

COURSE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION E: INTERMEDIATE LEVEL

The following pages define the curriculum and assessment standards for the intermediate level of Forestry.

Intermediate level courses help students build on the competencies developed at the introductory level and focus on developing more complex competencies. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

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COURSE FOR2010: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: None

Description: Students analyze the impact of attitudes, actions and lifestyles on forests, and propose individual and shared actions that foster environmental stewardship.

Parameters: Access to government and industry organizations responsible for sustainable forest development and environmental stewardship.

Note: Although this course involves analyzing the impact of lifestyle on forests, the major emphasis is on “doing”; i.e., commitment/empowerment through personal and shared actions.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • describe the impact of personal attitudes, actions and lifestyle on the forest resource • explain strategies for reducing, reusing and recycling 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • maintaining a log/journal of reflections and inferences regarding the impact of daily living activities on the forest environment. <p><i>Assessment Tool</i> <i>Reflection Guide for Environmental Responsibility/Citizenship, FORREF-ENV Guide to Inferences: Personal Impact on Forests, FOR2010-1</i></p> <p><i>Standard</i> <i>Complete five log/journal entries; address criteria for reflection and inferences to a standard of 2 on the rating scale</i></p> <ul style="list-style-type: none"> • completing all components of a research project on four or more products recently developed through recycling techniques. <p><i>Assessment Tool</i> <i>Research Process: Recycling Techniques, FOR2010-2</i></p> <p><i>Standard</i> <i>Complete research to a standard of 2 on the rating scale</i></p>	<p>10</p> <p>30</p>

COURSE FOR2010: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)
(continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate, through personal and shared actions, commitment to environmental responsibility/citizenship 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> identifying economic and environmental trade-offs that occur through reducing, reusing and recycling. <i>Assessment Tool</i> <i>Issue Analysis: Reducing, Reusing and Recycling, FOR2010-3</i> <i>Standard</i> <i>Address criteria in issue analysis to a standard of 2 on the rating scale</i> negotiating and debating an issue regarding the impact of lifestyle on forest environments. <i>Assessment Tool</i> <i>Negotiation and Debate: Intermediate Level, FORNEG-2</i> <i>Standard</i> <i>Address criteria in negotiation/debate to a standard of 2 on the rating scale</i> a proposal and rationale (oral, written or visual) for: <ul style="list-style-type: none"> one personal action that will affect forest ecosystems in positive ways one leadership role/community program in support of environmental stewardship. <i>Assessment Tool</i> <i>Assessment Criteria: Proposal for Environmental Action, FORPRO</i> <i>Standard</i> <i>Complete each proposal to a standard of 2 on the rating scale</i> volunteering five hours of time working with an environmental, forest industry or professional organization whose major goal is sustainable forest development. <i>Assessment Tool</i> <i>Log/Verification of Volunteer Work, FORLOG-VOL(a) or FORLOG-VOL(b)</i> <i>Standard</i> <i>Complete all sections of the log/verification for 5 hours of volunteer work</i> 	<p>60</p>

COURSE FOR2010: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)
(continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> a letter written to a government official, industry representative or environmental organization expressing support or concern regarding action taken on a forestry issue, and a critique of the response received. <p><i>Assessment Tool</i> <i>Assessment Criteria: Letters of Support or Concern, FORLET</i></p> <p><i>Standard</i> <i>Complete the letter and critique to a standard of 2 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 Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
<p>Attitudes, Actions and Lifestyle</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> explain how societal attitudes, actions and lifestyle may affect the forest resource; e.g.: <ul style="list-style-type: none"> conservation ethic consumer practices recreational patterns describe factors that influence consumer and marketing trends, and how these trends may affect the forest resources; e.g.: <ul style="list-style-type: none"> social economic environmental create a personal inventory of possessions and material purchases made over the last year distinguish among personal needs and wants, as reflected through personal inventory evaluate the impacts of personal actions and lifestyle on the forest resource. 	<p>Plan for student-directed projects. Encourage students to express personal views and values.</p> <p>Consider 10 personal actions and their consequences on the forest.</p> <p>See <i>Alberta's Focus on Forests</i> (Activity 5.6–What's in the Waste-basket–Reassessing Our Needs).</p> <p>Facilitate student debates.</p>

COURSE FOR2010: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)
(continued)

Concept	Specific Outcomes	Notes
Reduce, Reuse and Recycle	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe and assess societal trends in the consumption of material goods • identify common refuse that can be reused in practical and economical ways • describe materials that are being recycled and the products that are produced • describe trade-offs that occur through reducing, reusing and recycling; e.g.: <ul style="list-style-type: none"> – economic – environmental. 	<p>Consider linkages with Energy and Mines (ENM1090: Fundamentals of Recycling).</p> <p>Examples:</p> <ul style="list-style-type: none"> • fence posts • jewelry • paper • synthetic fibres. <p>Consider the advantages and disadvantages of</p> <ul style="list-style-type: none"> • disposable cups versus reusable cups • disposable diapers versus cloth diapers.
Environmental Responsibility/ Citizenship	<ul style="list-style-type: none"> • identify personal strategies for using the forest resource that foster the attainment of social, cultural, economic and environmental goals; e.g.: <ul style="list-style-type: none"> – personal actions – leadership roles • plan, conduct and assess a school-wide campaign to increase awareness of lifestyle, conservation and the environment; e.g.: <ul style="list-style-type: none"> – establish goals – plan and conduct – assess results • explain an issue regarding the impacts of lifestyle on the forest resource; e.g.: <ul style="list-style-type: none"> – conduct research – develop a position – participate in debate 	<p>Develop consensus on a relevant issue.</p> <p>Ask students to prepare a contract expressing personal commitment to environmental stewardship. Review the contract after a period of time to ascertain if contract obligations are being met.</p> <p>Consider using case studies and simulations provided in <i>A Forest For All</i>, a multimedia kit developed by the Canadian Forest Products Association and distributed by Marwil Communications.</p>

COURSE FOR2010: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)
(continued)

Concept	Specific Outcomes	Notes
Environmental Responsibility/ Citizenship (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify constructive ways in which individuals can influence public decisions that affect the forest and all its resources; e.g.: <ul style="list-style-type: none"> – voting – lobbying – seeking office – supporting compatible interest groups • describe the goals and objectives of one or more conservation groups. 	Write letters of support and/or concern to government agencies, industry and/or environmental groups. Critique the responses that are received.

COURSE FOR2030: MANAGING ALBERTA FORESTS**Level:** Intermediate**Theme:** Social and Cultural Perspectives**Prerequisite:** None**Description:** Students research agencies and structures used to manage forested lands in Alberta.**Parameters:** Access to government agencies responsible for forest management; e.g., Alberta Environmental Protection, Parks Canada.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> explain how Alberta's forested lands are managed 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> preparing and presenting a report (written, oral or multimedia) that explains how Alberta's forested lands are administered. Report to include: <ul style="list-style-type: none"> a timeline of changes that have occurred in the ownership and administration of forested lands a map and explanation of different land tenures (public and private) a list of five or more agencies responsible for managing forested lands within Alberta's boundaries, and the mandates of each agency. <p><i>Assessment Tool</i> <i>Presentations/Reports: Managing Alberta's Forested Lands, FOR2030-1</i> <i>Sample Timeline: Management History of Alberta's Forested Lands, FOR2030-2</i> <i>Task Checklist for Mapping, FORMAP</i></p> <p><i>Standard</i> <i>Complete all components of the report to a standard of 2 on the rating scale</i></p>	<p>20</p>

COURSE FOR2030: MANAGING ALBERTA FORESTS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • describe government legislation and policies that influence the use of Alberta’s forest resource • explain methods of allocating land and timber in forest management • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • summarizing the general intent and major roles of: <ul style="list-style-type: none"> – important government legislation in managing the forest – regulations and/or guidelines established in association with government legislation for managing the forest. <p><i>Assessment Tool</i> <i>Sample Acts and Regulations for Managing Alberta’s Forests, FOR2030–3</i></p> <p><i>Standard</i> <i>Summarize four important government legislation <u>and</u> four regulations and/or guidelines</i></p> <ul style="list-style-type: none"> • given access to current resources on forest management in Alberta, completing a research project that examines the intent of five or more: <ul style="list-style-type: none"> – timber dispositions issued by Alberta Land and Forest Services – other types of dispositions used to manage nonfibre aspects of forest use. <p><i>Assessment Tool</i> <i>Research Process: Allocation Procedures for Land and Timber, FOR2030–4</i></p> <p><i>Standard</i> <i>Complete all components of research to a standard of 2 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 Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>40</p> <p>40</p> <p>Integrated throughout</p>

COURSE FOR2030: MANAGING ALBERTA FORESTS (continued)

Concept	Specific Outcomes	Notes
Administration of Forested Lands	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe major changes that have occurred from past to present in the ownership and administration of forested lands in Alberta: <ul style="list-style-type: none"> – federal jurisdiction – provincial status – <i>Natural Resources Transfer Act</i> • describe different land tenures in Alberta today: <ul style="list-style-type: none"> – public (provincial and federal crown lands) – private • identify, locate and compare different land management areas in Alberta: <ul style="list-style-type: none"> – white area – green area • describe the mandates of agencies or groups responsible for managing forested lands within Alberta’s boundaries, and the proportion of land under their jurisdiction. 	<p>Use archives, films and library resources to research the history of forestry in Alberta.</p> <p>Explain how the management of Alberta’s forested lands became a responsibility of the provincial government.</p> <p>Contact Alberta Environmental Protection to obtain maps of land management areas in Alberta.</p> <p>Construct a circle graph depicting the distribution of land ownership in Alberta (e.g., provincial public, provincial private, federal public, aboriginal lands).</p> <p>For example,</p> <ul style="list-style-type: none"> • Alberta Environmental Protection (Land and Forest Services, Parks Services, Fish and Wildlife Services) • Parks Canada • private ownership • Metis or Native Indian • Forestry Canada.

