Technology Education

Woodwork Technology:
Woodwork Technology offers a series of courses intended to provide students with experiences in industrial systems and processes within a controlled environment that provides optimum exposure to "real life" situations. Woodwork Technology caters to students' individual learning styles, fostering creativity and individuality. The problem solving approach used in Woodwork Technology provides the student with the greatest amount of creative learning while providing a platform for the practical application of knowledge gained in Math, Science, Social Studies and Language Arts. Woodwork Technology offers opportunities for students to develop transferable skills in furthering their vocational, technical or academic career goals.

Electronics Technology:

Did you know:

- That Electronics employment areas are among the most promising in the forecast. The last government data shows seven of the top twenty job growth areas as electronics job related.
- The hands on approach to learning is promoted in all areas of the Electronics courses to offer the Prairie Rose School Division students a wide variety of learning experiences.
- Electronics technology is a constantly changing field with the course of study giving the students an opportunity to increase their own skills in the safe use of tools, machines, and equipment.
- Computer Aided Instruction is used throughout the course to enhance student learning using the NIDA trainers along with the meters, oscilloscopes and other high technology Electronic equipment.
- Past students have gone on to enroll in the Technical areas of study at Community Colleges and Universities.
- If you are interested in studying in this area, this course is able to give you some life long skills and will serve to further your personal interests.

The Grade 9 Home Economics/Industrial Arts course is a compulsory course which includes two areas of technology. Students pick from: Woodwork Technology, Food and Nutrition, Clothing/Housing/Design and Electronics.

Woodwork Technology 15G
½ credit

Covers such topics as:

- basic design problem solving strategies
- product development
- solution generation
- product analysis
- product testing and evaluation

In this course the focus is on employability skills and team work.

Electricity/Electronics Technology 15G
½ credit

Topics which could be included are:

- Resistance and related applications
- Resistor types, materials and uses. Units of measurement
- Transistor basics including numbers, types and uses
- Switch types, styles and uses.
- Reading schematic symbols
- Fuses and breakers
- Fire extinguishers
- Training equipment familiarization, Nida Computer Aided System
- Digital Multimeters and how to use them, measuring current
- Ohm's Law and Power
- Career Exploration, job, Salaries, Training required

PRACTICAL "HANDS ON ASSIGNMENTS"

1. FM Broadcaster
2. 120 volt Strobelight
3. LED Battery Checker
4. Dally Lighter

Woodwork Technology 20G
1 credit

This Building Systems Technology course provides students with opportunities to extend their basic wood processing skills. Students utilize applied skills to solve

technical problems encountered in the design, development, manufacture and evaluation of individual and team based projects.
Topics covered in this course include:

A. Project Design
   - needs identification
   - concept development
   - sketching
   - working drawings
B. Project Management
   - material takeoffs
   - project costs
   - plan of procedure
   - production scheduling
C. Contemporary Materials
   - selection and identification
   - lumber grades
   - panel materials
   - handling and storage
D. Production Process
   - advanced processing tools
   - advanced joinery techniques
   - contemporary finishing systems
E. Special Topics
   - modular production systems
   - mass production systems
   - wood technology
   - career opportunities

Electricity/Electronics Technology 20G
1 credit

This course has a hands-on focus to discovery based learning.
This electrifying course will cover the following topics:

- Safety
- Transformers and their applications
- DC Electric Motor concepts
- Metric Notation
- Magnetism, Relays and Solenoids
- Meters and Multimeters – Analog & Digital, current measurement, resistance measurement
- Series Resistance Circuits
- Parallel Resistance Circuits
- DC Power Supply Circuits: Half Wave, Full Wave, Full Wave Bridge
- Electrical Wiring:
  - Schematics Symbols
  - Conductor and Insulator Types
  - Boxes
  - Switch Wiring: Single Pole, Double Pole, Three Way Circuits
- Power Distribution Circuits: Duplex Receptacles, Split Switched, Regular, Heavy Duty, Range & Dryer
- Lightning Circuits: Halogen, Florescent, Incandescent etc.
- Low Voltage Circuits: Doorbell, Alarm
- Electrical Schematics

Practical Assignments

- Universal Motor Project
- Break Beam Infra Red Transmitter
- Break Beam Infra Red Receiver Alarm
- DC Power Supply
- Cabinet for Break Beam Alarm Transmitter and Receiver
- Cabinet for the Power Supply Circuit
- AC Circuit Monitor
- 120 Volt Heavy Duty Extension Cord
- NIDA Computer Circuits will be used for instruction
- Electrical Wiring will be assigned and tested for working knowledge
- HANDS ON TRAINING using the various meters available

