2011 Mississippi Curriculum Framework

Postsecondary Conservation Law Enforcement Technology
(Program CIP: 03.0208 – Natural Resources Management and Policy, Other)

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Acknowledgments

Preface

Conservation Law Enforcement Technology Research Synopsis

Articles, books, Web sites, and other materials listed at the end of each course were considered during the revision process. The North American Wildlife Enforcement Officers Association Web site and educational program standards were especially useful in providing insight into trends and issues in the field. Suggested references were detailed for use by instructors and students during the study of the topics outlined. This curriculum uses all Forestry Technology courses and standards.

Industry advisory team members from colleges throughout the state were asked to give input related to changes to be made to the curriculum framework. Instructors from colleges throughout the state were also asked to give input on changes to be made to the curriculum framework. Specific comments related to this program included statements from Advisory Committee members including expressions of the need for more technology as well as the need for updated technology such as new computers, and better processors.

Nature of the Industry
Conservation Law Enforcement Technology is a new curriculum designed to train future game wardens for the state. Fish and game wardens are the law enforcement agents of the State and federal fish and wildlife agencies. They enforce laws and regulations designed to protect and conserve fish and wildlife. While patrolling assigned areas, wardens warn, cite, and arrest individuals suspected of violations and may seize the fish, game, and equipment connected with the violation. They collect information and report on the condition of fish and wildlife in a specific area. They may supervise the activities of seasonal workers.

Needs of the Future Workforce
There are nearly 7,500 fish and game wardens employed in the United States. About average growth is projected for game wardens in both the United States (9 percent) and in Mississippi (8 percent). Job prospects will be best for those with the necessary education as well as experience.

Conservation Law Enforcement Technology Employment Projections and Earnings

Region	2010 Jobs	2019 Jobs	Change	% Change	Openings	Median Hourly Earnings
Regional Total	122	133	11	9%	38	$15.97
National Total	7,489	8,066	577	8%	2,257	$23.46

Source: EMSI Complete Employment - 2nd Quarter 2010

Industry and instructor comments, along with current research, were considered by the curriculum revision team during the revision process. Changes were made as needed and appropriate. Many of the skills and topics noted in the research were already included in the curriculum framework. Specific changes made to the curriculum at the January 24, 2011, curriculum revision meeting included:

- Competencies and objectives were reviewed to ensure accuracy and appropriateness.
- Specific additions or deletions as related to the standards
- The Recommended Tools and Equipment list was updated.

Assessment
Students will be assessed using the Forestry Technology MS-CPAS2 test. The MS-CPAS2 blueprint can be found at http://www.rcu.msstate.edu/. All students will test after year one of their program. A second test covering the second year material will be administered to AAS track students upon completion of their program. If there are questions regarding assessment of this program, please contact the Agriculture Instructional Design Specialist at the Research and Curriculum Unit at 662.325.2510.

No alternate assessments are available at this time

Best Practices
Teachers are expected to use a wide variety of teaching strategies throughout the curriculum to instruct competencies in various methods. Teachers should develop strategies that reflect academic achievement, problem solving, and industry needs for daily use in the classroom.

Professional Learning
It is suggested that instructors participate in professional learning related to the following concepts:
- How to use the program Blackboard site
- Differentiated instruction – To learn more about differentiated instruction, please go to http://www.paec.org/teacher2teacher/additional_subjects.html, and click on Differentiated Instruction. Work through this online course, and review the additional resources.

Program Exceptions
Due to the fact that the Forestry Technology course selection is designed for Botany to be taken in the first semester of the freshman year, this program cannot have a certificate option. The content obtained from Botany is the basis for more advanced Forestry courses taken later in the semester and into the sophomore year.

