Course Description:
This laboratory course provides students with entry-level skills for employment in the forest industry; including instruction in establishment of the forest by natural and artificial means, forest maintenance and surveillance, tree identification, protection, silviculture, tree and land measurement, mapping, preparation for timber sales and harvest, multiple use resource management, record keeping, and taxation.

Course Standard 1

AFNR-FSII-1
The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

Standard: Demonstrate employability skills required by business and industry.
The following elements should be integrated throughout the content of this course.

1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.

<table>
<thead>
<tr>
<th>Person-to-Person Etiquette</th>
<th>Telephone and Email Etiquette</th>
<th>Cell Phone and Internet Etiquette</th>
<th>Communicating At Work</th>
<th>Listening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interacting with Your Boss</td>
<td>Telephone Conversations</td>
<td>Using Blogs</td>
<td>Improving Communication Skills</td>
<td>Reasons, Benefits, and Barriers</td>
</tr>
<tr>
<td>Interacting with Subordinates</td>
<td>Barriers to Phone conversations</td>
<td>Using Social Media</td>
<td>Effective Oral Communication</td>
<td>Listening Strategies</td>
</tr>
<tr>
<td>Interacting with Co-workers</td>
<td>Making and Returning Calls</td>
<td></td>
<td>Effective Written Communication</td>
<td>Ways We Filter What We Hear</td>
</tr>
<tr>
<td>Interacting with Suppliers</td>
<td>Making Cold Calls</td>
<td></td>
<td>Effective Nonverbal Skills</td>
<td>Developing a Listening Attitude</td>
</tr>
<tr>
<td></td>
<td>Handling Conference Calls</td>
<td></td>
<td>Effective Word Use</td>
<td>Show You Are Listening</td>
</tr>
<tr>
<td></td>
<td>Handling Unsolicited Calls</td>
<td></td>
<td>Giving and Receiving Feedback</td>
<td>Asking Questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Obtaining Feedback</td>
<td>Getting Others to Listen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nonverbal Communication</th>
<th>Written Communication</th>
<th>Speaking</th>
<th>Applications and Effective Résumés</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating Nonverbally</td>
<td>Writing Documents</td>
<td>Using Language Carefully</td>
<td>Completing a Job Application</td>
</tr>
<tr>
<td>Reading Body Language and mixed Messages</td>
<td>Constructive Criticism in Writing</td>
<td>One-on-One Conversations</td>
<td>Writing a Cover Letter</td>
</tr>
<tr>
<td>Matching Verbal and Nonverbal communication</td>
<td>Small Group Communication</td>
<td></td>
<td>Things to Include in a Résumé</td>
</tr>
<tr>
<td>Improving Nonverbal Indicators</td>
<td>Large Group Communication</td>
<td></td>
<td>Selling Yourself in a Résumé</td>
</tr>
<tr>
<td>Nonverbal Feedback</td>
<td>Making Speeches</td>
<td></td>
<td>Terms to Use in a Résumé</td>
</tr>
</tbody>
</table>
1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

<table>
<thead>
<tr>
<th>Teamwork and Problem Solving</th>
<th>Meeting Etiquette</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking Creatively</td>
<td>Preparation and Participation in Meetings</td>
</tr>
<tr>
<td>Taking Risks</td>
<td>Conducting Two-Person or Large Group Meetings</td>
</tr>
<tr>
<td>Building Team Communication</td>
<td>Inviting and Introducing Speakers</td>
</tr>
<tr>
<td></td>
<td>Facilitating Discussions and Closing</td>
</tr>
<tr>
<td></td>
<td>Preparing Visual Aids</td>
</tr>
<tr>
<td></td>
<td>Virtual Meetings</td>
</tr>
</tbody>
</table>

1.3 Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.

