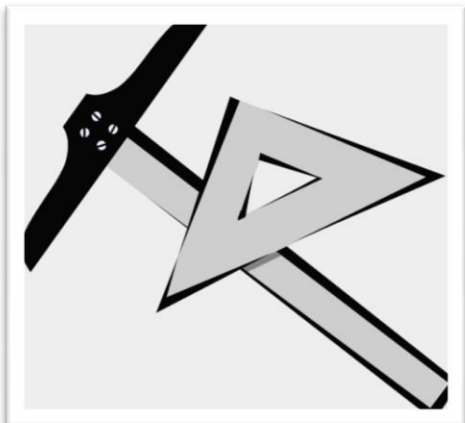


Design and Communication Graphics

Scheme of Work 2014-2015



*Ballyhaunis
Community
School*

Mission statement

“The DCG department aspires to provide a safe, stimulating environment where all students can develop their practical and academic skills to fulfil their goals”

Aims

- To develop the capacity and ability of students in the area of visuo-spatial reasoning.
- To apply appropriate thinking skills in the realisation of solutions.
- To develop appropriate graphical skills for communication.
- To develop the use of Information Technology .
- To develop the cognitive and practical skills associated with communication graphics, problem solving and critical thinking.
- To develop appropriate technical skills for the construction of drawings.
- To provide a learning environment where students can plan, organise and present appropriate design solutions using a variety of skills, techniques and media.
- To provide a basis for lifelong learning.
- To develop an appreciation for, and understanding of, aesthetic principles and their importance in design and the human environment.

Objectives

On completion of their studies students should be:

- Familiar with the principles, concepts, terminology and methodologies associated with the graphics code.
- Able to apply the principles of both plane and descriptive geometries to the solution of a variety of concrete and abstract graphic problems.
- Able to produce neat and accurate drawings that comply with internationally recognized standards and conventions.
- Able to model, in two and three dimensions, graphic design problems and solutions, utilising a range of appropriate techniques and media with confidence and discernment.
- Appreciative of the facility which the graphics code provides, in the solution of problems and in the visual communication of data.
- Able to utilise freehand sketching, both two and three dimensional, as a means of communication and as an aid to spatial reasoning and refinement.
- Able to utilise a variety of rendering and presentation techniques in the solution of graphic design problems, in both two and three dimensions.
- Competent and confident in the application of CAD and other appropriate Information and Communications Technologies (ICT) in the solution, modelling and presentation of graphic design solutions, in two and three dimensions.
- Able to interpret verbal, written and mathematical information, and to represent it graphically.

Staff : Mr Patrick McGarry(Department Head)
Mr Patrick Noone
Mr Sean Mc Hugh
Mr Colin Quinn

Room : D1

Equipment : Overhead Projectors, Data Projector, Desktop Computer x 5, Laptop Computer x 16, Visualiser, A3 Scanner, A4 Printer x 2, A3 Printer x 2. Digital Camera

Course content

1. Core Areas of Study

- Plane and Descriptive Geometry
- Projection Systems
- Plane Geometry
- Conic Sections
- Descriptive Geometry of Lines and Planes
- Intersection and Development of Surfaces

- Communication of Design and Computer Graphics
- Graphics in Design and Communication
- Communication of Design
- Freehand Drawing
- Information and Communication Technologies

2. Optional Areas of Study

- Applied Graphics
- Dynamic Mechanisms
- Structural Forms
- Geologic Geometry
- Surface Geometry
- Assemblies

Course assessment

The syllabus will be assessed in relation to the syllabus objectives and the specified student learning outcomes. All material specified within the areas of study is examinable. There are two assessment components

- A Student Assignment (40% of marks, of which CAD will form a significant and compulsory component)

- A terminal examination paper (60% of marks)

The purpose of the *Student Assignment* is to assess those elements of the course that cannot be readily assessed through the terminal examination, in particular elements of design and communication. The assessment criteria applying to completed Higher and Ordinary level assignments will differ.