Foreword

As the world economy continues to evolve, businesses and industries must adopt new practices and processes in order to survive. Quality and cost control, work teams and participatory management, and an infusion of technology are transforming the way people work and do business. Employees are now expected to read, write, and communicate effectively; think creatively, solve problems, and make decisions; and interact with each other and the technologies in the workplace. Career–technical programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflects these changes in the workplace and a number of other factors that impact local career–technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and career skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide career and technical educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document. Referenced throughout the courses of the curriculum are the 21st Century Skills, which were developed by the Partnership for 21st Century Skills, a group of business and education organizations concerned about the gap between the knowledge and skills learned in school and those needed in communities and the workplace. A portion of the 21st Century Skills addresses learning skills needed in the 21st century, including information and communication skills, thinking and problem-solving skills, and interpersonal and self-directional skills. Another important aspect of learning and working in the 21st century involves technology skills. The International Society for Technology in Education, developer of the National Educational Technology Standards (NETS), was a strategic partner in the Partnership for 21st Century Skills. Each postsecondary program of instruction consists of a program description and a suggested sequence of courses that focus on the development of occupational competencies. The MS-CPAS2 blueprints are based upon the suggested course sequences to allow for year 1 and year 2 assessments for all exit options. Please refer to the blueprint online. Each career–technical course in this sequence has been written using a common format, which includes the following components:

- Course Name – A common name that will be used by all community and junior colleges in reporting students

- Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students

- Classification – Courses may be classified as the following:
    - Career–technical core – A required career–technical course for all students
    - Area of concentration (AOC) core – A course required in an area of concentration of a cluster of programs
    - Career–technical elective – An elective career–technical course
    - Related academic course – An academic course that provides academic skills and knowledge directly related to the program area

- o Academic core – An academic course that is required as part of the requirements for an associate's degree

- Description – A short narrative that includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester

- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course

- Corequisites – A listing of courses that may be taken while enrolled in the course

- Competencies and Suggested Objectives – A listing of the competencies (major concepts and performances) and the suggested student objectives that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:
- The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:
    - o Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
    - o Activities that develop a higher level of mastery on the existing competencies and suggested objectives
    - o Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
    - o Activities that include integration of academic and career–technical skills and course work, school-to-work transition activities, and articulation of secondary and postsecondary career–technical programs
    - o Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.

- Programs that offer an Associate of Applied Science degree must include a minimum 15-semester-credit-hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:
    - o 3 semester credit hours (sch)   Math/Science Elective
    - o 3 semester credit hours   Written Communications Elective
    - o 3 semester credit hours   Oral Communications Elective
    - o 3 semester credit hours   Humanities/Fine Arts Elective

- o   3 semester credit hours   Social/Behavioral Science Elective

It is recommended that courses in the academic core be spaced out over the entire length of the program, so that students complete some academic and career–technical courses each semester. Each community or junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- Career–technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their area.

In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

- Adding new competencies and suggested objectives
- Revising or extending the suggested objectives for individual competencies
- Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the Mississippi Community College Board [MCCB] of the change)

In addition, the curriculum framework as a whole may be customized by doing the following:

- Resequencing courses within the suggested course sequence reflecting the new assessment format
- Developing and adding a new course that meets specific needs of industries and other clients in the community or junior college district (with MCCB approval)
- Utilizing the career technical elective options in many of the curricula to customize programs

Table of Contents

Program Description

Program Description: Conservation Law Enforcement Technology is a two-year program of study that prepares the graduate for entry-level employment as a Conservation Law Enforcement Officer (game warden) in the state of Mississippi. The program blends technical courses in forestry and academic courses in criminal justice with other academic courses, including the core. The Associate of Applied Science degree is earned upon successful completion of the program.

After successfully completing the program, the student will be awarded an Associate of Applied Science Degree from the community/junior college.

Industry standards are based on the National Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards.

Suggested Course Sequence
Conservation Law Enforcement Technology
Associate of Applied Science Degree

FIRST YEAR

Course outlines used in the first year Conservation Law Option are found in the Mississippi Curriculum Framework for Postsecondary Forestry Technology program. Revisions in the forestry courses are made by instructors within the postsecondary forestry curriculum.

