

## Subject Information Years 7 - 9 – Technologies

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The Western Australian Curriculum: Technologies Learning Area comprises two subjects:

- Design and Technologies
- Digital Technologies

In Design and Technologies, students create designed solutions as they learn about technologies in society. There are four different Design and Technologies contexts:

- Engineering Principles and Systems
- Food and Fibre production
- Food Specialisation
- Materials and Technologies Specialisation.

In Digital Technologies students are provided with practical opportunities to use design thinking and to be innovative developers of digital solutions and knowledge. Digital Technologies is a subject that has a specific curriculum and incorporates the application of ICT general capability.

Both of the Technologies subjects describe the distinct knowledge, understanding and skills which enable students to develop a comprehensive understanding of traditional, contemporary and emerging technologies.

There are two related strands:

- Knowledge and understanding
- Processes and production skills

The study of Technologies motivates young people and engages them in a range of learning experiences that are transferable to family and home, constructive leisure and community activities and the world of work.

Students in Years 7 and 8 must study Digital Technologies as well as at least one of the Design and Technologies contexts.

The study of Technologies is optional in Years 9 and 10.

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## SUBJECT DESCRIPTIONS 2022

		Year 7	Year 8	Year 9
<b>Design and Technologies</b>	<b>Food and Fibre</b>	Food and Fibre	Food and Fibre	
	<b>Food Specialisation</b>			Fun with Food*
	<b>Materials and Technologies Specialisation</b>	Design and Technologies Materials	Design and Technologies Materials	Wood*
				Metal*
				Caring for Kids and Me*
	<b>Engineering Principles and Systems</b>		Engineering Principles and Systems (By invitation only LEAP and A Grade Maths students)	Robotics*
				Industrial Systems*
				Dimensional Design
				Engineering Principles and Systems* (By invitation only LEAP and A Grade Maths students)
	<b>Digital Technologies</b>	Digital Technologies	Digital Technologies	Computer Animation
Computer Programming				

High cost subjects

## Year 7

### 7 DESIGN AND TECHNOLOGIES - FOOD and FIBRE (CODE 7HEC)

In Food and Fibre students learn about technologies in society and have opportunities to design and produce products and services.

This introductory subject provides students with skills to make healthy food choices by developing an understanding of basic nutrition and simple food preparation techniques. Students are also given the opportunity to select from a range of materials, tools and

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equipment to produce simple projects made by hand and with the use of the sewing machine. Students investigate the design process and evaluate a range of solutions.

### **7 DESIGN AND TECHNOLOGIES - MATERIALS (CODE 7DAT)**

This subject is an introduction to Design and Technologies using the basic materials of wood and/or metal. With the application of the design process, students create solutions using a range of basic construction skills. Students will be introduced to the safe and correct use of tools, machines and equipment. Students also have the opportunity to include graphical techniques to communicate ideas through sketching, modelling and perspective drawings.

### **7 DIGITAL TECHNOLOGIES (compulsory) (CODE 7CCO)**

Year 7 Digital Technologies focuses on developing understanding and skills in computational thinking. Students have opportunities to create a range of solutions such as interactive web applications or simulations. Students explore networked systems and acquire data from a range of digital systems. They design increasingly complex algorithms that allow data to be manipulated automatically.

## Year 8

### **8 DESIGN AND TECHNOLOGIES - FOOD and FIBRE (CODE 8HEC)**

This subject builds on the concepts, skills and processes developed in Year 7 Food and Fibre. Students will continue to explore the design process using creativity, innovation and enterprise skills. Students identify the sequences and steps involved in design tasks for both food and fibre and will evaluate advantages and disadvantages of a range of design ideas and technologies. Practical activities will centre around creating food products as well as designing and creating hand sewn and machine sewn products.

### **8 DESIGN AND TECHNOLOGIES - MATERIALS (CODE 8DAT)**

Year 8 Design and Technologies - Materials extends the understanding of skills, processes, materials and equipment required to design and produce individual projects in the Wood and/or Metal areas. Students are encouraged to be innovative, adaptable and reflective to create solutions for short and long term societal and environmental problems. Students will also broaden their knowledge of graphical representation techniques through annotated sketches, modelling and scaled drawings. There is an emphasis on establishing safety procedures that minimise risks when working with materials and tools.

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### **8 DESIGN AND TECHNOLOGIES - ENGINEERING PRINCIPLES AND SYSTEMS\*** (CODE 8ESP)

Prerequisite: LEAP student or A grade Maths

Students are introduced to engineering principles and systems in which they will have opportunities to investigate problems, develop a design process, research and evaluate different materials and devise solutions in a workshop setting. This course will require practical application of scientific and mathematical principles and understanding as part of the process of developing and maintaining solutions for an identified need or opportunity.

