

Materials Design and Technology

Resource list—Multimedia

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Materials Design and Technology

RESOURCE LIST—MULTIMEDIA

Design

Elements and Principles of Design

Video Education Australasia: 2004
30 minutes

This program explains the elements used in visual design and then explains how these can be arranged and organised using the principles of design. It draws on real life examples used in 2D visual communications and designs: poster, information, web and magazines and 3D: product and built environments. Diverse descriptions of each element and principle using both theoretical and practical explanations are included in this program. Examples of the impact of the use of the elements and principles including traditional theories and how they are successfully used throughout the evolution of design are provided throughout this presentation.

Inclusive Design

VEA: 2010
26 minutes

How Industry Designs for the User

How do professional designers research their potential market to ensure they come up with designs that meet the needs of users and are inclusive, irrespective of age or ability? This program uses three examples drawn from: textiles (a smart cushion for care homes), resistant materials (children's bikes) and graphics/packaging (mobile phone box/manual). It looks at how designers consider the values and needs of users, how they determine the intended market or user for their product and how they make use of ergonomics and anthropometrics. It also discusses how demographic change is a major challenge to the design profession, increasingly the effects of a rapidly ageing population and a growing number of people with disabilities.

Safety

Safety in the Workshop, (general wood and metal workshops)

VEA: 1998
16 minutes

Safety in the Workshop' illustrates key concepts relating to workshop safety. We look at protecting the body when using hand tools as well as fixed machines (lathe, bench drill, disk sander, bandsaw, circular saw, jointer, thicknesser, grinder), and portable hand tools (saw, drill, router, sander, jigsaw, angle grinder, planer). We also cover electrical safety and general housekeeping.

Safety in the Workshop - Avoiding Accident and Injury (woodworking)

VEA: 2009
22 minutes

The workshop is an inherently dangerous place and as such safety and safe work practices must be the first priority in the layout of a workshop, and always in the minds of those who use it. This Australian-made, curriculum fit program examines the main considerations when it comes to safety in the workshop. Using a woodworking workshop to demonstrate universal safety principles, Philip Ashley and Chris Beck from Holmesglen TAFE stress the importance of using safety equipment, setting up a well-designed work area, correct use of hand and power tools, ongoing maintenance and first aid.

Chapters: 1. Introduction; 2. Safety Equipment; 3. Work Area; 4. Hand Tools; 5. Power Tools; 6. Maintenance and First Aid; 7. Conclusion.

Metal

Metals

VEA: 2010
19 minutes

Practical Use of Materials

Metal is all around us. From the cars on the road to the staples we use in the office, metal is one of the most common, flexible and naturally occurring materials used in modern design. In this informative program we discuss the use of metal as a practical material in detail. We look at its origin, characteristics, where aluminium comes from, and its many uses. Two case studies are also provided that outline the processes involved in making goods out of metal to be used in industry. This program highlights to viewers the important role metal plays in the design and manufacture of new and existing products.

Machining: Cutting Material

VEA: 2004
28 minutes

This training program demonstrates the how and why of cutting materials. It covers a wide range of cutting processes including: power hacksaws, bandsaws, oxyacetylene, plasma arc, water jet, wire cut, laser beam and ultrasonic machining. The processes are fully explained with the aid of computer graphics.

Welding: Metallic Materials—Part A

VEA: 2004
20 minutes

This is Part A of a two part program on welding processes typically used in industry. The program examines the production of stick electrodes, manual metal arc welding, submerged arc welding, gas tungsten arc welding (TIG) – manual and automated, keyhole gas tungsten arc welding, resistance welding including projection and spot welding, laser beam welding and electron beam welding. The program shows, with the aid of computer graphics, how the processes work - their advantages, limitations and typical areas of application of each process.

Welding: Metallic Materials—Part B

VEA: 2004
29 minutes

This is Part B of a two part program on welding processes typically used in industry. The program examines gas metal arc welding (MIG), determination of pre-heat and the post heat treatment of welds, narrow gap welding, flux cored arc welding – gas and self shielded, plasma transferred arc welding, friction stir welding, oxy-acetylene welding and thermit welding. The program shows, with the aid of computer graphics, how the processes work - their advantages, limitations and typical areas of application of each process.

Textiles

Textiles

VEA: 2010
18 minutes

Practical Use of Materials

From top designer clothing lines to the Australian flag, these designs have been created from one of the most flexible and practical materials - fabric. In this program viewers are introduced to the world of textiles. We learn how textiles are categorised - their characteristics and properties; factors involved in sourcing textiles; the importance of testing fabrics; the dyeing of textiles; and how 'textile finishes' work. We also hear from a number of professionals who work in the textile industry. This program will aid budding designers in how to choose and use the most suitable fabric for their own end product.

Design: All About Textiles

VEA: 2010
20 minutes

Today there are many different types of textiles that are available to us, each with their different properties, strengths and range of uses. Getting to know their properties is vital for any student of textiles today. In this program interior designer Brandi Hagen showcases textile samples and explains different types of natural and synthetic fibres, fabric construction and surface designs. In this program we examine the properties of natural fibres such as cotton, flax, jute, sisal and bamboo; synthetic fibres such as nylon, polyester, rayon, acrylic and microfibers, and animal fibres such as wool and silk. We also look at fabric construction and surface designs.

Sew Cool

**VEA: 2010
43 minutes**

Discover how sewing can be 'Sew Cool!' In this excellent DVD resource we start off with the basics of sewing and take burgeoning designers all the way up to creating a stylish project of their own. Topics covered include: sewing tools and essentials, hand sewing, fabric selection, sewing techniques and rules, and sewing machine parts. Filled with clear examples and demonstrations, and presented by a real expert, this is a terrific introduction to the power of the thread and needle. The program also features comprehensive support notes and two sewing projects - a non-pattern and pattern project.

Wood

Timber: Production and Processing—Part A

**VEA: 2004
31minutes**

This is Part A of a two-part program on the production and processing of timber. The program includes computer graphics which demonstrate methods of sawing, the structure of a tree trunk and the drying process, and optical microscope and electron microscopic examination of timber structure. It covers classification and structure - hardwoods, softwoods; harvesting - clear felling, shelter trees, plantations; structure of a tree trunk; saw milling - back sawn, quarter sawn, radial sawn; drying of hardwoods; use of hardwoods - structural timbers, flooring, fine furniture.

Timber: Production and Processing—Part B

**VEA: 2004
33minutes**

This is Part B of a two-part program on the production and processing of timber. The program includes computer graphics of mechanical timber grading and the CSIRO's pilot MDF plant. It covers characteristics of commercial softwoods; plantation management – propagation, thinning, clear felling; milling, drying and grading; finger jointed clear grade mouldings; particle board; microwave modification of timber; glue laminates; engineered I beams; log veneers – plywood; laminated veneer lumber (LVL); decorative veneers; medium density fibre board – MDF

Other multimedia sources of information

Classroom Video Victoria 2011
Marcom Projects, Qld: 2006

<http://www.classroomvideo.com.au/>
<http://www.marcom.com.au/>