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# ELECTRO- TECHNOLOGIES

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## B. STRAND RATIONALE AND PHILOSOPHY

Electro-Technologies, a strand in Career and Technology Studies, focuses on having students gain an understanding of electrical/electronic systems and subsystems. Students are motivated to learn by studying electrical/electronic systems in an activity-oriented environment. The strand is an excellent vehicle for students to acquire knowledge, skills and attitudes needed to adapt to a rapidly changing and expanding technological world.

Electro-Technologies enables students to problem solve system applications by working at a systems level before focusing on specific fundamentals. Once the concepts are established, the ideas are integrated and contextualized to create real applications.

The Electro-Technologies strand provides students with practical experiences related to the electrical/electronics industry. Within the philosophy of Career and Technology Studies, *students in Electro-Technologies will:*

- exercise safe work and environmental practices
- develop electro-technology literacy
- demonstrate the ability to interface various electrical/electronic components and systems
- develop problem-solving, design and decision-making skills
- develop relevant applied mathematics skills using algebra, trigonometry and geometry
- use scientific calculators and engineering notations
- demonstrate established procedures of operation as practised in the electrical/electronics industry
- demonstrate understanding of the use of software and hardware in the study of electrical/electronic systems
- develop the necessary skills and techniques to fabricate, modify and troubleshoot electrical/electronic systems and components
- demonstrate proficient use of test equipment
- demonstrate the differences between power, control, audio and digital systems
- develop basic competencies and skills that transfer to daily lives and career options
- develop leadership and teamwork skills

- develop knowledge, skills and attitudes required for the workplace and further education.

# STRAND ORGANIZATION

## DEVELOPMENTAL MODEL

The model depicts emphasis within the Electro-Technologies strand. The front face of the cube lists the themes and concepts that are integrated throughout the program. The right side indicates the learning contexts that will enable the student to meet the demands of daily living. The top of the cube depicts the anticipated outcomes which take the form of basic and career-specific knowledge, skills and attitudes that have been constructed by the learner.

## THEMES

The courses in Electro-Technologies are grouped according to the following themes:

- Fabrication and Service Principles
- Power Systems
- Computer Logic Systems
- Computer Networking Systems
- Communication Systems
- Robotic and Control Systems.

## LEVELS

The Electro-Technologies courses are organized into three levels of learning: introductory, intermediate and advanced. The introductory level provides students with the basic knowledge, skills and attitudes necessary for personal use. The intermediate level focuses on the transferable knowledge, skills and attitudes that apply to many sectors of the industry. At the advanced level, students learn more career-specific knowledge, skills and attitudes that prepare them for a career in electrical/electronics industry or for further education or training.

## CONCEPTS

Certain concepts are reinforced throughout the Electro-Technologies strand. These include safety and resource management, electrical/electronic fundamentals, real-world applications, fabrication and testing procedures, and problem solving. Emphasis will vary depending on course content, context and level.



