Forestry Natural Resources

03.0501

Career Cluster: Agriculture, Food & Natural Resources

Pathway: **Natural Resources System**

Last Update: 1999

Title: Forestry, General.

Definition:

A program that generally prepares individuals to manage and develop forest areas for economic, recreational, and ecological purposes. Includes instruction in forest-related sciences, mapping, statistics, harvesting and production technology, natural resources management and economics, wildlife sciences, administration, and public relations.

DIRECTIONS

Evaluate the student by checking the appropriate box to indicate the degree of Competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

**Rating Scale:**

1. **No exposure**
2. **Introduced**- the student has been exposed through non participatory instruction (e.g. lecture, demonstration, field trip, and video).
3. **Practiced**- the student can perform the task with direct supervision.
4. **Entry-Level Competency**- the student can perform the task with limited supervision and/or does not perform the task to standard (a typical entry-level performance expectation).
5. **Competency**- the student consistently performs task to standard with no supervision (on at least two occasions or at instructor’s option).

Occupational Skills

0 1 2 3 4 B. Practice Work Place/Equipment Safety

(Vermont Standards: 3.3, 7.18)

0 1 2 3 4 C. Apply Surveying and Mapping Skills

(Vermont Standards: 7.6, 7.7)

0 1 2 3 4 D. Perform Forest Management Tasks

(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18)

0 1 2 3 4 D. Protect Forests from Pests, Diseases and Fire

(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18)

0 1 2 3 4 E. Harvest and Process Timber

(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18))

0 1 2 3 4 F. Process Forest Products (e.g. Maple Syrup, Christmas Trees)

(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18)

0 1 2 3 4 G. Apply Best Management Practices with Land, Soil and Water Conservation

(Vermont Standards: 1.22, 3.5, 3.9, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.14, 7.15, 7.17, 7.18)

0 1 2 3 4 H. Apply Wildlife and Outdoor Recreation Management Skills

(Vermont Standards: 7.2, 7.10, 7.11, 7.13, 7.15)

0 1 2 3 4 I. Operate and Maintain Forestry/Conservation Equipment

(Vermont Standards: 1.22, 3.3, 7.18)

0 1 2 3 4 J. Apply Business Management Skills

(Vermont Standards: 1.6, 1.22, 2.2, 2.11, 3.8, 5.18, 6.16, 7.6, 7.10, 7.17)

0 1 2 3 4 K. Apply Sales/Marketing Concepts

(Vermont Standards: 1.1, 2.14, 4.1, 4.2, 6.16, 6.17, 6.18, 6.19)

0 1 2 3 4 L. Apply Leadership Skills

(Vermont Standards: 1.5, 1.11, 1.13, 1.21, 2.2, 2.14, 3.5, 3.7, 3.10, 4.1, 4.2, 4.3, 4.4, 4.5, 5.5, 5.6, 5.7, 6.2, 6.3, 6.10, 6.12, 6.13, 6.15, 6.20, 6.21)

## FORESTRY AND NATURAL RESOURCES

0 1 2 3 4 B. Practice Work Place/Equipment Safety

* B.001 Use proper clothing, shoes/boots, safety glasses, ear protection, breathing apparatus, shields, and other safety equipment.
* B.002 Follow appropriate fire safety practices.
* B.003 Follow appropriate first aid procedures.
* B.004 Follow proper hazardous chemical/material control procedures, being aware of the “Right to Know” regulations.
* B.005 Use tools and equipment listed in Appendix A safely (list to be developed by each technical center).

0 1 2 3 4 C. Apply Surveying and Mapping Skills

* C.001 Use scales, rulers, compasses, stereoscope, and other instruments.
* C.002 Use topographic maps and aerial photographs.
* C.003 Measure acreage and distance.
* C.004 Read and interpret map symbols and scale.
* C.005 Use surveying equipment such as a hand or staff compass, and transit or level (including state of the art surveying equipment).
* C.006 Survey grades (Differential leveling).
* C.007 Locate corners, boundary lines and benchmarks on a piece of land.