COURSE FOR2030: MANAGING ALBERTA FORESTS (continued)

Concept	Specific Outcomes	Notes
<p>Government Legislation and Policies</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain how activities in Alberta’s forests are subject to a variety of government legislation and regulations • research the role of important government legislation in managing the forest • research the role of regulations and guidelines established in association with government legislation in further managing the forest • assess the short- and long-term effects of selected government legislation and regulations on forested land. 	<p>Contact Alberta Environmental Protection (or Queen’s Printer, Province of Alberta) to request various legislation, regulations and guidelines used in managing forested lands.</p> <p>For example,</p> <ul style="list-style-type: none"> • <i>Forest Act</i> • <i>Forest Reserves Act</i> • <i>Forest and Prairie Protection Act</i> • <i>Provincial Parks Act</i> • <i>Wilderness Areas, Ecological Reserves and Natural Areas Act.</i> <p>For example,</p> <ul style="list-style-type: none"> • Timber Management Regulation • Timber Operating Groundrules • Reforestation Standards • Forest and Prairie Protection Regulation (Part I and II) • Forest Land Use Regulation (Recreation, Mineral, Pipeline, Grazing). <p>Avoid detailed analysis of acts and regulations; focus on an <u>OVERVIEW ONLY</u>.</p>
<p>Allocation Procedures</p>	<ul style="list-style-type: none"> • explain the use of dispositions in managing commercial activities on forested lands • identify criteria used to establish forest land and timber dispositions 	<p>For example, authorizations in the form of permits, licences or other legal agreements.</p> <p>Consider different public land users/uses. For example,</p> <ul style="list-style-type: none"> • fibre production • recreation • agriculture • wildlife habitat • integrated use.

COURSE FOR2030: MANAGING ALBERTA FORESTS (continued)

Concept	Specific Outcomes	Notes
<p>Allocation Procedures (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain the intent of different timber dispositions issued by the Alberta Forest Service, and the responsibilities of holders of these dispositions • describe other types of dispositions that are used to manage nonfibre aspects of forest use • research the role of consultation (with other resource users) and public involvement in establishing land and timber dispositions. 	<p>For example,</p> <ul style="list-style-type: none"> • Forest Management Agreements (FMAs) • Quota Certificates • Timber Licences • Commercial Timber Permits • Local Timber Permits. <p>For example,</p> <ul style="list-style-type: none"> • grazing • hunting, fishing and trapping • energy and mineral development • commercial trail riding. <p>Involve students in role-playing activities.</p>

COURSE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisites: WLD1030 Outdoor Experiences 1 (Survival Skills)
Emergency First Aid (current certification)

Description: Students plan, prepare for and conduct an extended outdoor wilderness trip.

Parameters: Access to an outdoor wilderness environment and gear for outdoor expeditions. Instructor training (current certification) in Standard Level First Aid is required; instructor training in First Aid in the Wilderness is recommended.

Teachers may find it desirable to access the services of a qualified Outdoor Guide in delivering components of this course.

Off-campus learning activities must be commensurate with previous levels of wilderness training and experience; day trips should precede extended overnight trips; experience in hardcover camping should precede potential softcover camping and/or emergency shelter camping opportunities.

Note: Specific outcomes in Outdoor Experiences 1 and 2 link with the *National Occupational Standards for Outdoor Guide* (Alberta Tourism Education Council), and address core skills in Environmental Awareness, Camp and/or Trip Operation, Safety and Survival.

See Section C (Planning for Instruction) and Section H (Linkages/Transitions) of this Guide for further information on instructor training/certification and linkages.

Supporting Course: CTR1210 Personal Safety (Management) [Career Transitions Strand]

Because of the practical nature of this course, students must have a general knowledge of basic first-aid and survival techniques relevant to wilderness environments. See Planning for Instruction in Section C for further information on student safety.

Note: WLD1030 and WLD2030 (Outdoor Experiences 1 and 2) provide opportunities for wilderness interaction at a personal level. This course sequence should place emphasis on developing skills that will enable students to safely observe and appreciate wildlife and habitat within one or more of Alberta's six natural regions.