### **8 DIGITAL TECHNOLOGIES (compulsory)** (CODE 8CCO)

In Year 8 Digital Technologies, students focus on further developing understanding and skills in computational thinking through experiencing a wider range of information systems. Students investigate the properties of networked systems and their suitability and use for transmission of data types. They design increasingly complex algorithms that allow data to be manipulated automatically.

## Year 9

### **9 DESIGN AND TECHNOLOGIES - CARING FOR KIDS AND ME\*** (CODE 9CC)

In this subject, students study the world of children from 0-5 years in a fun and practical manner. Students learn about caring for themselves in all areas of their life as well as studying the physical, social and emotional needs of children. Practical projects will include preparing healthy food appropriate for young children as well as making a variety of items suitable for the growth and development of children.

### **9 DESIGN AND TECHNOLOGIES – DIMENSIONAL DESIGN** (CODE 9TGR)

The study of Dimensional Design enables students to build upon their graphic communication knowledge and improve their computer skills. It provides students with the opportunity to implement problem solving skills, to improve communication skills and to develop a knowledge of computer assisted drawing program and their applications. Students will work independently and collaboratively to manage projects using digital technologies in order to design solutions with given criteria.

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### **9 DESIGN AND TECHNOLOGIES - FUN WITH FOOD\* (CODE 9FD)**

Fun with Foods introduces students to a wide range of different foods. Students study how to choose and prepare food for enjoyment and good health. A variety of recipes are prepared, including recipes of their own design and choice. Students will explore and discuss adolescent food choices and the nutritional value of these choices. They will use a variety of preparation, production and presentation techniques as well as comparing commercial versus homemade food products.

### **9 DESIGN AND TECHNOLOGIES - INDUSTRIAL SYSTEMS\* (CODE 9IND)**

Students develop skills in engineering principles and systems by undertaking practical projects in the areas of mechanics, welding, electronics, pneumatics and hydraulics. Students work collaboratively to problem solve, investigate and analyse the characteristics and properties of materials combined with force, motion and energy to create solutions.

### **9 DESIGN AND TECHNOLOGIES - METAL\* (CODE 9MD)**

Students specialising in the field of metal will use a range of increasingly sophisticated technologies when utilising the design process to solve problems. They will work both independently and collaboratively to develop skills in the safe use of hand and power tools whilst maintaining a safe and effective workshop environment. Students will be given the opportunity to generate and interpret graphical drawings and represent their ideas as two and three dimensional plans.

### **9 DESIGN AND TECHNOLOGIES – ROBOTICS\* (CODE 9ROB)**

Robotics will cover the basic nature of robotic types and applications as well as the fundamental engineering components of robotic devices including electrical, electronic and mechanical. It will provide opportunity for students to learn how to give “intelligence” to autonomous robotic devices by using problem solving techniques, computer programming and coding.

Students will put knowledge into practice by using simulation software in the design and development process and by working in teams to program robots to accomplish set tasks.

### **9 DESIGN AND TECHNOLOGIES - WOOD\* (CODE 9WD)**

Students will develop greater depth of skills and understandings in the design, construction and evaluation of chosen projects using wood as the material specialisation. Students consolidate the correct and safe use of machinery and

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equipment and develop expertise in the use of hand and power tools. They will use problem solving strategies to extend skills, processes and techniques in this field.

### **9 DIGITAL TECHNOLOGIES – COMPUTER ANIMATION**

**(CODE 9CMM)**

Students develop and apply digital technologies skills in animation and multimedia by designing and building computer generated animations and interactive multimedia products incorporating digital video and capture, audio editing and authoring tools. This subject provides students with the opportunity to investigate, design, produce and evaluate solutions to multimedia problems as well as understand hardware and software systems used in multimedia and animation.

### **9 DIGITAL TECHNOLOGIES- COMPUTER PROGRAMMING**

**(CODE 9COM)**

This Year 9 course would focus on the concepts and skills needed for programming. It would provide students with opportunities to develop problem-solving abilities and technical skills as they learn how to diagnose and solve problems.

The course would provide students with practical and technical skills that equip them to function effectively in a world where these attributes are vital for employability and living in a technologically driven society.

### **9 ENGINEERING PRINCIPLES AND SYSTEMS\***

Prerequisite: LEAP student or A grade Maths

**(CODE 9ESP)**

Students will build and expand on engineering principles and systems in Year 9. With the use of the design process and their skills in maths and science, students will have opportunities to investigate problems, develop a design process, and improve existing solutions. Year 9 Engineering Systems and Principles will encourage students to apply their knowledge, practical skills and processes when using technologies and other resources to create innovative solutions, independently and collaboratively, that meet current and future needs.