Conservation Law Enforcement
Forestry Technology
Mississippi Curriculum Framework

Program CIP: 03.0208 – Natural Resources Law Enforcement and Protective Services CIP: 03.0511 Forest Technology/Technician

2018

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The Office of Curriculum and Instruction (OCI) was founded in 2013 under the Division of Workforce, Career, and Technical Education at the Mississippi Community College Board (MCCB). The office is funded through a partnership with The Mississippi Department of Education (MDE), who serves as Mississippi's fiscal agent for state and federal Career and Technical Education (CTE) Funds. The OCI is tasked with developing statewide CTE curriculum, programming, and professional development designed to meet the local and statewide economic demand.

For information, please contact curriculum@mccb.edu

Contents

ADOPTION OF NATIONAL CERTIFICATION STANDARDS

Upon further research, there are no national certification standards that are available for adoption at this time. The Office of Curriculum and Instruction will continue working with industry members to ensure the curriculum document is rigorous enough for industry standards.

INDUSTRY JOB PROJECTION DATA

The Conservation Law Enforcement occupation require an education level of short-term on-the-job training or work experience in a related field. There is expected to be a 2.56% increase in occupational demand at the regional level and 2.26% increase at the state level. Median annual income for this occupation is $31,353.92 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1: Education Level

Program Occupations	Education Level
First Line Supervisors/Managers of Police and Detectives	Work Experience in Related Field
First-Line Supervisors/ Managers of Fire Fighting and Prevention Workers	Work Experience in Related Field
Forest Fire Inspectors and Prevention Specialist	Work Experience in Related Field
Detectives and Criminal Investigators	Work Experience in Related Field
Fish and Game Warden	Associate Degree
Lifeguards, ski patrol, and other recreational protective service workers	Short-Term-on the-Job Training

Table 2: Occupational Overview

	Region	State	United States
2014 Occupational Jobs	3049	3049	334528
2024 Occupational Jobs	3127	3127	341355
Total Change	78	78	6827
Total % Change	2.56%	2.26%	2.04%
2014 Median Hourly Earnings	$17.46	$15.07	$25.51
2014 Median Annual Earnings	$36,308.48	$31,353.92	$52,058.30
Annual Openings	7	7	682

Table 3: Occupational Breakdown

Description	2010 Jobs	2020 Jobs	Annual Openings	2010 Hourly Earnings	2010 Annual Earnings 2,080 Work Hours
First Line Supervisors/Managers of Police and Detectives	823	845	2	$23.59	$49,067.20
First-Line Supervisors/ Managers of Fire Fighting and Prevention Workers	719	744	2	$20.98	$43,638.40
Forest Fire Inspectors and Prevention Specialist	252	274	2	$12.63	$26,270.40
Detectives and Criminal Investigators	924	920	0	$21.44	$44,595.20
Lifeguards, ski patrol, and other recreational protective service workers	331	344	1	$8.64	$17,971.20

Table 4: Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
First Line Supervisors/Managers of Police and Detectives	22	2.67%	2.67%	4.16%
First-Line Supervisors/ Managers of Fire Fighting and Prevention Workers	25	3.48%	3.48%	3.13%

The Forestry Technology occupations require an education level of short-term on-the-job training or work experience in a related field. There is expected to be a -4.14% increase in occupational demand at the regional level and -4.14% increase at the state level. Median annual income for this occupation is $43,076.80 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1: Education Level

Program Occupations	Education Level
Forest and Conservation Technicians	Associate Degree

Table 2: Occupational Overview

	Region	State	United States
2014 Occupational Jobs	290	290	2278
2024 Occupational Jobs	278	278	22336
Total Change	-12	-12	-448
Total % Change	-4.14%	-4.14%	-1.97%
2014 Median Hourly Earnings	$20.71	$20.71	$16.95
2014 Median Annual Earnings	$43,076.80	$43,076.80	$35,256.00
Annual Openings	-1	-1	-44

Table 3: Occupational Breakdown

Description	2010 Jobs	2020 Jobs	Annual Openings	2010 Hourly Earnings	2010 Annual Earnings 2,080 Work Hours
Forest and Conservation Technicians	290	278	-1	20.70	$43,076.80

Table 4: Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
Forest and Conservation Technicians	-12	-4.14%	-4.14%	-1.97%

ARTICULATION

At this time, there is no secondary Conservation Law Enforcement programs to articulate into this postsecondary program.