COURSE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION) (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • successfully participating in activities while en route that involve personal interaction with the wilderness environment. <p><i>Assessment Tool</i> <i>Task Checklist: Outdoor Experiences 2, WLD2030-1</i></p> <p><i>Standard</i> <i>Complete four of the activities (as outlined in the task checklist) that involve personal interaction with the wilderness environment to a standard of 2 on the rating scale</i></p> <ul style="list-style-type: none"> • a post-trip assessment that provides observations and personal impressions, and summarizes: <ul style="list-style-type: none"> – activities well done – problems encountered and suggested solutions – recommendations regarding future trips. <p><i>Assessment Tool</i> <i>Post-Trip Assessment for Outdoor Experiences 2, WLD2030-2</i></p> <p><i>Standard</i> <i>Achieve a performance rating of 2 in applicable areas of post-trip assessment</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction throughout the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

COURSE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION) (continued)

Concept	Specific Outcomes	Notes
<p>Trip Planning and Preparation</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • establish specific objectives for an outdoor wilderness trip; e.g.: <ul style="list-style-type: none"> – goals and expectations – length of trip – destination – general schedule and agenda • incorporate guidelines for environmental awareness into trip planning and preparation; e.g.: <ul style="list-style-type: none"> – principles of ecotourism – consideration for carrying capacity of the area – strategies for minimum impact land use • identify and obtain appropriate supplies, equipment and personal gear for the trip; e.g.: <ul style="list-style-type: none"> – water and food – tents, stoves, axe – first-aid and survival kits – clothing and foot wear – toiletries • devise plan for weather and seasonal conditions; e.g.: <ul style="list-style-type: none"> – identify hazards particular to the area – listen to weather and news reports and forecasts • conduct a pre-trip assessment of supplies, equipment and personal gear; e.g.: <ul style="list-style-type: none"> – compare to trip checklist – assess quality, quantity and condition – assess relative to weather and seasonal conditions – obtain missing and/or specialty items 	<p>Hold a pre-trip meeting with students and their parents/guardians prior to the excursion to confirm trip details. Obtain information regarding special needs (e.g., physical limitations, special dietary requirements). Discuss trip expectations.</p> <p>Obtain <i>Travel Alberta's Adventure Guide</i> (published annually) for a list of outfitters/guides available throughout the province.</p> <p>List potential environmental impacts that may result from the trip. Write before and after journal entries to document impact on a campsite.</p> <p>List all supplies and equipment to be taken on the trip. Identify items that may have significant environmental impact—note considerations for use or alternatives that would lessen impact.</p> <p>Establish methods of regular and emergency communication, and a contingency plan to be used if regular communication is interrupted.</p> <p>Compare supplies to checklist. Ensure all equipment is in satisfactory working condition. Pack supplies/equipment in waterproof containers.</p>

COURSE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION) (continued)

Concept	Specific Outcomes	Notes
<p>Trip Planning and Preparation (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • prepare supplies, equipment and personal gear for transportation • devise plan for courses of action to cope with potential emergency situations in the wilderness; e.g.: <ul style="list-style-type: none"> – extreme weather conditions – fire or flood – injury and illness. 	<p>Potential linkages exist with the “First Aid in the Wilderness” certificate course (see Section H: Transitions/Linkages).</p> <p>Outline requirements for survival and first-aid kits.</p>
<p>Conducting and Concluding the Trip</p>	<ul style="list-style-type: none"> • follow guidelines for safe outdoor travel; e.g.: <ul style="list-style-type: none"> – inform responsible person of travel plans – follow travel schedule as planned – use orientation and navigational skills – identify potential hazards and take necessary precautions – dress according to mode of travel, weather and season – watch for changes in weather conditions • set up a wilderness camp site, following guidelines for comfort, safety and least possible environmental impact; e.g.: <ul style="list-style-type: none"> – select camp site considering: <ul style="list-style-type: none"> • site exposure and drainage • access to water and firewood • impact on flora and fauna • proximity to potential dangers – erect tent or lean-to – assemble other amenities – protect food from wildlife and spoilage – protect equipment from the elements • follow minimal impact guidelines in establishing: <ul style="list-style-type: none"> – latrine location and toilet procedures – wash area and procedures – fire site and use – methods of garbage and waste water disposal • comply with local, provincial and federal legislation relevant to activities that are undertaken 	<p>Be aware of hazards particular to the area. Listen to weather and news reports. Carry survival equipment.</p> <p>Reroute, postpone or cancel trip if conditions threaten safety.</p> <p>Select dry, level ground. Consider potential hazards, including fire, rock slides, avalanches, dead materials close to shelter.</p> <p>Dig deep hole for toilet pit. Provide soil and environmentally friendly substance to decrease odour and speed decomposition. Use biodegradable soap.</p> <p>Consider land use, permits, seasonal restrictions, quotas, etc. Seek clarification if necessary. Report violations.</p>

COURSE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION) (continued)

