

COURSE FOR2010: FOREST PROTECTION & STEWARDSHIP

Level: Intermediate

Prerequisite: None

Description: Students examine the *Land-use Framework* and the *Alberta Land Stewardship Act* as they relate to forestry to understand what measures are being taken to promote environmental stewardship.

Note: Although this course involves analyzing the impact of lifestyle on forests, the major emphasis is on active participation through protection and stewardship (e.g., commitment and empowerment through personal and shared actions).

Outcomes: The student will:

- 1. demonstrate an understanding of the social contract that exists between the public of Alberta and the industrial users of forested public land (Alberta's policies on integrated resource planning)**
- 2. identify different demands on the forest and the needs of each forest user**
 - 2.1 identify and describe four or more major types of forest uses; e.g., industrial, recreational, wildlife habitat, water, air and soil quality
 - 2.2 describe specific uses of and multiple demands placed upon forested land; e.g., wood fibre production, wildlife management, grazing and range management, watershed, oil, gas and mining, recreation, protected areas
 - 2.3 explain why forests can and should serve many purposes
 - 2.4 describe examples of a variety of uses of Alberta's forests; e.g., using different parts of the forest for different purposes, using the same area of the forest for more than one purpose
- 3. explore the *Land-use Framework* for Alberta, focusing on forest use**
 - 3.1 identify the main purposes of the Framework, including:
 - 3.1.1 development of seven regional land-use plans based on seven new land-use regions
 - 3.1.2 creation of a land-use secretariat (Secretariat) and establishment of a Regional Advisory Council for each region
 - 3.1.3 consideration of the cumulative effects that regional management will have in regard to impacts of development on land, water and air
 - 3.1.4 development of a strategy for conservation and stewardship on private and public lands
 - 3.1.5 promotion of efficient use of land to reduce the footprint of human activities on Alberta's landscape
 - 3.1.6 establishment of an information, monitoring and knowledge system to contribute to continuous improvement of land-use planning and decision making
 - 3.1.7 inclusion of Aboriginal peoples in land-use planning
 - 3.2 describe how forest management planning must address all land base users
 - 3.3 explain how the document addresses cumulative effects and reduces the human footprint
- 4. explore the *Alberta Land Stewardship Act*, focusing on forest use**
 - 4.1 identify the main purposes of the Act, including:
 - 4.1.1 provision of a means by which the government can give direction and provide leadership in identifying the objectives of the province of Alberta, including economic, environmental and social objectives

- 4.1.2 provision of a means to plan for the future, recognizing the need to manage activity to meet the reasonably foreseeable needs of current and future generations of Albertans, including Aboriginal peoples
- 4.1.3 creation of legislation and policy that enable sustainable development by taking account of and responding to the cumulative effects of human endeavour and other events
- 5. demonstrate, through personal and shared actions, a commitment to environmental stewardship**
 - 5.1 identify personal strategies for using forest resources that foster the attainment of social, cultural, economic and environmental goals; e.g., personal actions, leadership roles
 - 5.2 examine and defend an issue regarding the impacts of lifestyle on forest resources
 - 5.3 identify opportunities in which individuals can influence public decisions that affect the forest and all its resources; e.g., voting, lobbying, seeking office, special interest groups
- 6. demonstrate basic competencies**
 - 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems
 - 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible
 - 6.2.3 be adaptable
 - 6.2.4 learn continuously
 - 6.2.5 work safely
 - 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks
- 7. identify possible life roles related to the skills and content of this cluster**
 - 7.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 7.2 identify potential resources to minimize barriers and maximize opportunities

COURSE FOR2030: REGULATING ALBERTA'S FORESTS

Level: Intermediate

Prerequisite: FOR1100: Forest Use & Protection

Description: Students research agencies and structures used to manage forested lands in Alberta and explain Alberta's forest management goals.