<table>
<thead>
<tr>
<th>Problem Solving</th>
<th>Customer Service</th>
<th>The Application Process</th>
<th>Interviewing Skills</th>
<th>Finding the Right Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transferable Job Skills</td>
<td>Gaining Trust and Interacting with Customers</td>
<td>Providing Information, Accuracy and Double Checking</td>
<td>Preparing for an Interview</td>
<td>Locating Jobs and Networking</td>
</tr>
<tr>
<td>Becoming a Problem Solver</td>
<td>Learning and Giving Customers What They Want</td>
<td>Online Application Process</td>
<td>Questions to Ask in an Interview</td>
<td>Job Shopping Online</td>
</tr>
<tr>
<td>Identifying a Problem</td>
<td>Keeping Customers Coming Back</td>
<td>Following Up After Submitting an Application</td>
<td>Things to Include in a Career Portfolio</td>
<td>Job Search Websites</td>
</tr>
<tr>
<td>Becoming a Critical Thinker</td>
<td>Seeing the Customer’s Point</td>
<td>Effective Résumés: Traits Employers are Seeking</td>
<td>Participation in Job Fairs</td>
<td></td>
</tr>
<tr>
<td>Managing</td>
<td>Selling Yourself and the Company</td>
<td>Matching Your Talents to a Job</td>
<td>Considerations Before Taking a Job</td>
<td>Searching the Classified Ads</td>
</tr>
<tr>
<td>Handling Customer Complaints</td>
<td></td>
<td>When a Résumé Should be Used</td>
<td></td>
<td>Using Employment Agencies</td>
</tr>
<tr>
<td>Strategies for Customer Service</td>
<td></td>
<td></td>
<td></td>
<td>Landing an Internship</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Staying Motivated to Search</td>
</tr>
</tbody>
</table>

1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

<table>
<thead>
<tr>
<th>Workplace Ethics</th>
<th>Personal Characteristics</th>
<th>Employer Expectations</th>
<th>Business Etiquette</th>
<th>Communicating at Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrating Good Work Ethic</td>
<td>Demonstrating a Good Attitude</td>
<td>Behaviors Employers Expect</td>
<td>Language and Behavior</td>
<td>Handling Anger</td>
</tr>
<tr>
<td>Behaving Appropriately</td>
<td>Gaining and Showing Respect</td>
<td>Objectionable Behaviors</td>
<td>Keeping Information Confidential</td>
<td>Dealing with Difficult Coworkers</td>
</tr>
<tr>
<td>Maintaining Honesty</td>
<td>Demonstrating Responsibility</td>
<td>Establishing Credibility</td>
<td>Avoiding Gossip</td>
<td>Dealing with a Difficult Boss</td>
</tr>
<tr>
<td>Playing Fair</td>
<td>Showing Dependability</td>
<td>Demonstrating Your Skills</td>
<td>Appropriate Work Email</td>
<td>Dealing with Difficult Customers</td>
</tr>
<tr>
<td>Using Ethical Language</td>
<td>Being Courteous</td>
<td>Building Work Relationships</td>
<td>Cell Phone Etiquette</td>
<td>Dealing with Conflict</td>
</tr>
<tr>
<td>Showing Responsibility</td>
<td>Gaining Coworkers’ Trust</td>
<td></td>
<td>Appropriate Work Texting</td>
<td></td>
</tr>
</tbody>
</table>
### Georgia Department of Education

<table>
<thead>
<tr>
<th>Reducing Harassment</th>
<th>Persevering</th>
<th>Understanding Copyright</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respecting Diversity</td>
<td>Handling Criticism</td>
<td>Social Networking</td>
</tr>
<tr>
<td>Making Truthfulness a Habit</td>
<td>Showing Professionalism</td>
<td></td>
</tr>
<tr>
<td>Leaving a Job Ethically</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.

<table>
<thead>
<tr>
<th>Expected Work Traits</th>
<th>Teamwork</th>
<th>Time Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrating Responsibility</td>
<td>Teamwork Skills</td>
<td>Managing Time</td>
</tr>
<tr>
<td>Dealing with Information Overload</td>
<td>Reasons Companies Use Teams</td>
<td>Putting First Things First</td>
</tr>
<tr>
<td>Transferable Job Skills</td>
<td>Decisions Teams Make</td>
<td>Juggling Many Priorities</td>
</tr>
<tr>
<td>Managing Change</td>
<td>Team Responsibilities</td>
<td>Overcoming Procrastination</td>
</tr>
<tr>
<td>Adopting a New Technology</td>
<td>Problems That Affect Teams</td>
<td>Organizing Workspace and Tasks</td>
</tr>
<tr>
<td></td>
<td>Expressing Yourself on a Team</td>
<td>Staying Organized</td>
</tr>
<tr>
<td></td>
<td>Giving and Receiving Constructive Criticism</td>
<td>Finding More Time</td>
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<td></td>
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<tr>
<td></td>
<td>Managing Projects</td>
<td></td>
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<tr>
<td></td>
<td>Prioritizing Personal and Work Life</td>
<td></td>
</tr>
</tbody>
</table>