Woodwork Technology 30S
1 credit

The course provides the students the opportunity to participate in the team based design, construction and the evaluation of a variety of structures. This course offers many opportunities for students to develop knowledge and practical skills applicable to the construction industry. The course emphasizes the application of cross-curricular skills in the development of knowledge and career foundations skill relevant to students vocational, technical and academic career goals.
Topics covered in this course may include:

A. Architecture
   - historical construction
   - understanding architecture
   - contemporary house and indust. Structures
B. Structural Engineering Concepts
   - architecture of compression
   - arches, domes and beam theory
   - surface and tension structures
   - expanding structures
C. Construction Management

- building design and blueprint reading
- materials and tools
- scheduling and systems control
- building trades and systems control

D. Construction Systems
- site preparations
- footings and foundations
- framing and roofing systems
- windows, doors and finishing
- utility services and interior finishes
- landscaping

E. Special Topics
- post and beam systems
- prefabricated systems
- solar and low energy housing
- alternative construction techniques

Electricity/Electronics Technology 30G
1 credit

This Electronics course covers A.C. Fundamental topics. Students work with the various meters, oscilloscopes, function generators etc. for "hands on learning". Topics covered in this course include:

- alternating current
- SCR's
- nonsinusoidal sine waves
- series and parallel resistance circuits
- function generators
- capacitors
- vacuum tubes
- transistor biasing
- generating and resistance in AC circuits
- inductors
- transistor basics
- power amplifiers
- integrated circuit amplifiers
- introduction to oscilloscopes
- series and parallel inductor circuits
- amplifier basics and classes of amplifiers
- speakers
- common emitter, base and collector circuits
- bipolar transistor amplifiers
- AM radio theory

Also included in this course are individual projects:

- automotive battery and alternator checker
- Audio Amplifier
- Radio Controlled Car
- three channel color organ-breadboard and PC board work.

AppliedTechnology 40S
1 credit

Applied Technology 40S is the cumulative senior level career foundation course in Woodworking. This course provides the students the opportunity to develop, in consultation with the course instructor transferable generic skills relevant to there individual interests and vocational, technical or academic career goals. The course emphasizes the integration of applied academic skills, technical problem solving skills, communication skills, human relation skills technological literacy, life skills, and craft skills, in the pursuit of individual student goals.

Topics covered in this course include:

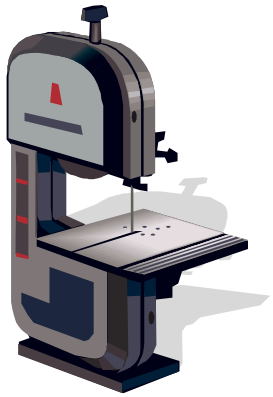
A. Research and Planning
- assessing resources and demographic needs
- construction processes in industry
- careers

B. Systems Approach
- designing and applied skills
- process economics, problems solving model

C. Applying Technology
- craft skills and computer applications
- scientific and engineering principles
- technology in industry

D. Personal and Interpersonal Skills

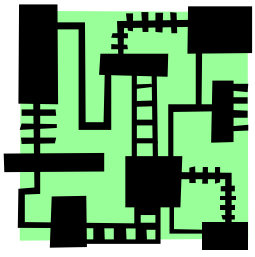
E. Evaluation



Electricity/Electronics Technology 40S
1 credit

Prerequisite: Electronics Technology 30G
Students find this course a tremendous help in Engineering, Computer Programming, Electrical, Electrical Mechanics fields. This course is a comprehensive study of Digital Electronics. Robotics, Telephone and Fiber Optics are also included.
Modules included are:

- Numbers we use in digital, Binary, hexidecimal octal
- Binary logic gates
- Using the logic gates
- Bread boarding circuits in a variety of “hands on” labs
- Integrated Circuit specifications: Reading and interpreting reference data
- Encoding, decoding circuits. Display systems used.
- Flip Flops
- Counters Circuits
- Shift Register Circuits
- Arithmetic Circuits
- Memory Circuits
- Digital Systems
- Fiber Optics parts and systems
- Robotics – basic component systems and uses
- Telephone – basic component systems & uses
- Telephone – Build their own PHONE
- Meter – Build their own Meter
- Learn to trouble shoot and use a variety of Digital testing skills



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