The learning outcomes related to the course assignment will result in students being able to:

- Represent design and communication information through sketches, drawings, CAD and other ICT applications
- Use appropriate presentation techniques, including colour, rendering and sketching, to represent an artefact and/or design
- Produce appropriately dimensioned 2D and 3D drawings and models using CAD
- Appreciate, analyse, evaluate and modify artefacts from a design perspective
- Demonstrate design and visualisation skills and techniques.

The assignment will take approximately 40 hours to complete. The completed assignment may take the form of:

- ❖ A design investigation and modification

or

- ❖ A design investigation and concept design

Homework policy

Given the technical nature of this subject, it is the policy of the technology department that homework is necessary to reinforce work covered in class. It is expected that homework is completed each week. A record of student's homework is also compiled.

Assessment

A record of achievement is compiled for each student through :

- Attendance record
- Grading of tasks
- Parent teacher meetings
- Completion of homework and class-work assignments
- Mid-term and end-of-term assessment

Information Technology

Information technology is incorporated as much as possible into both the teaching and learning of the subject. Power point presentation is used in class. The use of visualisers is also incorporated into the teaching of more intricate skills. Students are expected to use the internet to research and gain better understanding of material being covered. Students are encouraged to use the I.T. resources available on subject related websites such as T4 and E.T.T.A.

Forth Year Scheme of Work

WEEK	TOPIC	DESCRIPTION	SYLLABUS
1-3	<i>Orthographic Projection</i>	Revision of basic fundamentals of topic Projecting points between views Drawing curved surfaces	Core
4-5	<i>Auxiliary Projection</i>	Plans, elevations. Curved surfaces. Sectional views	Core
6-7	<i>Isometric/Oblique Projection</i>	Pictorial Views	Core
8-10	<i>Advanced Pictorial Drawing</i>	Axonometric, Diametric, Trimetric, Isometric scale	Core
11-13	<i>Perspective Projection</i>	One-point, Two-point perspective Auxiliary vanishing points	Core
14-15	<i>Oblique Plane (1)</i>	Introduction	Core
16-18	<i>Intersecting Surfaces</i>	Finding points of interpenetration using edge views, cut views, true shapes etc.	Core
19-21	<i>Lamina/Planes</i>	Representing the elements of geometry Concepts of viewing lines, planes, from different views, edges Section planes etc.	Core
22	<i>I.T. Skills. Solidworks Introduction</i>	Computer basics, file management. Inserting pictures, tables, charts etc. Solidworks Interface Commands introduction	Assignment
23-24	<i>Solidworks</i>	Features, Sketch, toolbar commands Memo Block, Calculator, T-Square, Calculator exercises Drawing sheet layout	Assignment
25-27	<i>Solids in Contact (1)</i>	Cones, Spheres, Cylinders in contact Tangency, points of contact, loci, internally tangential solids etc	Core
28-31	<i>Dynamic Mechanisms</i>	Involutes, Helix's, Special curves, Loci, Linkages, Cams, Gears	Options

Fifth Year Scheme of Work

WEEK	TOPIC	DESCRIPTION	SYLLABUS
1-4	<i>Conic Sections</i>	Recognise features common to all Conic sections, Ellipse, Parabola, Hyperbola Eccentricities, conic ratio's, tangents, centre of curvatures. Double hyperbola	Core
5-8	<i>Developments/ Envelopments. Assignment</i>	Prisms, curves surfaces. Cones and pyramids. Oblique solids. Envelopments Assignment research	Core
9	<i>Sketching Techniques/Assignment</i>	Shading, rendering Use of different drawing media	Assignment
10-15	<i>Student Assignment</i>	Higher Level = 14 pages Ordinary Level = 12 pages	Assignment
16	<i>Projection completion</i>	Final check list Bind folder, burn CD	Assignment
17-20	<i>Assemblies</i>	Reading a diagram Orthographic recap Hatching – how/what to hatch Sectional views	Options
21-23	<i>Oblique Plane (2)</i>	Exam Papers	Core
24-25	<i>Perspective (2)</i>	Exam Papers	Core
26-27	<i>Interpenetration (2)</i>	Exam Papers	Core
28-31	<i>Exam Preparation</i>	Revise paper layout Suggested timing Recap all topics	Core/Options

