SENIOR YEARS

General Learning Outcomes

General Learning Outcomes

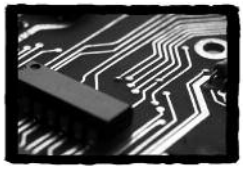
In Industrial Arts Curricula in Manitoba the General Learning Outcomes (GLOs) are grouped into three skill sets:

- **Fundamental Skills**—the skills basic for study in Industrial Arts
- **Personal Skills**—the skills basic for personal effectiveness and growth
- **Production Skills**—the skills basic for production and fabrication

Fundamental Skills and **Personal Skills** contain General Learning Outcomes that are common to all Industrial Arts strands.

Production Skills contain General Learning Outcomes that are focused to each individual Industrial Arts strand.

Drafting Design Technology



Electricity/Electronics Technology

Graphic Communication Technology

Metalwork Technology

Power Mechanics Technology

Woodwork Technology

Fundamental Skills

(the skills basic for study in Industrial Arts—common to all Industrial Arts strands)

General Learning Outcomes

GLO F1 **Technical Communication:** Communicate technical ideas and designs effectively and appropriately.

GLO F2 **Problem Solving:** Apply effective decision-making, problem-solving, and design strategies to a project. (Refer to Appendix B for a sample design/problem-solving process.)

GLO F3 **Information Management:** Effectively manage information.

Personal Skills

(the skills basic for personal effectiveness and growth—common to all Industrial Arts strands)

General Learning Outcomes

GLO P1 **Time Management:** Demonstrate responsibility in time management, task completion, and in meeting project criteria. (Note: based on the Conference Board of Canada's Personal Management Skills)

GLO P2 **Ethical Decision-Making:** Make ethical decisions concerning the impact of one's activities and the use of technology.

GLO P3 **Career Planning:** Develop an action plan relating personal aptitudes and abilities to occupational opportunities.

GLO P4 **Safe Practices:** Demonstrate safe practices with tools, machines, materials, and related processes. (Refer to: *Keeping Your Facilities SAFE: A Support Document for Industrial Arts Teachers,* Manitoba Education and Youth, 2003.)

GLO P5 **Positive Attitude:** Demonstrate positive attitudes to learning in Industrial Arts facilities.

GLO P6 **Teamwork:** Adapt strategies to work effectively, independently, or as a team member to complete a project.

Production Skills

(the skills basic for production and fabrication—focused to each individual Industrial Arts strand)

General Learning Outcomes for Each Strand

Drafting Design Technology

GLO DD1 **Tools and Equipment:** Identify and demonstrate proper use of tools, materials, and equipment utilized in drafting design.

GLO DD2 **Drawing Interpretation:** Recognize and interpret technical drawings.

GLO DD3 **Technical Sketching:** Employ technical sketching as a way of visualizing ideas.

GLO DD4 **Geometric Application:** Apply mathematics and geometry in completing technical drawings.

GLO DD5 **Production (Working) Drawings:** Use the design process and problem solving to create production drawings.

GLO DD6 **Applications:** Develop an understanding of drafting applications and current workplace practice.

GLO DD7 **Current Innovation:** Demonstrate an understanding of current innovation in drafting design processes, applications, and emerging new technologies.

Electricity/Electronics Technology

GLO EE1 **Tools and Equipment:** Identify and demonstrate proper use of tools, materials, and equipment utilized in electricity/electronics.

GLO EE2 **Circuit Construction:** Apply appropriate fabrication techniques to construct electricity/electronics devices.

GLO EE3 **Components:** Demonstrate the function of electricity/electronics passive and active components.

GLO EE4 **Laws and Theory:** Apply electricity/electronics laws and theory.

GLO EE5 **Circuits and Systems:** Identify and analyze basic electricity/electronics circuits.

GLO EE6 **Applications:** Develop an understanding of electricity/electronics applications.

GLO EE7 **Current Innovation:** Demonstrate an understanding of current innovation in electricity/electronics, processes, applications and emerging new technologies.

Graphic Communication Technology

GLO GC1 **Image Acquisition:** Demonstrate the principals and processes involved with image acquisition and creation.

GLO GC2 **Still Image Production:** Apply knowledge and practical skills to produce still image visual representations of ideas or abstract concepts.

GLO GC3 **Binding and Packaging:** Demonstrate and apply the knowledge and skills to finish a product for distribution.

GLO GC4 **Animated Images:** Apply knowledge and skills to produce animated images of ideas or abstract concepts.

GLO GC5 **Video Editing:** Create and edit video productions.

GLO GC6 **Current Innovation:** Demonstrate an understanding of current innovation in graphic communication processes, applications, and emerging new technologies.

Metalwork Technology

GLO MW1 **Metalurgy:** Demonstrate an understanding of metallurgy—science and processes.

GLO MW2 **Measurement and Layout:** Use metalworking measurement and layout tools correctly and efficiently.

GLO MW3 **Separation:** Apply separation processes to metal.

GLO MW4 **Fastening:** Apply fastening processes to metal.

GLO MW5 **Forming and Casting:** Apply forming and casting processes to metal.

GLO MW6 **Finishing:** Apply finishing processes to metal considering their environmental impact.

GLO MW7 **Current Innovation:** Demonstrate an understanding of current innovation in metalwork processes, applications, and emerging new technologies.

Power Mechanics Technology

GLO PM1 **Energy Conversion:** Demonstrate an understanding of the theory of internal combustion and alternate energy converters.

GLO PM2 **Engine Systems:** Identify and analyze various engine systems.

GLO PM3 **Electrical Systems:** Understand the basic electrical principles applied to power mechanics systems.

GLO PM4 **Mechanical Systems:** Identify and analyze the mechanical systems of an internal combustion engine.

GLO PM5 **Chassis Systems:** Identify and compare various automotive chassis systems.

GLO PM6 **Climate Control Systems:** Identify and analyze the climate control systems in an automobile.

GLO PM7 **Assembly/Disassembly Tools:** Demonstrate the use of tools and equipment in assembly and disassembly of mechanical components.

GLO PM8 **Diagnostic Tools:** Use diagnostic tools and methods to troubleshoot, diagnose, and repair power mechanical systems.

GLO PM9 **Environmental Impact and Current Innovation:** Demonstrate an understanding of current innovation in automotive industry, environmental impacts, and emerging new technologies.

Woodwork Technology

GLO WW1 **Wood, Products, and Processes:** Demonstrate an understanding of woodwork— woods, wood products, and processes.

GLO WW2 **Measurement and Layout:** Use woodworking measurement and layout tools, correctly and efficiently.

GLO WW3 **Separation:** Apply separation processes to wood.

GLO WW4 **Fastening:** Apply fastening processes and specialty hardware to wood, correctly and efficiently.

GLO WW5 **Wood Joints:** Apply joints and joining techniques to wood.

GLO WW6 **Finishing:** Apply finishing processes to wood considering their environmental impact.

GLO WW7 **Current Innovation:** Demonstrate an understanding of current innovation in woodwork processes, applications, and emerging new technologies.