3 sch   Written Communications Elective
4 sch   Science Elective
4 sch   Applied Dendrology (FOT 1714)
3 sch   Introduction to Criminal Justice (CRJ 1313)
4 sch   Forest Surveying and Spatial Applications (FOT 2124)
_____
18 sch

4 sch   Forest Protection (FOT 1314)
4 sch   Silviculture I (FOT 2614)
3 sch   Criminology (CRJ 1383)
3 sch   Math/Science Elective
3 sch   Sociology/Behavioral Science Elective
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17 sch

SECOND YEAR

Course outlines used in the second year Conservation Law Option are found in the Mississippi Curriculum Framework for Postsecondary Forestry Technology program. Revisions in the forestry courses are made by instructors within the postsecondary forestry curriculum.

3 sch   Survey/Micro Apps (CPT 1323)
4 sch   Apps of GIS/GPS in Forestry (FOT 2214)
3 sch   Oral Communications Elective
3 sch   Special Problem in Conservation Law (FOT 291(1-3)) or
3 sch   Work-Based Learning (WBL 1913)
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13 sch

4 sch   Applied Soil Conservation and Use (AGT 1714)
3 sch   Juvenile Justice (CRJ 2513)
4 sch   Forest Measurements (FOT 1114)
3 sch   Criminal Investigation (CRJ 2333)
3 sch   Humanities/Fine Arts Elective
_____
17 sch

ELECTIVES

Any Instructor approved elective
4 sch   Principles of Biology I (BIO 1114)
4 sch   Botany (BIO 1314)
4 sch   Silviculture II (FOT 2624)

Appendix A: *National Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards*[1]

NATURAL RESOURCE SYSTEMS
Pathway Content Standard: The student will demonstrate competence in the application of scientific principles and techniques to the management of natural resources.

NRS.01. Explain interrelationships between natural resources and humans necessary to conduct management activities in natural environments.
    NRS.01.01. Apply knowledge of natural resource components to the management of natural resource systems.
    NRS01.02. Classify natural resources.

NRS.02. Apply scientific principles to natural resource management activities.
    NRS.02.01. Develop a safety plan for work with natural resources.
    NRS.02.02. Demonstrate cartographic skills to aid in developing, implementing, and evaluating natural resource management plans.
    NRS.02.03. Measure and survey natural resource status to obtain planning data.
    NRS.02.04. Demonstrate natural resource enhancement techniques.
    NRS.02.05. Interpret laws related to natural resource management and protection.
    NRS.02.06. Apply ecological concepts and principles to natural resource systems.

NRS.03. Apply knowledge of natural resources to production and processing industries.
    NRS.03.01. Produce, harvest, process, and use natural resource products.

NRS.04. Demonstrate techniques used to protect natural resources.
    NRS.04.01. Manage fires in natural resource systems.
    NRS.04.02. Diagnose plant and wildlife diseases, and follow protocol to prevent their spread.
    NRS.04.03. Manage insect infestations of natural resources.

NRS.05. Use effective methods and venues to communicate natural resource processes to the public.
    NRS.05.01. Communicate natural resource information to the public.

PLANT SYSTEMS
Pathway Content Standard: The student will demonstrate competence in the application of scientific principles and techniques to the production and management of plants.

PS.01. Apply knowledge of plant classification, plant anatomy, and plant physiology to the production and management of plants.
    PS.01.01. Classify agricultural plants according to taxonomy systems.

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[1] National Council for Agricultural Education. (2009). *National Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards.* Alexandria, VA: Author.

PS.01.02.   Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.

PS.01.03.   Apply knowledge of plant physiology and energy conversion to plant systems.

PS.02.   Prepare and implement a plant management plan that addresses the influence of environmental factors, nutrients, and soil on plant growth.

PS.02.01.   Determine the influence of environmental factors on plant growth.

PS.02.02.   Prepare growing media for use in plant systems.

PS.02.03.   Develop and implement a fertilization plan for specific plants or crops.

PS.03.   Propagate, culture, and harvest plants.

PS.03.01   Demonstrate plant propagation techniques.

PS.03.02.   Develop and implement a plant management plan for crop production.

PS.03.03.   Develop and implement a plan for integrated pest management.

PS.03.04.   Apply principles and practices of sustainable agriculture to plant production.

PS.03.05   Harvest, handle, and store crops.

PS.04.   Employ elements of design to enhance an environment.

PS.04.01.   Create designs using plants.

