

# **SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



## **COURSE OUTLINE**

**COURSE TITLE:** Forest Plant Biology

**CODE NO. :** NRT140 **SEMESTER:** Fall 2015

**PROGRAM:** Forest Conservation Technician

**AUTHOR:** Bob Knudsen

**DATE:** August 2015 **PREVIOUS OUTLINE DATED:** August 2014

**APPROVED:** "Colin Kirkwood" August 2015

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**DEAN**

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**DATE**

**TOTAL CREDITS:** 3

**PREREQUISITE(S):** NONE

**HOURS/WEEK:** 3

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**I. COURSE DESCRIPTION:**

This course provides the student with a practical understanding of the classification, structure and functioning of plants in general with special consideration for woody plants. The concepts presented in this course will have direct application in a number of courses in the Forest Conservation Technician Program

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

1. Describe what a species is and how all species relate in their evolutionary history.

Potential Elements of the Performance:

- apply the classification. List various characteristics used to practically distinguish different species
- Describe and use the binomial system of classification
- Explain phylogeny and system

2. Describe the structure and functioning of a plant cell

Potential Elements of the Performance:

- List and describe the function and interactions of the following cell components: cell wall, cell membrane, nucleus, nucleolus, chloroplast, mitochondria, ribosomes, golgi apparatus, vacuoles and endoplasmic reticulum
- Describe the structural roles of carbohydrates, lipids, amino acids and nucleic acids in cells

3. Describe the anatomy, function and inter-relationships of specified structures of a plant.

Potential Elements of the Performance:

- Describe cells and tissues of leaves, stems, and roots
- Distinguish by anatomical features between flowering plants and gymnosperms and between monocots and dicots
- Recognize cells and tissues of leaves, stems and roots from microscopic slides

#### 4. Metabolic Processes

##### Potential Elements of the Performance:

- Describe the processes involved in photosynthesis
- Describe the processes involved in respiration
- Describe the processes involved in transpiration
- Describe the processes involved in water, soils and nutrient uptake

#### 5. Describe plant growth process

##### Potential Elements of the Performance:

- Describe the various meristematic regions in plant including vascular cambium, cork cambium and apical meristems
- Describe the roles of auxins and gibberellins in plant growth
- Distinguish between primary and secondary growth
- Describe the process of annual growth in woody plants

#### 6. Describe reproductive processes in plants

##### Potential Elements of the Performance:

- differentiate between sexual and asexual reproduction
- list and give examples of 6 different vegetative methods of reproduction
- distinguish between haploid and diploid conditions, gametophyte and sporophyte generations, spores and seeds

#### 7. Describe life cycles of various plant groups

##### Potential Elements of the Performance:

- distinguish between different stages in the life cycles of ferns, mosses, club mosses, conifers and flowering plants
- draw from microscope slides specified life stages

### III. TOPICS:

1. Classification of plants
2. The plant cell
3. Plant structure
4. Metabolic processes
5. Plant growth
6. Plant reproduction and life cycles

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

Stern, K.A.. Introductory Plant Biology. Wm. C. Brown Publishers. 537pp

**V. EVALUATION PROCESS/GRADING SYSTEM:**

Mid-term Test	20%
Final Test	20%
<u>Lab Assignments</u>	<u>60%</u>
<b>TOTAL</b>	<b>100%</b>

The following semester grades will be assigned to students:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**VI. SPECIAL NOTES:**Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions.

This implies arriving on time and remaining for the duration of the scheduled session.

**VII. COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline