# Nursery and Landscape Operations Course No. 18067 Credit: 1.0

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| --- | --- | --- | --- |
| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes: **Plant Science and Industry Operations (01.1101).**

Course Description: Course provides instruction that incorporates plant science, soil and media mixtures, plant identification and optimal environments, and landscape design. These courses emphasize applying such knowledge & skill to the design, establishment, and maintenance of lawns, parks, open space & similar environments.

Special Note: The AFNR College and Career Ready Skills are to be taught throughout the course utilizing FFA and SAE programming found at the Kansas Ag Ed website. Specific activities may be found in the SAE for All Teachers Guide and at National FFA.org. The AFNR College and Career Ready Skills competencies can be found at Kansas Ag Ed.

Opportunities in Agriculture Education & FFA:Classroom and laboratory instruction integrates and/or is supplemented by experiential, project, and leadership and personal development through FFA .Students should be introduced to FFA through leadership activities and College and Career Ready Skills. Specific FFA information and activities may be found in the “National FFA Student Handbook, 16thedition”. Student activities, scoring rubrics, grading examples, and teacher lessons are all found in the “FFA Student Handbook Teachers Guide”. Additional information can be found at [www.ffa.org](http://www.ffa.org/).

Workplace Skills, Supervised Agricultural Experience and Record Keeping: Classroom and laboratory instruction integratesand/or is supplemented by experiential, project, and work based learning through SAE. Specific SAE activities that support the College and Career Ready Skills may be found in the “SAE for All Guide”. Students should be introduced to Foundational SAE’s and the AET student portfolio system. Student activities, scoring rubrics, grading examples, and teacher lessons are all found in the “SAE for All Teachers Guide”. Additional information is found in the SAE Individual Learning Guides and Teacher Editions and in the AFNR College and Career Ready Competency Profile found at *Kansas Ag* *Ed.*

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Nursery and Landscape Industry and Careers

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Identify career opportunities in the nursery and landscaping industry. |  |
| 1.2 | Apply for a job for an Green industry related career. |  |

## Benchmark 2: Characteristics and factors of selecting landscape plants

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify the differing growth patterns of turf grasses , ornamental grasses, ground covers, bedding plants, shrubs & trees. |  |
| 2.2 | Describe the effects of soil types on landscape plants. |  |
| 2.3 | Describe the effects of soil pH on landscape plants. |  |
| 2.4 | Describe the effects of slope on landscape plants. |  |
| 2.5 | Describe the effects of wind on landscape plants. |  |
| 2.6 | Determine the size, shape & color of landscape plants. |  |
| 2.7 | Determine the plant hardiness zones of landscape plants. |  |
| 2.8 | Determine the economic value of landscape plants. |  |

## Benchmark 3: Identification of landscape plants & turf grasses

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Identify the basic structural features of trees, shrubs, ground covers, vines, perennials, & turf grasses. |  |
| 3.2 | Identify the distinguishing characteristics of evergreens. |  |
| 3.3 | Identify the distinguishing characteristics of turf grasses. |  |
| 3.4 | Identify selected trees, shrubs, ground covers, vines, perennials & turf grasses. |  |

## Benchmark 4: Maintenance & usage of tools & materials used in landscaping operations

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Identify and maintain hand tools and equipment. |  |
| 4.2 | Identify, maintain, and safely use power tools. |  |
| 4.3 | Calibrate and adjust landscape equipment. |  |
| 4.4 | Identify common landscape materials and their usage. |  |

## Benchmark 5: Installation and maintenance of landscape plants

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Transplant a bare-root, container-grown, grow bags or B and B plants. |  |
| 5.2 | Stake, guy and wrap a newly-planted tree. |  |
| 5.3 | Identify reasons, techniques and timing for the pruning process. |  |
| 5.4 | Prune landscape plants. |  |
| 5.5 |  Fertilize landscape. |  |
| 5.6 | Determine water needs of specific situations. |  |

## Benchmark 6: Installation and maintenance of turf grass

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Determine method of propagation. |  |
| 6.2 | Describe and demonstrate the procedures for installing turf grasses. |  |
| 6.3 | Determine fertilizer needs. |  |
| 6.4 | Determine watering needs. |  |
| 6.5 | Determine mowing practices & procedures. |  |
| 6.6 | Determine renovation practices & procedures. |  |
| 6.7 | Interpret seed label information. |  |
| 6.8 | Calculate % pure seed and cost/pound pure live seed. |  |
| 6.9 | Determine planting rate, date, depth, and mulching needed. |  |
| 6.10 | Conduct soil samples for soil tests. |  |

## Benchmark 7: Installing a landscape bed

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Prepare, amend & install the soil bed. |  |
| 7.2 | Calculate plant spacing. |  |
| 7.3 | Select & apply bedding materials. |  |
| 7.4 | Select & apply landscape edging. |  |
| 7.5 | Evaluate and modify landscape bed for proper drainage. |  |

## Benchmark 8: Landscape Site Evaluation

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Analyze a landscape site (utilities, slope, soil type, existing features, etc.). |  |
| 8.2 | Draw a base map. |  |
| 8.3 | Conduct customer criteria. |  |

