MODULE ENM3010: ENERGY & THE ENVIRONMENT

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students assess the social, economic and environmental benefits and costs of resource development, and demonstrate personal and shared actions that foster energy conservation and environmental stewardship.

Module Parameters: Access to relevant government, industry and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• describe the social, economic and environmental significance of energy development	• a presentation or report describing the social, economic and environmental significance of an energy development. Presentation/report to address: – social, economic and environmental factors affecting the development – actions taken by industry and government to address social, economic and/or environmental concerns – public consultation procedures established to respond to concerns regarding the development. *Assessment Tool* *Presentations/Reports: Advanced Level, ENMPRE–3* *Standard* *Achieve a minimum rating of 3 on the rating scale for presentations/reports*	30
• plan and implement a strategy for personal action that fosters an environmentally sensitive lifestyle	• conducting an audit of personal energy use within the home and community. *Assessment Tool* *Task Checklist: Conducting an Energy Use Audit, ENM3010–1* *Standard* *Complete all tasks on the checklist to a standard of 3 on the rating scale*	30

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • plan and implement a group; e.g., class, school, community, action campaign that fosters environmental awareness, energy conservation and energy efficiency	*Assessment of student achievement should be based on:* • maintaining a journal of lifestyle practices that affect an energy resource, inferences regarding the potential impact of each practice on the resource, and ideas for environmental citizenship. *Assessment Tool* *Reflection Guide for Environmental Responsibility/Citizenship, ENMREF* *Guide to Inferences: Personal Impact on Resources, ENM3010–2* *Standard* *Complete 10 journal entries; address criteria for reflection to a standard of 3 on the rating scale* • developing, implementing and assessing a personal action strategy for promoting energy conservation and an environmentally sensitive lifestyle. *Assessment Tool* *Assessment Criteria: Proposal for Environmental Action, ENMPRO* *Standard* *Develop, implement and assess the strategy to a standard of 3 on the rating scale* • conducting a cost-benefit analysis of an energy saving technology. *Assessment Tool* *Task Checklist: Conducting a Cost-Benefit Analysis, ENM3010–3* *Standard* *Complete all tasks on the checklist to a standard of 3 on the rating scale* • given a current community issue regarding energy conservation, energy efficiency and/or lifestyle choices, negotiating and debating the issue while assuming the role of one or more stakeholder groups. *Assessment Tool* *Negotiation and Debate: Advanced Level, ENMNEG–3* *Standard* *Address criteria in negotiation/debate to a standard of 3 on the rating scale*	30

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • developing, implementing and assessing a classroom, school or community action campaign that fosters environmental awareness and energy conservation. *Assessment Tool* *Assessment Criteria: Proposal for Environmental Action, ENMPRO* *Standard* *Develop, implement and assess the strategy to a standard of 3 on the rating scale*	
• explain career opportunities relevant to environmental management	• completing a research project on one or more career opportunities in environmental management. *Assessment Tool* *Career Search: Advanced Level, ENMCAR–3* *Standard* *Conduct research to a standard of 3 on the rating scale*	10
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tool* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Environmental Significance	*The student should:* • describe the social, economic and environmental significance of an energy development; e.g.: – a hydro dam – an oil sands/coal development project • analyze relationships between an energy development and the environment	Investigate local developments; e.g.: • Keephills • Brazeau/Bighorn Dams • Fort McMurray oil sands. Research environmental issues resulting from: • greenhouse gases • acid deposition • habitat destruction • resource depletion.

Concept	Specific Learner Expectations	Notes
Environmental Significance (continued)	*The student should:* • describe actions taken by industry to reduce or eliminate environmental impacts of an energy development • identify government policy and regulation at provincial and national levels intended to respond to social, economic and environmental concerns regarding an energy development • describe public consultation procedures and trade-offs that respond to social, economic and environmental concerns.	How effective are current: • development practices? • reclamation technologies? • environmental monitoring procedures? Policies/programs intended to foster a sustainable energy future usually focus on: • using less • finding alternative sources.
Strategy for Personal Action	• conduct an energy audit by maintaining a log of personal energy use for a period of several days • distinguish among needs and wants as reflected through the energy audit • evaluate the impact of personal energy use and lifestyle factors on the environment • describe and implement a strategy to ensure an environmentally sensitive lifestyle • evaluate the social, economic and environmental consequences of implementing the strategy • revise the strategy according to environmental, social and economic outcomes.	Plan for student-directed projects. Encourage students to express personal views and values. Plan for: • student debates • negotiation • consensus building. Identify 10 or more personal actions and their consequences for the environment. Brainstorm proposals for decreasing personal energy use. Evaluate proposals on the basis of effectiveness and practicality. Establish and implement priority actions. Debate the benefits and costs of outcomes. Review and adjust the action plan.

Concept	Specific Learner Expectations	Notes
Group Action Campaign	*The student should:* • identify and assess opportunities for reducing environmental impacts of energy use within the classroom, school and/or community	Conduct a cost-benefit analysis of an energy-saving technology; e.g.: • microwave ovens • fluorescent bulbs.
	• identify obstacles to group action to reduce environmental impacts	Develop a marketing campaign to increase public awareness.
	• plan and implement a classroom, school and/or community campaign that fosters environmental awareness and energy conservation	Establish goals and plan the campaign. As time permits, conduct the campaign and assess results.
	• identify constructive ways in which individuals can influence group decisions that affect energy consumption and the environment	For example: • voting • lobbying • seeking office • supporting compatible interest groups.
	• design a social, economic and/or environmental impact assessment and consultation process for a proposed energy project.	Use a team approach. Encourage students to assume the role of owner, intervenor, lobbyist, etc. Discuss the importance of planning for a new project or the expansion of an existing project.
Career Opportunities	• research careers and the range of occupational opportunities in environmental management; e.g.: – engineering – technical and support services – general consulting	Plan for individual/group research and presentations that address: • job description • employment market • education/training • wage expectations. Contact the "Career Information Hotline" (Alberta Advanced Education and Career Development).
	• evaluate current employment opportunities based on employment statistics	See the National Occupational Profiles (NOC) in Section H: Linkages/Transitions.

Concept	Specific Learner Expectations	Notes
Career Opportunities (continued)	*The student should:* • research trends in environmental management, and future career opportunities.	Arrange/facilitate: • information interviews • work study/experience • job shadowing.