Concept	Specific Outcomes	Notes
<p>Conducting and Concluding the Trip (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • assume outdoor camp duties on a rotational basis; e.g.: <ul style="list-style-type: none"> – meal preparation – camp maintenance and hygiene • demonstrate practical knowledge and skills in at least three areas relevant to wilderness interaction; e.g.: <ul style="list-style-type: none"> – plant or animal identification – animal track and scat identification – use of equipment – survival skills • monitor the activities of wildlife in the area and take precautions to avoid dangerous situations; e.g.: <ul style="list-style-type: none"> – observe animal behaviours – observe social patterns/relationships – identify wildlife hazards • describe evidence of human impact on flora, fauna and/or natural habitat • follow appropriate procedures to break camp; e.g.: <ul style="list-style-type: none"> – pack supplies, equipment and personal gear – take down shelter – clean site • conclude the wilderness trip and conduct a post-trip assessment; e.g.: <ul style="list-style-type: none"> – observations and personal impressions – problems encountered – recommendations regarding future trips. 	<p>Have students participate in all areas of preparation, operation and clean-up. Alternate chores during trip.</p> <p>Reference the activities and suggestions provided in <i>The Art of Seeing and Tracking</i>.</p> <p>Make plaster casts of animal tracks; examine fur, skulls, bones, nests, etc.</p> <p>Dispose of garbage properly. Store food safely. Maintain safe distance from wildlife.</p> <p>Do circle tour of camp—look for garbage and misplaced equipment.</p> <p>Develop a slide/tape presentation based on the outdoor trip.</p> <p>Consider:</p> <ul style="list-style-type: none"> • satisfaction with equipment and supplies • suitability of environment or route • inconsistencies between trip and expectations.

COURSE FOR2060: MEASURING THE FOREST 2 (SAMPLING TECHNIQUES)**Level:** Intermediate**Theme:** Technology and Applications**Prerequisite:** FOR1060 Measuring the Forest 1 (Measurement Skills)
Emergency First Aid (current certification)**Description:** Students research current forest inventory practices, and demonstrate appropriate strategies for sampling the fibre and nonfibre values of forests.**Parameters:** Access to a demonstration forest and forest measurement tools.
Instructor training (current certification) in Standard Level First Aid is required.
See Section C (Planning for Instruction) and Section H (Linkages/Transitions) for further information on instructor training and certification.**Supporting Course:** CTR1210 Personal Safety (Management) [Career Transitions Strand]
Because of the practical nature of this course, students must have a general knowledge of basic first-aid and survival techniques relevant to forest environments. See Planning for Instruction in Section C for further information on student safety.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> describe random and systematic sampling techniques for gathering information about the forest resource 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> completing a research project on random and systematic sampling techniques and their application in gathering data about fibre and nonfibre forest values. Research to address problems related to bias, error, and the use of sample data in estimating forest populations. <p><i>Assessment Tool</i> <i>Research Process: Random and Systematic Sampling Techniques, FOR2060–1</i></p> <p><i>Standard</i> <i>Complete all components of research to a standard of 2 on the rating scale</i></p>	20

COURSE FOR2060: MEASURING THE FOREST 2 (SAMPLING TECHNIQUE) (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> summarizing and assessing the strengths and weaknesses of the sample data and statements made about the forest resource. <p><i>Assessment Tool</i> <i>Task Checklist: Sampling Fibre and Nonfibre Forest Values, FOR2060–2</i></p> <p><i>Standard</i> <i>Summarize and assess survey results (as outlined in the task checklist) to a standard of 2 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>10</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
<p>Sample Designs</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe different sampling designs and techniques: <ul style="list-style-type: none"> random systematic describe sample designs and techniques most suited to gathering data about specific forest components identify bias and error in sampling design, and problems related to the use of sample data in estimating forest populations. 	<p>Investigate applications of</p> <ul style="list-style-type: none"> transects plots/nested plots surveys and questionnaires. <p>For example:</p> <ul style="list-style-type: none"> distribution of tree species growth, age and/or volume of trees soil, water and/or wildlife characteristics potential for recreation and/or agriculture.

COURSE FOR2060: MEASURING THE FOREST 2 (SAMPLING TECHNIQUE) (continued)

Concept	Specific Outcomes	Notes
<p>Fibre and Nonfibre Values</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify goals/outcomes for a forest survey • identify the type and amount of information regarding the forest resource that is required • design techniques for sampling the forest region that are most suited to gathering the type of information required • calculate and locate the boundary of the sample area within the forest region • identify safety practices and policies relevant to gathering sample data in the forest • gather data regarding the volume and/or condition of timber resources within the sample plots • gather data regarding the nature of other nonfibre resources present within the sample plots • record sample data regarding fibre and nonfibre resources in appropriate tables and charts • compile sample data as required to estimate fibre volumes and other nonfibre values within the forest region • assess the strengths and weaknesses of the sample data and statements made about the forest resource. 	<p>PLAN AND SHARE - LEARN FROM OTHERS.</p> <p>Develop, as a class project, a sampling design appropriate to surveying a specific forest resource. Use the sampling design to collect data.</p> <p>For example,</p> <ul style="list-style-type: none"> • tree height/diameter • age of trees • number and distribution of species. <p>For example,</p> <ul style="list-style-type: none"> • soil and water quality • distribution of wildlife • potential for recreation/agriculture. <p>Make estimates regarding the forest population based on data collected.</p> <p>Discuss the validity/reliability of results.</p>