#### 1.6 Present a professional image through appearance, behavior and language.

<table>
<thead>
<tr>
<th>On-the-Job Etiquette</th>
<th>Person-to-Person Etiquette</th>
<th>Communication Etiquette</th>
<th>Presenting Yourself</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Professional Manners</td>
<td>Meeting Business Acquaintances</td>
<td>Creating a Good Impression</td>
<td>Looking Professional</td>
</tr>
<tr>
<td>Introducing People</td>
<td>Meeting People for the First Time</td>
<td>Keeping Phone Calls Professional</td>
<td>Dressing for Success</td>
</tr>
<tr>
<td>Appropriate Dress</td>
<td>Showing Politeness</td>
<td>Proper Use of Work Email</td>
<td>Showing a Professional Attitude</td>
</tr>
<tr>
<td>Business Meal Functions</td>
<td></td>
<td>Proper Use of Cell Phone</td>
<td>Using Good Posture</td>
</tr>
<tr>
<td>Behavior at Work Parties</td>
<td></td>
<td>Proper Use in Texting</td>
<td>Presenting Yourself to Associates</td>
</tr>
<tr>
<td>Behavior at Conventions</td>
<td></td>
<td></td>
<td>Accepting Criticism</td>
</tr>
<tr>
<td>International Etiquette</td>
<td></td>
<td></td>
<td>Demonstrating Leadership</td>
</tr>
<tr>
<td>Cross-Cultural Etiquette</td>
<td></td>
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</tr>
<tr>
<td>Working in a Cubicle</td>
<td></td>
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</tr>
</tbody>
</table>

**Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:**

Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.
**Course Standard 2**

AFNR-FSII-2
Explore, develop, and implement the comprehensive program of agricultural education, learn and demonstrate safe working habits in the agriculture lab and work sites, demonstrate selected competencies in leadership through the FFA and agricultural industry organizations, and develops plans for a Supervised Agricultural Experience Program (SAEP).

- **2.1** Illustrate the relationship of the FFA within the Agricultural Education model and describe the role and function of the organizational structure from the chapter to national level.
- **2.2** Design, implement, and document SAE by recording steps, skills acquired, and financial information.
- **2.3** Demonstrate leadership and personal development skills through participation in the FFA.
- **2.4** Analyze skills, education requirements, income, and advantages and disadvantages of careers in natural resources management.
- **2.5** Explore the professional agricultural organizations associated with the course content.
- **2.6** Demonstrate safety practices when working in an outdoor environment.

**Course Standard 3**

AFNR-FSII-3
Compare interrelationships in the forest environment between plants, soil, animals, water and man.

- **3.1** Identify and describe characteristics of forest soils.
- **3.2** Describe and give examples of Best Management Practices (BMPs).
- **3.3** Explain the relationships between BMPs and the forest environment.
- **3.4** Discuss environmental concerns of forest production.
- **3.5** Analyze practices that benefit the environment.
- **3.6** Identify wetlands and explain the benefits of wetlands.
- **3.7** Explain policies concerning wetland use.
- **3.8** List and provide examples of endangered plant species of Georgia woodlands.
- **3.9** List and provide examples of endangered animal species of Georgia woodlands.
- **3.10** Explain policies concerning endangered species.

**Course Standard 4**

AFNR-FSII-4
Describe the elements of managing an urban and community forest and identify the primary stakeholders important to the implementation of a successful urban and community forestry program.