## Benchmark 9: Landscape design

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Identify and explain the four elements of landscape design. |  |
| 9.2 | Effectively use design symbols in a landscape plan. |  |
| 9.3 | Implement the use of natural and manufactured enrichments in a landscape plan. |  |
| 9.4 | Identify the five principles of design. |  |
| 9.5 | Apply both the principles and elements of design to create a landscape design. |  |
| 9.6 | Select plants for specific purposes in the landscape design. |  |
| 9.7 | Select materials & hard goods for specific purposes in the landscape design. |  |
| 9.8 | Complete a scaled blueprint of landscape design. |  |

## Benchmark 10: Pesticide & Fertilizer Safety & Usage

### Competencies

| **#** | **Description** | **rating** |
| --- | --- | --- |
| 10.1 | Describe the mode of action of various pesticide formulations. |  |
| 10.2 | Accurately interpret a pesticide label for information about use, effectiveness, and safe handling. |  |
| 10.3 | Identify safety precautions that should be followed when using pesticides. |  |
| 10.4 | Select, mix and apply pesticides to landscape plants. |  |

## Benchmark 11: Plant Pest Control

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 11.1 | Identify pests & physiological problems associated with landscape plants. |  |
| 11.2 | Describe the components of an Integrated Pest Management Control Program. |  |
| 11.3 | Demonstrate safe handling, storage, and application of chemicals. |  |

## Benchmark 12: Woody Plant Propagation

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 12.1 | Perform propagation by cuttings: |  |
|  | * Herbaceous stem cutting
 |  |
|  | * Softwood stem cutting
 |  |
|  | * Semi-hardwood cutting
 |  |
|  | * Deciduous hardware cutting
 |  |
|  | * Evergreen hardwood cutting
 |  |
| 12.2 | Perform propagation by grafting: |  |
|  | * Cleft graft
 |  |
|  | * Whip & tongue graft
 |  |
|  | * Splice graft
 |  |
|  | * Approach graft
 |  |
|  | * Side graft
 |  |
| 12.3 | Perform propagation by budding: |  |
|  | * T-Bud
 |  |
|  | * Patch bud
 |  |
|  | * Chip bud
 |  |

## Benchmark 13: Nursery Production Practices

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 13.1 | Prepare rooted cuttings for potting. |  |
| 13.2 | Root prune nursery stock. |  |
| 13.3 | Prune & train nursery stock. |  |
| 13.4 | Identify and select nursery stock. |  |
| 13.5 | Select & divide nursery stock. |  |
| 13.6 | Design & layout a nursery field. |  |
| 13.7 | Selection & evaluation of nursery stock for harvest. |  |

## Benchmark 14: Hardscapes & Water Features

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 14.1 | Install Retaining wall systems by: |  |
|  | * Landscape timbers/railroad ties
 |  |
|  | * Native stones/rock
 |  |
|  | * Concrete block
 |  |
| 14.2 | Install patios & walkways by: |  |
|  | * Concrete pavers/brick
 |  |
|  | * Flagstones
 |  |
|  | * Concrete
 |  |
|  | * Gravel/mulch
 |  |
|  | * Install fences & arbors
 |  |
|  | * Install low voltage landscape lighting
 |  |
|  | * Identify & select water plants
 |  |
|  | * Design & install ponds & water gardens
 |  |
|  | * Select & install pumps, fountains, bubbler heads
 |  |

## Benchmark 15: Irrigation

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 15.1 | Design & layout an irrigation system. |  |
| 15.2 | Identify & select irrigation parts & supplies. |  |
| 15.3 | Interpret irrigation plans. |  |
| 15.4 | Adjust and maintain irrigation systems. |  |
| 15.5 | Calculate matched precipitation. |  |
| 15.6 | Install irrigation systems: |  |
|  | * Popups
 |  |
|  | * Rotors
 |  |
|  | * Drips
 |  |
|  | * Mist
 |  |
|  | * Soaker
 |  |

## Benchmark 16: Customer Relations & Business Practices

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 16.1 | Schedule & conduct customer interview. |  |
| 16.2 | Design & implement a sales presentation. |  |
| 16.3 | Understand & utilize common business documents. |  |
| 16.4 | Demonstrate professional ethics. |  |

## Benchmark 17: Math in Nursery/Landscape

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 17.1 | Understand & calculate math basic applications: |  |
|  | * Square inches per square foot
 |  |
|  | * Square feet per square yard
 |  |
|  | * Square feet per cubic yard
 |  |
|  | * Square feet per acre
 |  |
| 17.2 | Select and determine amount and cost of hardscape materials for a landscape plan. |  |
| 17.3 | Determine & calculate a landscape design budget for the customer. |  |
| 17.4 | Calculate the price of a landscape design. |  |
| 17.5 | Develop a cost estimate for a landscape design. |  |
| 17.6 | Calculate chemical & fertilizer ratios. |  |

Benchmark 18: General Safety Practices

Competencies

| # | DESCRIPTION | RATING |
| --- | --- | --- |
| 18.1 | Recognize hazardous materials & situations. |  |
| 18.2 | Demonstrate general safety procedures. |  |
| 18.3 | Demonstrate safe handling of chemicals. |  |
| 18.4 | Demonstrate safe handling of tools & equipment. |  |
| 18.5 | Demonstrate basic first aid. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

pathwayshelpdesk@ksde.org



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

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