0 1 2 3 4 D. Perform Forest Management Tasks

* D.001 Estimate volume of standing trees with a

Biltmore/ International or Vermont stick, tally sheet, and

volume tables.

* D.002 Identify tree species (using twigs, bark, etc.)
  + D.003 Be familiar with the multi-use concept of forest Management.
* D.004 Use volume scale, sticks, tally sheets, volume table, prism (basal area), measuring tapes, pacing, compass, and increment borers.

0 1 2 3 4 E. Protect Forests From Pests, Diseases and Fire

* E.001 Follow “Green Card” (U.S. Forest Service) prescribed tasks.
* E.002 Identify common insects, woodland diseases, and animal damage.

0 1 2 3 4 F. Harvest and Process Timber

* F.001 Demonstrate knowledge of the selection of harvesting systems, according to state standards (Best Management Practices).
* F.002 Identify logs and lumber.
* F.003 Perform safe felling procedures.
* F.004 Measure, grade, and buck tree length logs, according to industry standards.
* F.005 Tally and scale lumber, according to industry standards (NELMA).
* F.006 Perform safe skidding procedures.
* F.007 Operate chain saws in a safe manner to manufacturers’ specifications.

0 1 2 3 4 G. Process Forest Products (e.g. Maple Syrup, Christmas Trees)

* G.001 Determine product markets.
* G.002 Apply quality standards.
* G.003 Demonstrate processing best practices.

0 1 2 3 4 H. Apply Best Management Practices with Land, Soil, and Water Conservation

* H.001 Be familiar with types of soil erosion.
* H.002 Be familiar with proven methods for preventing soil erosion (water bars, check dams, silt fencing, etc.)
* H.003 Be familiar with current forest practices laws and acceptable management practices to control soil erosion.
* H.004 Be familiar with acceptable management practices for maintaining water quality on logging jobs.
* H.005 Determine the soil capability for a sample land plot.

0 1 2 3 4 I. Apply Wildlife and Outdoor Recreation Management Skills

* I.001 Identify wildlife management principles.
* I.002 Identify recreational area environmental management principles.

0 1 2 3 4 J. Operate and Maintain Forestry/Conservation Equipment

* J.001 Safely maintain the proper hand and power tools for specific jobs.
* J.002 Service gasoline (2 and 4 cycle) and diesel engines to manufacturer’s specifications.
* J.003 Maintain chain saws in a safe manner to manufacturer’s specifications.
* J.004 Build, maintain and/or repair structures, following proper construction/maintenance procedures.
* J.005 Safely operate and maintain bulldozer, backhoe, dump truck, trailer, skidders,…..
* J.006 Interpret blueprints/project plans for use with heavy equipment (Plan and Profile).
* J.007 Operate a rubber-tired skidder and/or bulldozer safely.

0 1 2 3 4 K. Apply Business Management Skills

* K.001 Develop a business plan.
* K.002 Present a business plan.
* K.003 Investigate and identify sources of credit.
* K.004 Select and maintain financial and production record keeping systems.
* K.005 Prepare a cash flow statement.
* K.006 Complete a profit and loss statement.
* K.007 Balance a bank statement (reconciliation).
* K.008 Review sources and kinds of business insurance.
* K.009 Identify major elements in contract and lease agreements.
* K.010 Prepare and negotiate bids.
* K.011 Identify sources of forestry/natural resource information and assistance.
* K.012 Maintain a file of current technical information.
* K.013 Participate in associations and societies related to forestry/natural resources.
* K.014 Apply computer technology.

0 1 2 3 4 L. Apply Sales/Marketing Concepts

* L.001 Identify sales methods.
* L.002 Prepare a marketing plan.

0 1 2 3 4 M. Apply Leadership Skills

* M.001 Participate in state/regional/national competitive events.
* M.002 Practice and refine problem-solving skills in groups.
* M.003 Develop personal management skills.
* M.004 Employ interpersonal, negotiating, and team building skills.
* M.005 Influence others to act in a prescribed manner/move in a given direction.
* M.006 Demonstrate civic/social responsibility.