Outcomes: The student will:

1. explain how Alberta's forested lands are managed

- 1.1 describe major changes that have occurred historically regarding the ownership and administration of forested lands in Alberta, considering:
 - 1.1.1 federal jurisdiction
 - 1.1.2 provincial status
 - 1.1.3 *Natural Resources Transfer Act*
- 1.2 describe different land tenures in Alberta today, including:
 - 1.2.1 public (provincial and federal crown lands)
 - 1.2.2 private
- 1.3 identify, locate and compare different land management areas in Alberta, including:
 - 1.3.1 the white area
 - 1.3.2 the green area
- 1.4 identify the various agencies or groups responsible for managing forested lands within Alberta's boundaries, identify the proportion of land under their jurisdiction and describe their mandates

2. describe government legislation and policies that influence the use of Alberta's forest resources

- 2.1 compare how activities in Alberta's forests are subject to a variety of government legislation and regulations
- 2.2 analyze important government legislation in managing the forest; e.g. *Land-use Framework of Alberta, Alberta Land Stewardship Act*
- 2.3 explain the role of regulations and guidelines established in association with government legislation in managing the forest
- 2.4 examine the short- and long-term effects of selected government legislation and regulations on forested land
- 2.5 research First Nations, Métis and Inuit land ownership structures and traditional uses of the land with regards to:
 - 2.5.1 Treaty Seven
 - 2.5.2 Treaty Eight
 - 2.5.3 Métis Colonies
 - 2.5.4 Nonstatus communities

3. explain methods of allocating land and timber in forest management

- 3.1 explain the use of dispositions in managing commercial activities on forested lands and list all types of timber disposition
- 3.2 describe other types of dispositions that are used to manage nontimber aspects of forest use
- 3.3 research the referral process and conditions necessary for obtaining a disposition
- 3.4 describe the conditions necessary for successfully obtaining a reclamation certificate

4. demonstrate basic competencies

- 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks

5. identify possible life roles related to the skills and content of this cluster

- 5.1 recognize and then analyze the opportunities and barriers in your immediate environment
- 5.2 identify potential resources to minimize barriers and maximize opportunities

COURSE FOR2060: FOREST MENSURATION 1

Level: Intermediate

Prerequisites: FOR1050: Forest Imagery
HCS2020: First Aid/CPR with AED
WLD1130: Outdoor Survival Skills

Description: Students are introduced to basic forest measurement skills used in basic statistical analysis and data compilation for a forested region.

Parameters: Access to a demonstration forest and forest measurement tools; e.g., binoculars, clinometers, computer and software, first aid supplies, soil testing kit, personal protective equipment, 30-metre tape.

Outcomes: The student will:

- 1. explain the goals and techniques for surveying forests**
 - 1.1 identify reasons for conducting a forest survey; e.g., types of information gathered, interpretation of the information for decision making
 - 1.2 distinguish between forest samples and forest populations
 - 1.3 describe basic techniques used to sample a forested area; e.g., layout of sample plots, data collection techniques
 - 1.4 explain how sample data may be used to estimate fibre volumes and other nonfibre forest resources
- 2. demonstrate basic mensuration used in forest inventory practices**
 - 2.1 demonstrate safe practices and policies relevant to gathering sample data in the forest
 - 2.2 demonstrate basic compass skills to establish direction in the forest; e.g., orient a map, establish and follow a bearing
 - 2.3 calculate horizontal distance in the forest using pacing and chaining methods
 - 2.4 demonstrate open and closed traverses in the forest using compass and chaining skills
 - 2.5 calculate the diameter of trees using a diameter tape or other suitable equipment
 - 2.6 calculate the height of trees using a clinometre and measuring tape or other suitable equipment
 - 2.7 demonstrate techniques used to determine the age of trees
- 3. gather and interpret sample data to determine fibre volumes in a forested region**
 - 3.1 demonstrate compass and chaining skills to establish boundaries for a sample forest plot
 - 3.2 record sample data in appropriate tables and/or charts
 - 3.3 explain the importance of data regarding one or more aspects of a fibre resource within a sample forest plot; e.g., tree height/diameter, number and distribution of species, age of trees
 - 3.4 interpret sample data regarding tree populations and fibre values in a forest region
 - 3.5 manipulate sample data as required to estimate fibre volumes
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems

- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. identify possible life roles related to the skills and content of this cluster**
 - 5.1 recognize and then analyze the opportunities and barriers in your immediate environment
 - 5.2 identify potential resources to minimize barriers and maximize opportunities

COURSE FOR2070: SUSTAINABLE FIBRE HARVESTING & PROCESSING

Level: Intermediate

Prerequisite: None

Description: Students examine sustainable forest management plans and the process of harvesting and using forest resources.

