COURSE OUTLINE: NRT245 - FOR HARVEST & PROD

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Course Code: Title	NRT245: FOREST HARVESTING AND PRODUCTS
Program Number: Name	5230: FORESTRY TECHNICIAN
Department:	NATURAL RESOURCES PRG
Academic Year:	2024-2025
Course Description:	Forest Harvesting and Products will provide students with the knowledge and skills needed for the planning and layout of forest operations. This includes layout of operations, including harvesting, forest access roads, bridges and culverts and the transportation of products for processing. Emphasis will be given to the identification, description and operational constraints of a very wide range of timber harvesting equipment. Students will use maps, aerial imagery and inventory data to plan harvesting operations in a variety of forest types. Current operational considerations and procedures applicable to timber harvesting will also be covered. Students will tour a variety of forest harvesting operations and industry processing plants and discuss the relationships between timber harvesting and the processing into a variety of products. The historical evolution of the timber industry and the impacts of past timber management practices on the forests and forest industry in Ontario.
Total Credits:	3
Hours/Week:	3
Total Hours:	42
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**5230 - FORESTRY TECHNICIAN** VLO 1 Conduct forest inventory surveys and field measurements to determine forest resources and values in forests and woodlots. VLO 2 Assess soil characteristics, vegetation and wildlife habitats to identify their interactions within forest ecosystems. VLO 4 Collect, analyze, interpret, and display spatial data using mapping technology and Geographical Information Systems (GIS) to contribute to forest resource management. VLO 6 Identify and analyze forest diseases, pests, invasive species and other disturbance events and implement mitigation strategies to maintain and improve forest ecosystems. VLO 7 Select, operate, troubleshoot and maintain tools and equipment in a variety of environmental conditions and in accordance with safety and operating standards. VLO 8 Work independently and in a collaborative environment while applying effective teamwork, leadership and interpersonal skills. VLO 9 Communicate technical information to a variety of stakeholders in oral, written, visual and electronic forms.

Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	Academic success is directly linked to attendance. Missing more that 1/3 of the course hours in a semester shall result in an `F` Grade for the course.

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
1. Trace the historical evolution of the forest industry in Ontario and relate past practices to the current forest industry.	1.1 Identify and describe historical logging equipment. 1.2 Trace the evolution of logging and logging equipment in Ontario. 1.3 Understand how past forest practices have influenced current forest harvesting and product markets.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Use local operational and topographic maps and aerial imagery to layout and construct forest access roads, including water crossings.	2.1 Understand Standard Operating Procedures for the different classifications of Forest Access Roads. 2.2 Delineate water sheds using maps and aerial photo. 2.3 Calculate watershed areas and culvert sizes and prepare site plan. 2.4 Understand requirements for Forestry Aggregate Pits and authority under the CFSA. 2.5 Knowledge of OMNRF requirements and components of a standard water crossing applications. 2.6 Identify equipment used in road construction.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Identify harvesting equipment and operational considerations for	3.1 Identify a variety of harvesting equipment currently used in the industry. 3.2 List and describe and compare logging methods.

	harvesting equipment in different forest types under different silvicultural methods.	3.3 List and describe equipment required to load and transport raw forest products. 3.4 Identify advantages and disadvantages of specific pieces of harvesting equipment. 3.5 List advantages and disadvantages of logging methods and effects on long-term sustainability. 3.6 Demonstrated knowledge of the Occupational Health and Safety Act and mandatory skills training from Workplace Safety North for forestry workers.
	Course Outcome 4	**Learning Objectives for Course Outcome 4**
	4. Use local operational, topographic and aerial imagery to plan and layout harvesting operations in a variety of forest types under different silvicultural methods.	4.1 Plan and utilize best management practices and standards as per the Stand and Site Guide. 4.2 Identify and locate harvest areas, road location and harvesting constraints including areas of concern 4.3 Determine the feasibility of forest stands for harvesting. 4.4 Outline methods of constructing forest access roads in an environmentally responsible manner. 4.5 Identify forest types, ecosites, special features and habitats.
	Course Outcome 5	**Learning Objectives for Course Outcome 5**
	5. Identify a variety of wood products produced in the forest industry. Understand the relationship between harvesting operations and the products produced. Also, recognizing the influence of global markets on the Canadian forest industry.	5.1 Identify roundwood, chip and biomass forest products produced in Canada. 5.2 Relate roundwood, chip and biomass forest products to the end product and consumer. 5.3 Recognize the influence of global markets on the production of forest products. 5.4 Understand the current market values of forest products. 5.5 Identify units of measure.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments	40%
Field Trips and Engagement	30%
Tests/quizzes	30%

Date: July 17, 2024

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.