COURSE FOR2070: HARVEST PRACTICES (FIBRE HARVEST & PROCESSING)**Level:** Intermediate**Theme:** Technology and Applications**Prerequisite:** None**Description:** Students research the steps involved in harvesting and processing the forest fibre resource.**Parameters:** Access to forest harvest areas and forest products industries.

Off-campus learning may support components of research related to forest harvest and fibre utilization; 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, 1997) for further information regarding off-campus learning.

Supporting Course: CTR2210 Workplace Safety Practices [Career Transitions Strand]

Students must have a general knowledge of potential hazards and accepted safety practices relevant to forest harvest sites prior to engaging in off-campus learning experiences. See Planning for Instruction in Section C for further information regarding student safety.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> identify major components of a plan for a forest harvest 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> identifying major components of a plan for forest harvest, including: <ul style="list-style-type: none"> when and how much to cut methods of harvest (e.g., clearcutting, shelter wood method) and logging (e.g., hand, mechanical) regeneration and environmental protection. <p><i>Assessment Tool</i> <i>Knowledge/Application Assessment: Forest Harvest, FOR2070-1</i> <i>Sample Checklist: Forest Harvest Plans, FOR2070-2</i></p> <p><i>Standard</i> <i>Respond to a standard of 2 on the rating scale</i></p>	15

COURSE FOR2070: HARVEST PRACTICES (FIBRE HARVEST & PROCESSING)
(continued)

Concept	Specific Outcomes	Notes
Harvest Plan (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain applications of forest inventory information in establishing a plan for harvest: <ul style="list-style-type: none"> – identification of tree species – determining timber quality, volume and age – layout of cutting area and landing sites – planning for forest access • describe applications of different methods of forest harvest: <ul style="list-style-type: none"> – clearcutting – selective cutting – shelter wood cutting • describe applications of different methods of forest regeneration: <ul style="list-style-type: none"> – natural – artificial • identify environmental concerns to be addressed through harvest plans: <ul style="list-style-type: none"> – protection of sensitive areas – impact on downstream values – landslide and erosion hazards. 	<p>Videos relevant to harvest planning and available from Alberta Pacific Forest Industries (telephone: 1-800-661-5210) include:</p> <ul style="list-style-type: none"> • <i>A Pledge to the Future: The Alberta Pacific Story</i> (23 minutes) • <i>With Eyes on Tomorrow</i> (38 minutes). <p>Identify considerations relevant to establishing the size and location of harvest tracts.</p> <p>Investigate road and landing requirements for a local harvest operation.</p> <p>Discuss the scheduling of equipment and completion dates for harvest operations.</p>
Harvest Techniques	<ul style="list-style-type: none"> • identify stages in the harvesting procedure from stump to mill: <ul style="list-style-type: none"> – falling, bucking and delimiting – skidding – loading and hauling • describe techniques and equipment used to fell, buck and delimit trees in a forest harvest operation • describe techniques and equipment used to transport logs from stump to landing site in a forest harvest operation • describe techniques and equipment used to transport logs from landing site to mill in a forest harvest operation 	<p>Plan for off-campus learning activities that will enable students to follow the tree from harvest to finished product.</p> <p>Ask students to describe the processes used in felling, bucking and delimiting a tree.</p> <p>For example,</p> <ul style="list-style-type: none"> • horses • mechanical skidders. <p>Contact local forest industry /forest industry suppliers for guest speakers and print material.</p>

COURSE FOR2070: HARVEST PRACTICES (FIBRE HARVEST & PROCESSING)
(continued)

Concept	Specific Outcomes	Notes
Harvest Techniques (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe techniques used in slash disposal and site rehabilitation following logging operations in a forest area • identify safety legislation and requirements relevant to visiting a forest harvest site. 	<p>Arrange for students to work with a local landowner in reclaiming an eroded forest area.</p> <p>Identify safety precautions relevant to felling and transporting trees. Contact Occupational Health and Safety for:</p> <ul style="list-style-type: none"> • <i>Logging Safety Manual</i> • <i>Chain Saw Safety Manual</i> • <i>Safety Log Transport Manual.</i>
Fibre Products	<ul style="list-style-type: none"> • identify major categories of forest products and give examples of each: <ul style="list-style-type: none"> – pulp and paper – lumber – veneer and plywood – board products – chemical and medicinal products • describe the steps and processes involved in log utilization at a sawmill • describe the steps and processes involved in fibre utilization at a pulp mill: <ul style="list-style-type: none"> – mechanical – chemical. 	<p>Visit a sawmill and pulp mill; prepare reports based on information gathered through visits.</p> <p>Make a list of the major tasks performed at a sawmill.</p> <p>Demonstrate and explain processes involved in producing a fibre product; e.g., paper.</p> <p>View <i>Weyerhaeuser - OSB Production</i>, a 30-minute video distributed by Ranson Productions, Edmonton (telephone: 403-437-3400).</p> <p>Identify safety regulations pertinent to sawmill and pulp mill operations.</p>

COURSE FOR2070: HARVEST PRACTICES (FIBRE HARVEST & PROCESSING)
(continued)

Concept	Specific Outcomes	Notes
Career Opportunities	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe potential careers in forest harvest and fibre utilization: <ul style="list-style-type: none"> – professional – technical – labour-based • describe employment statistics within one or more areas of specialization ; e.g.: <ul style="list-style-type: none"> – types of careers – number of workers – employment trends • infer career opportunities and trends from employment statistics • infer impacts of technology development and the marketplace on employment opportunities • predict possible forest harvest and/or fibre utilization industries in the future, and resulting career opportunities. 	<p>Interview people employed in forest harvest and fibre utilization industries. Identify general areas of industry specialization.</p> <p>Review National Occupational Profiles (NOC).</p> <p>Contact the “Career Hotline” (telephone 1-800-661-3753).</p> <p>Gather information from senior management people in the forest industry; also producers of value-added products.</p>

COURSE FOR2100: FORESTS FOREVER 2 (MANAGEMENT PRACTICES)**Level:** Intermediate**Theme:** Management and Conservation**Prerequisite:** FOR1100 Forests Forever 1 (Forest Use & Protection)**Description:** Students explain Alberta’s forest management goals, and describe the current management practices used to address these goals.**Parameters:** Access government and industry organizations responsible for the sustainable management of forests; e.g., Alberta Environmental Protection, Canadian Forestry Service.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> explain the goals of Alberta forest management 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> developing a rationale for forest management in Alberta that involves: <ul style="list-style-type: none"> identifying economic, environmental and social needs addressed through forest management definitions and examples of sustainable development, sustained yield and allowable cut. <p><i>Assessment Tool</i> <i>Knowledge/Application Assessment: Forest Management Goals, FOR2100–1</i></p> <p><i>Standard</i> <i>Respond to a standard of 2 on the rating scale</i></p>	30
	<ul style="list-style-type: none"> identify different types of forest use and the views and values of different users in the forest <ul style="list-style-type: none"> analyzing current issues related to different types of forest use. Analysis to include: <ul style="list-style-type: none"> a list of current uses/values of Alberta’s forests a summary of the views of different forest stakeholder groups an explanation of potential conflicts among stakeholder groups strategies for compromise and/or conflict resolution. <p><i>Assessment Tool</i> <i>Issue Analysis: Forest Use, FOR2100–2</i></p> <p><i>Standard</i> <i>Address criteria in issue analysis to a standard of 2 on the rating scale</i></p>	30

COURSE FOR2100: FORESTS FOREVER 2 (MANAGEMENT PRACTICES) (continued)

Concept	Specific Outcomes	Notes
Forest Management Goals (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify scientific, economic and social factors addressed through the management of forested lands in Alberta. 	<p>Possible factors to consider:</p> <ul style="list-style-type: none"> • the silvics of trees growing in the area • a cycle for utilization and replacement • the goals of different stakeholder groups.
Forest Uses and Users	<ul style="list-style-type: none"> • compare current uses and values of Alberta’s forests: <ul style="list-style-type: none"> – recreation and aesthetics – wildlife habitat – fibre production – range lands – coal and petroleum projects – hunting and trapping – water, air and soil quality – ecosystem maintenance – job creation • describe the views of different forest stakeholder groups and potential conflicts that may arise: <ul style="list-style-type: none"> – recreational – environmental – industrial • explain the need for consultation with other resource users and public involvement in forest management. 	<p>See <i>Alberta’s Focus on Forests</i> (Activity 4.3– Forest Perspectives; Activity 5.1–Forest Values).</p> <p>Supplementary sources of information include:</p> <ul style="list-style-type: none"> • <i>A Forest Journey – The Role of Wood in the Development of Civilization</i> (Harvard University Press) • <i>Canadian Forestry – The View Beyond the Trees</i> (Macmillan of Canada). <p>Encourage and facilitate activities that involve:</p> <ul style="list-style-type: none"> • roleplaying • discussion • interviewing.
Forest Management Practices	<ul style="list-style-type: none"> • identify components of conservation and utilization in current forest management practices • describe the mandates of agencies responsible for managing Alberta’s forested lands 	<p>Contact resource persons from relevant government and industry organizations.</p> <p>For example:</p> <ul style="list-style-type: none"> • Alberta Forest Service • Fish and Wildlife • Public Lands • Land Information Services.