Outcomes: The student will:

1. identify major components of a sustainable forest land management plan

- 1.1 identify long-term (200 year) planning goals, considering:
 - 1.1.1 inventory
 - 1.1.2 growth and yield
 - 1.1.3 sustainability policy
- 1.2 identify medium-term (detailed forest management plan—10 year) planning goals, considering:
 - 1.2.1 changes in conditions
 - 1.2.2 AAC calculations
 - 1.2.3 harvest sequence
 - 1.2.4 public and/or First Nation advisory committee input
 - 1.2.5 cumulative effects and integrating other resource uses
- 1.3 identify short-term (annual operating plan) planning goals, considering:
 - 1.3.1 block and road layout through emulating natural disturbances (fire, insects, disease and weather)
 - 1.3.2 operation protection for watershed, soil values, wildlife and special areas of interest

2. develop a forest management plan

3. describe the mechanics of harvesting trees

- 3.1 identify safety legislation and requirements relevant to visiting a forest harvest site
- 3.2 identify stages in the harvesting procedure from stump to mill, including falling, skidding/forwarding, delimiting, bucking, sorting and/or chipping, loading and hauling
- 3.3 describe techniques and equipment used to harvest trees
- 3.4 describe techniques and equipment used to transport logs and/or chips/fibre from landing site to mill
- 3.5 describe techniques used in slash management, reforestation and road reclamation/rehabilitation following logging operations

4. explain techniques used in the utilization of wood and product formation

- 4.1 identify major categories of forest products and give examples of each, considering:
 - 4.1.1 pulp and paper
 - 4.1.2 solid wood products
 - 4.1.3 panel board; e.g., veneer, oriented strand board, fibre board, plywood
 - 4.1.4 chemical and medicinal products
 - 4.1.5 bio-energy
- 4.2 describe the steps and processes involved in log utilization at a sawmill
- 4.3 describe the steps and processes involved in wood utilization at a pulp mill, including:
 - 4.3.1 mechanical processes
 - 4.3.2 chemical processes
- 4.4 explain how the processing of wood can be used in the co-generation of energy

5. demonstrate basic competencies

5.1 demonstrate fundamental skills to:

- 5.1.1 communicate
- 5.1.2 manage information
- 5.1.3 use numbers
- 5.1.4 think and solve problems

5.2 demonstrate personal management skills to:

- 5.2.1 demonstrate positive attitudes and behaviours
- 5.2.2 be responsible
- 5.2.3 be adaptable
- 5.2.4 learn continuously
- 5.2.5 work safely

5.3 demonstrate teamwork skills to:

- 5.3.1 work with others
- 5.3.2 participate in projects and tasks

6. identify possible life roles related to the skills and content of this cluster

- 6.1 recognize and then analyze the opportunities and barriers in your immediate environment
- 6.2 identify potential resources to minimize barriers and maximize opportunities

COURSE FOR2100: FOREST MANAGEMENT

Level: Intermediate

Prerequisite: FOR1100: Forest Use & Protection

Description: Students examine Alberta's current forest management goals and explore the current management practices used to address these goals.

Outcomes: The student will:

1. explain the goals of forest management in Alberta

- 1.1 discuss the goals of sustainable development within the context of Alberta's forests
- 1.2 relate the concept of sustained yield to a system of harvesting and reforestation
- 1.3 explain the intent of a reclamation certificate for forest land users in Alberta
- 1.4 identify scientific, economic and social factors addressed through the management of forested lands in Alberta

2. examine different types of forest uses and users in the forest

- 2.1 compare uses and values of Alberta's forests with regards to current rules, regulations and dispositions, considering:
 - 2.1.1 recreation and aesthetics
 - 2.1.2 wildlife habitat
 - 2.1.3 fibre production
 - 2.1.4 range lands
 - 2.1.5 coal and petroleum projects
 - 2.1.6 hunting and trapping
 - 2.1.7 water, air and soil quality
 - 2.1.8 cumulative effects
 - 2.1.9 First Nations traditional land uses
- 2.2 describe the different uses of Alberta's forests and the resulting impacts; e.g., recreational, environmental, industrial
- 2.3 examine the need for consultation with all users and public involvement in forest management

