

MODULE ENM1060: CONSUMER PRODUCTS & SERVICES

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine the basic techniques involved in developing consumer products and/or services within an energy or mineral industry, and they identify related career opportunities.

Module Parameters: Access to a relevant processing, refining, manufacturing or service industry.

Off-campus learning may support the development of knowledge and skills in processing, refining and/or manufacturing practices; consultation with the work-site supervisor will ensure that relevant safety considerations are addressed.

See the *Off-Campus Education Guide for Administrators, Counsellors and Teachers* (Alberta Education) for further information regarding off-campus learning.

Supporting Module: CTR1210 Personal Safety (Management) [Career Transitions Strand]; recommended for off-campus learning

Students must have a general knowledge of potential hazards and accepted safety practices relevant to specific processing, refining and/or manufacturing sites prior to engaging in off-campus learning experiences. See Planning for Instruction in Section C for further information regarding student safety.

MODULE ENM1060: CONSUMER PRODUCTS & SERVICES (continued)

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> describe the range of consumer products and services derived from energy and mineral resources explain the processes used to develop a consumer product or to provide a related service 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> a presentation or report (written, oral and/or multimedia) that describes: <ul style="list-style-type: none"> three or more consumer products/services derived from each of the following: oil, gas, coal, petrochemicals, metallic minerals, industrial minerals, decorative stone, sand and gravel applications of renewable and nonrenewable energy in producing electricity and heat energy for domestic and industrial use. <p><i>Assessment Tool</i> <i>Presentations/Reports: Introductory Level, ENMPRE-1</i></p> <p><i>Standard</i> <i>Achieve a minimum rating of 1 on the rating scale for Presentations/Reports</i></p>	40
	<ul style="list-style-type: none"> flow charts that illustrate basic stages and steps in developing a consumer product or providing a related service. through laboratory and/or field-based investigations, identifying principles of science and technology used in developing an energy or mineral product. <p><i>Assessment Tool</i> <i>Assessment Criteria: Flow Charts, ENMFLO</i></p> <p><i>Standard</i> <i>Complete flow charts to a standard of 1 on the rating scale</i></p> <p><i>Assessment Tool</i> <i>Lab Investigations: Introductory Level, ENMLAB-1</i> <i>Observation Checklist for Field-based Investigations, ENMOBS</i></p> <p><i>Standard</i> <i>Conduct lab investigations to a standard of 1 on the rating scale <u>and/or</u> complete all sections of the observation checklist for field investigations</i></p>	50

MODULE ENM1060: CONSUMER PRODUCTS & SERVICES (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • identify career opportunities relevant to an energy or mineral processing, refining or manufacturing industry • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • completing a research project on one or more career opportunities within an energy or mineral industry. <p><i>Assessment Tool</i> <i>Career Search: Introductory Level, ENMCAR-1</i></p> <p><i>Standard</i> <i>Conduct research to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p style="text-align: center;">10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
<p>Consumer Products and Services</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify and describe a range of consumer products or services derived from nonrenewable energy resources; e.g.: <ul style="list-style-type: none"> – oil, gas and coal – oil, gas and coal by-products – petrochemicals • identify and describe a range of consumer products and services derived from mineral resources; e.g.: <ul style="list-style-type: none"> – metallic and nonmetallic minerals – art and decorative stone – sand and gravel 	<p>Prepare tree charts, collages and bulletin board displays.</p> <p>Collect samples of consumer products.</p> <p>Contact Alberta Energy to obtain copies of:</p> <ul style="list-style-type: none"> • <i>Alberta's Energy and Mineral Resources</i> • <i>Energy in Alberta.</i> <p>Brochures entitled "Aggregates" and "Aggregates and Our Environment" are available from the Alberta Sand and Gravel Association.</p>

MODULE ENM1060: CONSUMER PRODUCTS & SERVICES (continued)

Concept	Specific Learner Expectations	Notes
Consumer Products and Services (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain the role of renewable and nonrenewable energy resources in producing electricity and heat energy; e.g.: <ul style="list-style-type: none"> – space and water heating – heat for industrial processing – fuels for transportation • given a specific energy or mineral resource, provide reasons for maintaining, increasing or decreasing current production levels • predict factors that may influence energy and mineral industries in the future; e.g.: <ul style="list-style-type: none"> – alternative energy sources – material substitutes – market competition and change. 	<p>Ask resource persons from a local utility company to discuss domestic and industrial applications of electricity and heat energy.</p> <p>Keep a journal of media articles relevant to recent developments in the energy or mineral industries.</p>
Product Development	<ul style="list-style-type: none"> • identify and describe the basic steps involved in developing a consumer product or providing a related service; e.g.: <ul style="list-style-type: none"> – resource exploration – recovery and production – processing/refining • describe industry strategies for ensuring the quality of the product or service; e.g.: <ul style="list-style-type: none"> – quality indicators – control measures – regulation and legislation • identify methods used to transport, store and market the product or service • describe reclamation needs and practices within the industry; e.g.: <ul style="list-style-type: none"> – land restoration – water and soil treatments • describe facilities and equipment essential to developing the product or service; e.g.: <ul style="list-style-type: none"> – design features – operation and maintenance – safety. 	<p>Prepare flow charts/diagrams.</p> <p>Plan visits to local industry. Ask resource persons from local industry to explain steps involved in product development.</p> <p>Consider related health issues.</p> <p>Identify determinants of regional commodity processing.</p> <p>Research the impacts of energy/mineral development on environmental factors.</p>

MODULE ENM1060: CONSUMER PRODUCTS & SERVICES (continued)

Concept	Specific Learner Expectations	Notes
Career Opportunities	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • research career opportunities within an energy or mineral processing, refining or manufacturing industry; e.g.: <ul style="list-style-type: none"> – processing and refining – manufacturing – reclamation – transportation – marketing • interpret employment statistics within one or more employment sectors; e.g.: <ul style="list-style-type: none"> – types of careers – number of workers – employment trends • predict career opportunities and trends based on employment statistics. 	<p>Plan for individual/group research and presentations.</p> <p>Arrange/facilitate:</p> <ul style="list-style-type: none"> • information interviews • work study / work experience • job shadowing. <p>Contact the “Career Information Hotline” (Alberta Advanced Education and Career Development).</p> <p>See the National Occupational Profiles (NOC) in Section H: Linkages/Transitions.</p>