- **4.1** Explain the history or the urban and community forestry program in the U.S.
- **4.2** Identify and describe the geographic boundaries of the urban forest.
- **4.3** Describe the physical and biological elements of the urban forest.
- **4.4** Describe the urban forest ecosystem.
- **4.5** Explain how trees work to improve the environment.
- **4.6** Discuss the value of the urban forest to people.
- **4.7** Classify the basic principles of tree valuation.
- **4.8** Summarize activities associated with managing soil health in the urban forest.
- **4.9** Explain the importance and process of a tree inventory.
- **4.10** Describe the activities of establishing and maintaining the urban forest.
- **4.11** Explain the importance of a risk management program.
- **4.12** Analyze the basis for a street tree ordinance and major components.
- **4.13** Develop a maintenance plan.
4.14 Explain the role of volunteers in an urban forestry program.
4.15 Research employment opportunities in urban community forest.

### Course Standard 5

**AFNR-FSII-5**

**Explain how many cultural practices have been practiced by the forest industry and adopted by private landowners in recent years to increase tree growth and reduce the time required to produce income from the forest.**

5.1 Explain the costs and benefits of genetically improved seedlings.
5.2 Describe how “morphologically improved” seedlings can produce more income.
5.3 Compare maximum volume production versus maximum return on investment.
5.4 Explain how chemical site preparation may be superior to mechanical on some sites.
5.5 Differentiate between the costs of chemical versus mechanical site preparation.
5.6 Explain how site preparation treatments will affect tree growth.
5.7 Explain how sub-soiling can benefit the growth of trees.
5.8 Describe the primary types of competition for pine stands in the south.
5.9 Explain how competition control affects pine tree growth.
5.10 Identify and provide examples of the different time periods for controlling competing vegetation.
5.11 Demonstrate the different methods of controlling competing vegetation.
5.12 Summarize the history of fertilization for forest stands in the south.
5.13 Describe the two primary site resources that affect forest productivity.
5.14 Determine when the greatest need for nutrients occurs.
5.15 Explain how intensive culture may increase the need for fertilization.
5.16 Analyze and compare the sources of nutrients used for forest fertilization.
5.17 Analyze the economic returns from forest fertilization.

### Course Standard 6

**AFNR-FSII-6**

**Demonstrate management practices for wildlife and identify the common game species.**

6.1 Define terms used in wildlife management.
6.2 Describe the development of wildlife management in the United States.
6.3 Identify and categorize the major federal and state agencies directly involved with wildlife management.
6.4 Explain the roles of the agencies involved with wildlife management.
6.5 Describe the basic habitat requirements of a wildlife species.
6.6 Analyze and describe wildlife ecosystems.
6.7 Discuss each of the elements necessary for ideal wildlife habitat.
6.8 Explain the factors that affect wildlife populations.
6.9 Identify and classify the practices used in modern wildlife management.
6.10 Describe the factors that limit a wildlife population.
6.11 Develop a plan and plant a wildlife plot.
6.12 Identify and provide examples of the most common game species found in the southern part of the United States.
6.13 Describe the habitat, feeding habits, and life cycles of common game species found in the southern part of the United States.
Course Standard 7
AFNR-FSII-7
Conduct a cruise of a tract of timber, conduct a survival check, conduct a herbicide assessment, and map a traverse using a hand-held data collection instrument.

7.1 Determine the tract boundaries.
7.2 Compare and contrast a one-hundred percent cruise, fixed plot radius cruise, strip cruise and a variable plot radius/Prism cruise.
7.3 Determine the number of plots needed.
7.4 Conduct a cruise.
7.5 Calculate the probability that the cruise is accurate.
7.6 Determine the number of seedlings planted per acre.
7.7 Count the number of seedlings present in the spring and fall.
7.8 Determine the survival percentage.
7.9 Explain the purpose of conducting survival counts.
7.10 Determine the weed species on a tract.
7.11 Develop an herbicide treatment plan.
7.12 Assess the herbicide treatment.
7.13 Evaluate the effectiveness of the herbicide treatment.
7.14 Evaluate the pine stands for pine tip moth infestation.
7.15 Evaluate prescribed burn areas for bark beetle infestations.
7.16 Perform a general insect damage assessment.
7.17 Locate a sampling point and establish tract boundaries with a Global Positioning System (GPS) unit.
7.18 Locate forest roads and fire boundary lines with a GPS unit.
7.19 Delineate a timber sale area.