Appendix B: Related Academic Standards[2]

Reading
R1   Interpret Graphic Information (forms, maps, reference sources)
R2   Words in Context (same and opposite meaning)
R3   Recall Information (details, sequence)
R4   Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5   Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

Mathematics Computation
M1   Addition of Whole Numbers (no regrouping, regrouping)
M2   Subtraction of Whole Numbers (no regrouping, regrouping)
M3   Multiplication of Whole Numbers (no regrouping, regrouping)
M4   Division of Whole Numbers (no remainder, remainder)
M5   Decimals (addition, subtraction, multiplication, division)
M6   Fractions (addition, subtraction, multiplication, division)
M7   Integers (addition, subtraction, multiplication, division)
M8   Percents
M9   Algebraic Operations

Applied Mathematics
A1   Numeration (ordering, place value, scientific notation)
A2   Number Theory (ratio, proportion)
A3   Data Interpretation (graph, table, chart, diagram)
A4   Pre-Algebra and Algebra (equations, inequality)
A5   Measurement (money, time, temperature, length, area, volume)
A6   Geometry (angles, Pythagorean theory)
A7   Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8   Estimation (rounding, estimation)

Language
L1   Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2   Sentence Formation (fragments, run-on, clarity)
L3   Paragraph Development (topic sentence, supporting sentence, sequence)
L4   Capitalization (proper noun, titles)
L5   Punctuation (comma, semicolon)
L6   Writing Conventions (quotation marks, apostrophe, parts of a letter)

Spelling
S1   Vowel (short, long)
S2   Consonant (variant spelling, silent letter)
S3   Structural Unit (root, suffix)

Appendix C: 21st Century Skills[3]

CSS1-21st Century Themes
    CS1   **Global Awareness**
        1. Using 21st century skills to understand and address global issues
        2. Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts
        3. Understanding other nations and cultures, including the use of non-English languages
    CS2   **Financial, Economic, Business and Entrepreneurial Literacy**
        1. Knowing how to make appropriate personal economic choices
        2. Understanding the role of the economy in society
        3. Using entrepreneurial skills to enhance workplace productivity and career options
    CS3   **Civic Literacy**
        1. Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
        2. Exercising the rights and obligations of citizenship at local, state, national and global levels
        3. Understanding the local and global implications of civic decisions
    CS4   **Health Literacy**
        1. Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that enhance health
        2. Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction
        3. Using available information to make appropriate health-related decisions
        4. Establishing and monitoring personal and family health goals
        5. Understanding national and international public health and safety issues
    CS5   **Environmental Literacy**
        1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems
        2. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)
        3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions
        4. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)

CSS2-Learning and Innovation Skills
    CS6   **Creativity and Innovation**
        1. Think Creatively
        2. Work Creatively with Others
        3. Implement Innovations
    CS7   **Critical Thinking and Problem Solving**
        1. Reason Effectively
        2. Use Systems Thinking
        3. Make Judgments and Decisions
        4. Solve Problems
    CS8   **Communication and Collaboration**
        1. Communicate Clearly
        2. Collaborate with Others

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[3] *21st century skills.* (n.d.). Washington, DC: Partnership for 21st Century Skills.

CSS3-Information, Media and Technology Skills
- **CS9** **Information Literacy**
    1. Access and Evaluate Information
    2. Use and Manage Information
- **CS10** **Media Literacy**
    1. Analyze Media
    2. Create Media Products
- **CS11** **ICT Literacy**
    1. Apply Technology Effectively

CSS4-Life and Career Skills
- **CS12** **Flexibility and Adaptability**
    1. Adapt to Change
    2. Be Flexible
- **CS13** **Initiative and Self-Direction**
    1. Manage Goals and Time
    2. Work Independently
    3. Be Self-directed Learners
- **CS14** **Social and Cross-Cultural Skills**
    1. Interact Effectively with Others
    2. Work Effectively in Diverse Teams
- **CS15** **Productivity and Accountability**
    1. Manage Projects
    2. Produce Results
- **CS16** **Leadership and Responsibility**
    1. Guide and Lead Others
    2. Be Responsible to Others