3. describe sustainable management practices within the context of Alberta's forested lands

- 3.1 identify components of conservation and utilization in current forest management practices
- 3.2 describe the mandates of the agencies responsible for managing Alberta's forested lands
- 3.3 describe current management practices that make Alberta's productive forests available to industry for commercial harvest, considering:
 - 3.3.1 forest management agreements
 - 3.3.2 quota certificates
 - 3.3.3 commercial timber permits
 - 3.3.4 local timber permits
 - 3.3.5 other forest use dispositions; e.g., grazing, roads, pipelines
- 3.4 predict factors likely to influence future forest management practices

4. demonstrate basic competencies

- 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems

- 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
- 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. identify possible life roles related to the skills and content of this cluster**
 - 5.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 5.2 identify potential resources to minimize barriers and maximize opportunities

COURSE FOR2910: FOR PROJECT B

Level: Intermediate

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Intermediate project courses must connect with a minimum of two CTS courses, one of which must be at the intermediate level and be in the same occupational area as the project course. The other CTS course(s) can be at any level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. identify possible life roles related to the skills and content of this cluster**
 - 5.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 5.2 identify potential resources to minimize barriers and maximize opportunities

COURSE FOR2920: FOR PROJECT C

Level: Intermediate

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Intermediate project courses must connect with a minimum of two CTS courses, one of which must be at the intermediate level and be in the same occupational area as the project course. The other CTS course(s) can be at any level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. identify possible life roles related to the skills and content of this cluster**
 - 5.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 5.2 identify potential resources to minimize barriers and maximize opportunities

COURSE FOR2950: FOR INTERMEDIATE PRACTICUM

Level: Intermediate

Prerequisite: None

Description: Students apply prior learning and demonstrate the attitudes, skills and knowledge required by an external organization to achieve a credential/credentials or an articulation.

Parameters: This practicum course, which may be delivered on- or off-campus, should be accessed only by students continuing to work toward attaining a recognized credential/credentials or an articulation offered by an external organization. This course must be connected to at least one CTS course from the same occupational area and cannot be used in conjunction with any advanced (3XXX) level course. A practicum course cannot be delivered as a stand-alone course, cannot be combined with a CTS project course and cannot be used in conjunction with the Registered Apprenticeship Program or the Green Certificate Program.

Outcomes: The student will:

1. perform assigned tasks and responsibilities, as required by the organization granting the credential(s) or articulation

- 1.1 identify regulations and regulatory bodies related to the credential(s) or articulation
- 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities/expectations
 - 1.2.3 code of ethics and/or conduct
- 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
- 1.4 demonstrate basic employability skills and perform assigned tasks and responsibilities related to the credential(s) or articulation

2. analyze personal performance in relation to established standards

- 2.1 evaluate application of the attitudes, skills and knowledge developed in related CTS courses
- 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
- 2.3 evaluate adherence to workplace legislation related to health and safety
- 2.4 evaluate the performance requirements of an individual who is trained, experienced and employed in a related occupation in terms of:
 - 2.4.1 training and certification
 - 2.4.2 interpersonal skills
 - 2.4.3 technical skills
 - 2.4.4 ethics

3. demonstrate basic competencies

3.1 demonstrate fundamental skills to:

- 3.1.1 communicate
- 3.1.2 manage information
- 3.1.3 use numbers
- 3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

- 3.2.1 demonstrate positive attitudes and behaviours
- 3.2.2 be responsible
- 3.2.3 be adaptable
- 3.2.4 learn continuously
- 3.2.5 work safely

3.3 demonstrate teamwork skills to:

- 3.3.1 work with others
- 3.3.2 participate in projects and tasks

4. identify possible life roles related to the skills and content of this cluster

4.1 recognize and then analyze the opportunities and barriers in the immediate environment

4.2 identify potential resources to minimize barriers and maximize opportunities