SEC Program	PS Program	PS Courses
Forestry (CIP 03.0511)	Forestry Technology (CIP 03.0511)	Needs PS course identification

TECHNICAL SKILLS ASSESSMENT

Colleges should report the following for students who complete the program with a career certificate, technical certificate, or an Associate of Applied Science Degrees for technical skills attainment. To use the approved Alternate Assessment for the following programs of study, colleges should provide a Letter of Notification to the Director of Career Technical Education at the MS Community College Board. Please see the following link for further instructions: http://www.mccb.edu/wkfEdu/CTDefault.aspx.

CIP Code	Program of Study	
03.0208	Conservation Law Enforcement Technology	
Level	**Standard Assessment**	**Alternate Assessment**
Career	MS-CPAS3	
Level	**Standard Assessment**	**Alternate Assessment**
Technical/AAS	MS-CPAS3	

CIP Code	Program of Study	
03.0511	Forestry Technology	
Level	**Standard Assessment**	**Alternate Assessment**
Career	MS-CPAS3	
Level	**Standard Assessment**	**Alternate Assessment**
Technical/AAS	MS-CPAS3	

ONLINE AND BLENDED LEARNING OPPORTUNITIES

Course content includes lecture and laboratory semester credit hours. Faculty members are encouraged to present lecture related content to students in an online or blended learning environment. Training related to online and blended learning will be available to faculty members through the MS Community College Board.

INSTRUCTIONAL STRATEGIES

Instructional strategies for faculty members implementing the curriculum can be found through the Office of Curriculum and Instruction's professional development.

ASSESSMENT STRATEGIES

The Office of Curriculum and Instruction's professional development offer assessment strategies to faculty members implementing the curriculum. Additionally, standards were included in course content when appropriate.

RESEARCH ABSTRACT

In the spring of 2017, the Office of Curriculum and Instruction (OCI) met with the different industry members who made up the advisory committees for the Civil Engineering Technology program. An industry questionnaire was used to gather feedback concerning the trends and needs, both current and future, of their field. Program faculty, administrators, and industry members were consulted regarding industry workforce needs and trends.

Industry advisory team members from the college involved with this program were asked to give input related to changes to be made to the curriculum framework. Specific comments related to soft skills needed in this program include having the willingness to learn, and written and oral communication skills. Occupation-specific skills stated include having fundamental knowledge of the forestry industry, and having basic navigation skills.

REVISION HISTORY:

2011 Research and Curriculum Unit, Mississippi State University
2018 Mississippi Community College Board

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.

Forestry Technology is an instructional program that prepares individuals to produce, protect, and manage timber and other forest crops. Students enrolled in the program will participate in a variety of learning experiences related to land and forest measurements, growth processes of timber stands, tree identification, timber and forest product harvesting, timber stand management and protection, and forest products utilization. Emphasis is placed on the development of job skills that allow students to enter employment. The latest technologies and computer application skills are incorporated into courses. The program combines lecture based activities with laboratory field experiences. Forestry Technology is a two-year technical program. An Associate of Applied Science degree is awarded upon successful completion of the curriculum. Industry standards referenced were adapted from *Standards and Procedures for Recognizing Educational Programs in Forest Technology*, as published by the Society of American Foresters http://www.safnet.org/education/techaccstd082409.doc

VALIDATION

SUGGESTED COURSE SEQUENCE

Career Certificate Required Courses Conservation Law Enforcement

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
CJT 1313	Introduction to Criminal Justice	3						
CJT 1383	Criminology	3						
FOT 2944	Special Problems in Conservation Law Enforcement	4						
FOT 1714	Applied Dendrology	4						
FOT 2124	Forest Surveying and Spatial Applications	4						
FOT 2614	Silviculture I	4						
	Instructor Approved Elective	8						
	TOTAL	**30**						

Technical Certificate Required Courses Conservation Law Enforcement

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
CJT 2333	Criminal Investigation	3						
CJT 2513	Juvenile Justice	3						
FOT 1114	Forest Measurements	4						
FOT 2214	Advanced GPS/GIS in Forestry	4						
	Instructor Approved Electives	1						
	TOTAL	15						

VALIDATION

Career Certificate Required Courses Forestry Technology

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
AGT 1714	Applied Soils-Conservation and Use	4						
FOT 1114	Forest Measurements I	4						
FOT 1714	Applied Dendrology	4						
FOT 1813	Introduction to Forestry	3						
FOT 2124	Forest Surveying and Spatial	4						
	Instructor Approved Electives	11						
	TOTAL	**30**						