Course Standard 8
AFNR-FSII-8
Outline major processes in the harvesting and manufacturing of forest products.

8.1 Identify and describe the parts of the digestive system of fish.
8.2 Research the protein, energy, vitamin and mineral requirements for fish.
8.3 Draw conclusions on how anatomy and behavior affect feeding.
8.4 List and provide the ten essential amino acids.
8.5 Categorize essential fatty acids, fat-soluble and water soluble vitamins.
8.6 Research methods for preparing feed and feeding fish.
8.7 Evaluate ingredients in fish feed.
8.8 Assess the importance of winter feeding catfish.
8.9 Compare the different feeding practices of different species of fish.
8.10 Calculate the amount of feed needed.
8.11 Formulate a feed conversion ratio.
8.12 Formulate feed cost.

Course Standard 9
AFNR-FSII-9
Describe alternative crops that can be produced in the forest.

9.1 Identify and describe the factors affecting the production of pine straw.
9.2 Describe the procedure of harvesting of pine straw.
9.3 Evaluate marketing situations and techniques and how they affect soil fertilization.
9.4 Explain how removal of pine straw may require additional nutrients.
9.5 Identify species of trees grown in Georgia for Christmas trees.
9.6 List and explain factors affecting production of Christmas trees.
9.7 Describe cultural practices used in the Christmas tree industry.
9.8 Develop a marketing plan for Christmas trees.
9.9 Discuss the history of the naval store industry in the South.
9.10 Describe the factors affecting collection of naval stores.
9.11 Demonstrate the skills necessary for collecting gum.
9.12 Analyze factors affecting marketing of naval stores.
9.14 Describe habitats suitable for wildlife enterprises.
9.15 Identify wildlife enterprises suitable for marketing.

Course Standard 10

AFNR-FSII-10
Demonstrate knowledge of the major factors affecting the economics of forest resources management.

10.1 Identify and explain primary timber growing variables.
10.2 Determine timber growing costs with different variables.
10.3 Calculate the highest price that can be paid for bare land.
10.4 Explain the purpose of ad valorem taxes.
10.5 Describe three methods of determining bare land value.
10.6 Explain the differences between the preferential assessment program for forest properties and the conservation use valuation of forest properties.
10.7 Calculate timber harvest tax for a timber sale.
10.8 Explain allocation of capital costs to basis.
10.9 Explain the difference between land and timber accounts.
10.10 Explain expensing versus capitalization.
10.11 Explain how a timber sale can qualify for capital gains qualification.
10.12 Compare simple and compound interest.
10.13 Calculate the present and future value of a single sum.

Course Standard 11

AFNR-FSII-11
Identify and explain the major factors of managing and producing hardwoods.

11.1 Identify and provide examples of the uses of hardwoods.
11.2 Identify and describe the types of southern hardwood forests.
11.3 Evaluate hardwood sites.
11.4 Determine site quality.
11.5 Determine site requirement characteristics.
11.6 Determine stocking guides.
11.7 Evaluate regeneration.
11.8 Conduct a timber stand improvement.
11.9 Demonstrate artificial regeneration techniques.

Course Standard 12

AFNR-FSII-12
Describe the latest trends in forestry primarily concerning national planning.

12.1 Define the sustainable forestry initiative.
12.2 Explain why reforestation is most important.
12.3 Explain how water quality will be protected.
12.4 Explain how wildlife habitat will be enhanced.
12.5 Describe how the visual impact of harvesting will be improved.
12.6 Explain why certain sites will be protected.
12.7 Describe how biodiversity conservation will be integrated.
12.8 Explain why wood utilization will be improved.
12.9 Describe the prudent use of forest chemicals to help ensure forest health.
12.10 Explain why sustainable forestry will be broadened to all forest lands.
12.11 Describe the benefits to companies for complying with sustainable forestry.
12.12 Explain why education is important for the sustainable forestry initiative.