COURSE FOR2100: FORESTS FOREVER 2 (MANAGEMENT PRACTICES) (continued)

Concept	Specific Outcomes	Notes
<p>Forest Management Practices (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe current management practices that make Alberta’s productive forests available to industry for commercial harvest: <ul style="list-style-type: none"> – forest management agreements – quota certificates – commercial timber permits – local timber permits • predict factors likely to influence future forest management practices. 	<p>Plan for group research and presentations.</p> <p>Possible factors to consider include:</p> <ul style="list-style-type: none"> • new knowledge and technology • increased public participation in decision making • population trends • recreation and tourism • natural resource extraction.

COURSE FOR2120: USERS IN THE FOREST**Level:** Intermediate**Theme:** Management and Conservation**Prerequisite:** None**Description:** Students identify different forest users, and explain the planning principles used to develop an integrated resource management plan.**Parameters:** Access to forest management plans available from government and industry organizations; e.g., Alberta Environmental Protection, Alberta Forest Products Association.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> identify different uses of the forest and the needs of each forest user explain principles of multiple and integrated land use 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> identifying four or more major categories of forest use (e.g., industry, recreation, tourism, environmental) and examples of forest users within each category. <p><i>Assessment Tool</i> <i>Knowledge/Application Assessment: Users in the Forest, FOR2120-1</i></p> <p><i>Standard</i> <i>Respond to a standard of 2 on the rating scale</i></p>	10
	<ul style="list-style-type: none"> completing a research project on the principles of multiple and integrated land use. Research to address: <ul style="list-style-type: none"> definitions and Alberta examples of multiple and integrated land use a comparison of multiple land use and integrated land use principles. <p><i>Assessment Tool</i> <i>Research Process: Multiple and Integrated Land Use, FOR2120-2</i></p> <p><i>Standard</i> <i>Complete all components of research to a standard of 2 on the rating scale</i></p>	30

COURSE FOR2120: USERS IN THE FOREST (continued)

Concept	Specific Outcomes	Notes
Forest Uses	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify and describe four or more major types of forest uses; e.g.: <ul style="list-style-type: none"> – industrial – recreational – wildlife habitat – water, air and soil quality • describe specific uses and multiple demands placed upon forested land; e.g.: <ul style="list-style-type: none"> – wood fibre production – wildlife management – grazing and range management – watershed – oil, gas and mining – recreation – protected areas • explain why forests can and should serve many purposes • describe examples of a variety of uses of Alberta’s forests; e.g.: <ul style="list-style-type: none"> – using different parts of the forest for different purposes – using the same area of the forest to obtain more than one benefit. 	<p>Introduce the course by reviewing the social, economic and environmental significance of forests.</p> <p>Plan for collaborative group projects and activities.</p>
Multiple and Integrated Land Use	<ul style="list-style-type: none"> • demonstrate how integrated land use involves using a common area of forested land for two or more purposes; e.g.: <ul style="list-style-type: none"> – wood fibre – range – wildlife – recreation – mining • describe examples of the integrated use of local forested lands • compare principles of integrated land use with principles of multiple use management • explain the goals of Integrated Resource Planning (IRP) in establishing policy and guidelines for managing forested land. 	<p>Contact a Land Use Officer (Land and Forest Services, Alberta Environmental Protection) for research materials.</p> <p>Support learning through the development of role-playing activities.</p>

COURSE FOR2120: USERS IN THE FOREST (continued)

Concept	Specific Outcomes	Notes
<p>Integrated Resource Management</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify and describe the basic components of Integrated Resource Planning (IRP); e.g.: <ul style="list-style-type: none"> – establishing a planning team – setting goals and objectives – soliciting public involvement – obtaining approval for the plan • prepare a flow chart that outlines relationships among the components of Integrated Resource Planning (IRP) • research two or more forest management plans having different goals, and identify components of Integrated Resource Planning (IRP) that are present in each; e.g.: <ul style="list-style-type: none"> – forest protection – access management – harvest planning – range management – wildlife management • develop a plan for the integrated use of a local forested area; e.g.: <ul style="list-style-type: none"> – conduct research – generate alternatives – agree to a workable solution. 	<p>See <i>Alberta's Focus on Forests</i>:</p> <ul style="list-style-type: none"> • Activity 5.1–Forest Perspectives • Activity 5.2–Decisions for Change • Activity 5.5–Integrated Resource Management.