

ST NATHY'S COLLEGE  
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Subject Department  
Plan

For

2009/2010

Materials Technology

(Wood)

# 1. Subject Aims

- (a) To develop a creative approach to problem solving in the design process through designing, making and evaluating, and to promote initiative, enquiry and discrimination
- (b) To stimulate the development of a range of manipulative skills through processing wood and other materials
- (c) To contribute to the development of graphic and other appropriate communication skill
- (d) To promote technological awareness and the exercise of value an aesthetic, technological and economic nature.
- (e) To encourage self-confidence, enthusiasm and a sense of achievement, through the design and execution involved in practical project work
- (f) To encourage the acquisition of a body of knowledge appropriate to wood craft and technology through analysis, synthesis and realisation.
- (g) To contribute to the pupil's appreciation of ecological and environmental factors and use of natural resources.

## 2.2 Course Objectives

Pupils will:

- Acquire knowledge and understanding of the problems associated with the process of designing.
- Work within imposed or recognised constraints of materials, cost, time, resources and skills
- Derive satisfaction and confidence from designing, making and evaluating projects

- Acquire knowledge and skills associated with jointing techniques, fasteners, fixtures and adhesives.
- Display appreciation for the character of wood and other materials through appropriate selection and processing.
- Interpret given data and demonstrate graphical and other appropriate communication skills relating to artefacts or systems using appropriate media
- Plan the production of specified and non-specified solutions
- Appropriately finish artefacts in both surface and applied finishes.
- Appreciate the inter-relationship between wood-technology and the environment and technology in general and be aware of relevant technological developments
- Have a knowledge and appreciation of trees in relation to climate, the eco-system and the environment
- Apply safety standards in planning, experimenting and making and in the use of hand and powered tool, equipment and materials.

### SUBJECT AIMS, (First Year)

To introduce the students to the basic skills of Woodwork, to develop skills in the safe use of hand tools. and some portable power tools in a safe manner and organised manner..

To introduce students to drawing simple orthographic projection, pictorial drawing and freehand sketching.

To learn the name parts and uses of the basic hand tools and other equipment,

To make students aware of all health and safety measures in the woodwork room.

## **Subject Co-ordinator:**

**Mr. Oliver Lennon.**

## **Subject Teachers:**

**Mr. Joseph Keville.**

**Mr. Oliver Lennon.**

**Ms. Geraldine Gildea.**

**Mr. James Howely.**

## **Facilities**

**Two fully equipped woodwork rooms, catering for junior and senior classes**

## **Time Allocation:**

### **First Years:**

**Three classes per week as follows**

**One double class and one single class.**

### **Second Years:**

**Four classes per week as follows**

**One double class and two single classes.**

### **Third Years:**

**As per second years**

## **Option Structures:**

In first year two classes of practical one class of theory per week. For second and third years, three classes of practical one class of theory per week.

## **Timetabling:**

Having the double practical class in the morning would be more desirable than in the afternoon as each morning period is 40 minutes as compared to 35 minutes in the afternoon. Great care is taken in timetabling to ensure both room are used to the maximum however priority of use is always given to exam classes.

## **Grouping of Pupils (Mixed Ability, Streaming, Gender)**

There is no streaming in place for M.T.W. classes, pupils are grouped on a mixed ability basis and the subject is open to boys and girls.

## **Students Access to subject / Level:**

All first year student may opt to take M.T.W .there are no restrictions normally, However if a student presents a serious health and safety hazard to him or herself or to other students it may be necessary to consider his or her inclusion in the class . Second year students may opt to continue with the subject or the may opt out of the subject. In first year we usually have three to four classes, in second and third year this is usually reduced to two to three classes.

## **Class Organisation:**

Students are assigned to a specific bench, four students per bench, each vice is numbered and each student is given a vice. Tools are stored in central lockers, students must replace tools correctly at the end of each class, to avoid accidents all health and safety measures must be observed, to this end tidying up five minutes before the end of a practical class is recommended.

Students work pieces are named and stored securely in lockers.

## **Textbooks and Course Materials:**

### **1<sup>st</sup> Year:**

No text book required in first year.

- a. One hardback science copy.
- b. Materials technology wood workbook.
- c. Drawing equipment and pocket folder.

## **2<sup>nd</sup> Year.**

In addition to a, b, c, each student will require the most recent addition of

Wood Materials Technology. By M.Cross. (Edco)

## **3<sup>rd</sup> Year.**

Same as for 2<sup>nd</sup> year plus past Exam Papers

## **Planning for students with Special Needs:**

In practical classes students with Special needs do the same programme of work; however the projects can be simplified eg (using simpler methods of jointing wood, using nails and screws instead of joints)

Student with drawing difficulties are handed out the drawings and asked to copy them.

