30%)**
A formal two-hour examination in which you will have to demonstrate your ability to listen to unfamiliar music and to analyse musical, technical and stylistic features. You will have to recognise musical features and elements and to consider the impact of music technology on the music.

Frequently Asked Questions

Q: What skills do I need for this course?

A: The MIDI sequencing paper requires competence in reading musical notation, and decisions need to be made about the artist's interpretation of the music for a good mark to be awarded. There are also technically quite demanding aspects to the listening paper. A GCSE in Music will certainly be a distinct advantage, as will some competence on a keyboard. You will spend a fair amount of time working with electronic equipment and computers, so you need to be techno-friendly!

Q: What else can I do outside class time to enhance the course?

A: Course participants will be strongly encouraged to be a part of an ensemble (which has demonstrable benefit for the Listening paper) and to take a leading role in all recordings produced at College. Taking instrumental lessons will also confer an advantage.

I.B. Middle Years Programme

MYP technology aspires to develop creative problem solvers who are caring and responsible individuals, able to respond critically and resourcefully to the demands of the increasingly technological society and to appreciate the importance of technology for life, society and the environment.

Aims

The aims of any MYP subject and of the personal project state in a general way what the teacher may expect to teach or do, and what the student may expect to experience or learn. In addition they suggest how the student may be changed by the learning experience.

The aims of the teaching and study of technology are to encourage and enable students to:

- develop an appreciation of the significance of technology for life, society and the environment
- use knowledge, skills and techniques to create products/solutions of appropriate quality
- develop problem-solving, critical- and creative-thinking skills through the application of the design cycle
- develop respect for others' viewpoints and appreciate alternative solutions to problems
- use and apply ICT effectively as a means to access, process and communicate information, and to solve problems.

Objectives

The objectives of any MYP subject and of the personal project state the specific targets set for learning in the subject. They define what the learner will be able to do, or do better, as a result of studying the subject. The design cycle is a model and it is intended to be the central tool to help students to create and evaluate products/solutions in response to challenges. The MYP technology design cycle consists of four major stages and these relate to the objectives of the course.

- **Investigate**
Students **identify the problem to be solved.**
- **Design**
Students **design the product/solution.**
- **Create**
Students **use appropriate techniques and equipment.**
- **Evaluate**
Students **evaluate the product/solution.**
- **Attitudes in technology**
This objective is set in the context of the technology class but will pervade other subjects and life outside school. It includes notions of safety and responsibility when working in technology as well as respect for and collaboration with others and their shared environment.

Criterion A: investigate

Maximum 6

Investigation is an essential stage in the design cycle. Students are expected to identify the problem, develop a design brief and formulate a design specification. Students are expected to acknowledge the sources of information and document these appropriately.

“The student **explains** the problem, **discussing** its relevance. The student critically investigates the problem, **evaluating** information from a **broad range of appropriate, acknowledged** sources. The student describes **detailed** methods for appropriate testing to **evaluate** the product/solution against the design specification.”

Criterion B: design

Maximum 6

Students are expected to generate several feasible designs that meet the design specification and to evaluate these against the design specification. Students are then expected to select one design, justify their choice and evaluate this in detail against the design specification.

“The student generates a **range of feasible** designs, **each evaluated** against the design specification. The student justifies the chosen design and **evaluates** it fully and critically against the design specification.”

Criterion C: plan

Maximum 6

Students are expected to construct a plan to create their chosen product/solution that has a series of logical steps, and that makes effective use of resources and time.

Students are expected to evaluate the plan and justify any modifications to the design.

“The student produces a plan that contains a **number of detailed, logical** steps that describe the use of resources and time. The student critically evaluates the plan and justifies any modifications to the design.”

Criterion D: create

Maximum 6

Students are expected to document, with a series of photographs or a video and a dated record, the process of making their product/solution, including when and how they use tools, materials and techniques. Students are expected to follow their plan, to evaluate the plan and to justify any changes they make to the plan while they are creating the product/solution.

Students will sometimes embark upon a very ambitious project, or they may encounter unforeseen circumstances. In some circumstances a product/solution that is incomplete or does not function fully can still achieve one of the levels awarded for this criterion.

“The student **competently uses** appropriate techniques and equipment. The student follows the plan and **justifies** any modifications made, resulting in a product/solution of **appropriate** quality using the resources available.”

Criterion E: evaluate

Maximum 6

Students are expected to evaluate the product/solution against the design specification in an objective manner based on testing, and to evaluate its impact on life, society and/or the environment. They are expected to explain how the product/solution could be improved as a result of these evaluations.

Students are expected to evaluate their own performance at each stage of the design cycle and to suggest ways in which their performance could be improved.

“The student evaluates the success of the product/solution in an objective manner based on the **results of testing**, and the **views of the intended users**. The student provides an evaluation of his or her own performance **at each stage of the design cycle** and suggests improvements. The student provides an appropriate evaluation of the **impact** of the product/solution on life, society and/or the environment.”

Criterion F: attitudes in technology

Maximum 6

This criterion refers to students' attitudes when working in technology. It focuses on an overall assessment of two aspects:

- personal engagement (motivation, independence, general positive attitude)
- attitudes towards safety, cooperation and respect for others.

By their very nature these qualities are difficult to quantify and assess, and assessment should therefore take into account the context in which the unit of work was undertaken.

“The student **consistently** displays a satisfactory standard in **both** of the aspects listed above.”