In theory classes students with reading or writing difficulties can leave the class to attend the special needs teacher. (This to be arranged in advance)

## **Cross – curricular Planning:**

Where possible Cross- Curricular involvement generates great interest and increases the learning experience and frequently occurs .This can be achieved in areas like Technical Graphics, Materials Metal, Maths,Science,Geography,Art, Computer etc etc

## **Subject planning for a Culturally Diverse Society.**

Planning for a culturally diverse society requires a lot of thought; we must be sensitive to the need, of all students in our class.

### **Effective Teaching Methodologies:**

The following model is used at St Nathy's

All students work from a drawing either drawn by them selves or handed out. For planning and designing group work and brainstorming is often a desirable approach.

**Teacher Demonstration: followed by students own work.**

All students are encouraged to complete projects to the best standard they can achieve, including varnishing.

All work is marked, signed and dated by the teacher

### **Range / variety of resources:**

- Two well equipped Woodwork rooms.
- Access to a wide variety of materials.
- O.H.P. in both rooms.
- P.C. and internet access in both rooms.
- Posters.

- Display areas.

### **Availability/ Use of ICT Facilities:**

- Internet access is available
- Availability of D.C.G room for some class periods in the year/ solid works drawing etc.

### **Provision of Health and Safety Requirements:**

- All health and safety guidelines are in place.
- Students are informed of same.
- H &S notices are in place.
- Dust extraction systems in place.
- Adequate amount of KILL switches in place.
- Personal H&S equipment in place. Mouth, ear ,eye etc.

## Curriculum Content -

### Long Term Planning.

#### Year 1. Drawing & Practical

1	Sawing at 90degrees ,draw & make D & M	4 classes
2	Sawing to depth & chiselling (D & M)	4 „
3	Kitchen equipment holder D&M	4 „
4	Cargo boat „	6 „
5	Sawing & trenching at an angle „ Scissors rack	4 „
6	Key rack „	4 „
7	Aeroplane „	6 „
8	Cross halving joint on edge „	4 „
9	Pot stand/kitchen roll holder „	6 „
10	Cross halving joint on flat „	4 „
11	Tee halving joint „	4 „
12	Wooden cross etc „	6 „
13	Housing joint „	4 „
14	Mobile phone holder „	6 „

#### Year 1 Theory

The first year theory programme involves the study of

1. All health and safety measures associated with using hand tools, working in the woodwork room, personal safety, correct behaviour in the woodwork room etc.
2. Identifying hand tool, hand held power tools and equipment, naming the parts, uses, drawing diagrams of tools and writing simple notes on same.

## **Curriculum Content.**

### **Year 2. Drawing / Practical and Theory.**

The second year programme consists of doing a number of the following exercises followed by an artefact using similar jointing methods depending on the student's ability.

#### **Drawing**

All exercises are drawn to scale and students work from a drawing in the manufacture of the artefact.

#### **Exercises**

The following include some of the exercises covered.

Bridle joint, mitre bridle joint, mortice & tenon joint on flat . M & t on edge, Haunched m & t, single box dovetail, twin dovetail, butt jointing using panel pins, screws, biscuit jointer, housing joints stopped and through etc.

Introduction to lathe work, laminating, inlaying and carving.

#### **Projects**

Small tool box, cutlery tray, kitchen roll holder, bird house, plant holder, book stand, book end, small bathroom cupboard, spice rack, fireside stool, turned lamp, wall mirror,

#### **Theory (one class period)**

Students work from the text book in class, first reading through the chapter and underlining key areas and later having them explained by the teacher.

Notes and neat well presented diagrams appropriately coloured are then taken, home work is then given and corrected the following week.

## **Topics covered,**

**Trees, wood ,timber/ softwood, hardwood, conversion of timber, seasoning, diseases and defects, timber preservation, manufactured boards,**

**Jointing methods**

**Metals**

**Plastics**

**Woodturning**

**Carving / shaping**

**Laminating/ bending**

**Veneering / inlay etc.**

## **Year 3.**

**From September to the end of October the emphasis is on preparing the students for the M.T.W COURSE WORK,**

### **Theory**

**Stages in the design process**

**Report writing &presentation**

### **Practical**

**Revision of jointing methods**

### **Drawing**

**Drawing out some question one's higher level and questions two ordinary level from past papers with a view to proper presentation of orthographic projection.**

## **Practical coursework**

**Three class periods per week**

**From November to Christmas the focus shifts to the project.**

**Analysis of brief**

**Investigation & research**

**Design ideas / solutions**

**Sketches and working drawings**

**Cutting lists**

**Model/ proto type**

**From January to early April the manufacture of the project takes place.**

**Marking out, cutting out. assembling and finishing.**

**Final evaluation and conclusion.**

**Project and folio completed labelled and presented for examination towards the end of April.**

## **Theory.**

**Theory continues for one class period per week through out the year,**

**Topic covered**

**Adhesives**

**Finishes**

**Fasteners and fittings**

## **Revision**

**Use of past exam papers especially in the month of May when the projects are completed**

## **NOTES**