Technical Certificate Required Courses Forestry Technology

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
FOT 2214	Advanced GPS/GIS in Forestry	4						
FOT 2424	Timber Harvesting	4						
FOT 2614	Silviculture I	4						
	Instructor Approved Electives	3						
	TOTAL	15						

General Education Core Courses – Conservation Law Enforcement and Forestry Technology

To receive the Associate of Applied Science Degree, a student must complete all of the required coursework found in the Career Certificate option, Technical Certificate option and a minimum of 15 semester hours of General Education Core. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester or provided primarily within the last semester. Each community college will specify the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college. The Southern Association of Colleges and Schools (SACS) Commission on Colleges Standard 2.7.3 from the Principles of Accreditation: Foundations for Quality Enhancement1 describes the general education core.

Section 2.7.3 In each undergraduate degree program, the institution requires the successful completion of a general education component at the collegiate level that (1) is substantial component of each undergraduate degree, (2) ensures breadth of knowledge, and (3) is based on a coherent rationale. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours or the equivalent. These credit hours are to be drawn from and include at least one course from the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. The courses do not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession.

General Education Courses

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
	Humanities/Fine Arts	3						
	Social/Behavioral Sciences	3						
	Math/Science	3						
	Academic electives	6						
	TOTAL	**15**						

1 Southern Association of Colleges and Schools Commission on Colleges. (2012). *The principles of accreditation: Foundations for quality enhancement.* Retrieved from http://www.sacscoc.org/pdf/2012PrinciplesOfAcreditation.pdf

VALIDATION

Listing

			SCH Breakdown				Contact Hour Breakdown		
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Externship	Total Contact Hours	Lecture	Lab	Extern-ship
CJT 1313	Introduction to Criminal Justice	3							
CJT 1383	Criminology	3							
FOT 1813	Introduction to Forestry	3							
CJT 2333	Criminal Investigation	3							
CJT 2513	Juvenile Justice	3							
AGT 1714	Applied Soils-Conservation and Use	4							
FOT 1114	Forest Measurements I	4							
FOT 1124	Forest Measurements II	4							
FOT 1314	Forest Protection	4							
FOT 1414	Forest Products Utilization	4							
FOT 1714	Applied Dendrology	4							
FOT 2124	Forest Surveying and Spatial Applications	4							
FOT 2214	Application Of GIS/GPS In Forestry	4							
FOT 2614	Silviculture I	4							
FOT 2624	Silviculture II	4							
FOT 2214	Advanced GIS/GPS in Forestry	4							
FOT 291(1-3)	Special Problem in Forestry Technology	1-3							
FOT 292 (1-6)	Supervised Work Experience in Forestry Technology	1-6							

VALIDATION

CONSERVATION LAW ENFORCEMENT AND FORESTRY TECHNOLOGY COURSES

Course Number and Name: **CJT 1313** **Introduction to Criminal Justice**

Description: This course contains the history, development, and philosophy of law enforcement in a democratic society, introduction to agencies involved in the administration of criminal justice; career orientation.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Identify crime and the nature of law
    a. Understand the origin and development of criminal law
    b. Distinguish between criminal and civil law
    c. List the essential elements of various crimes
    d. Know the meaning and uses of various defenses to criminal liability
    e. Identify and apply constitutional amendments to scenarios that deal with due process and the right of the accused
2. Discuss police and the law
    a. Understand and identify important historical precedents in the development of law enforcement
    b. Distinguish between legal and illegal searches and seizures
    c. Define and know the differences between reasonable suspicion and probable cause
    d. Identify major U.S. Supreme Court decisions related to police search and arrest
    e. Know what gives police the right to use force and what would be deemed excessive
3. Explore the court system
    a. Identify and explain court jurisdiction
    b. Discuss the steps and procedures in the accusatory process, including the initial appearance, the preliminary hearing, the grand jury, the setting of bail, and the arraignment
4. Define the various aspects of the corrections system
    a. Describe how incarceration facilities are structured, organized, and administered by the government in the United States
5. Describe the origins of the juvenile justice system
6. Discuss grammar, sentence structure, and basic communication in report writing
    a. Explain proper sequence of events that occurred
    b. Demonstrate effective report writing skills
7. Understand the dynamics of ethical and unethical behaviors of the profession
    a. Explain the difference between morals and ethics
    b. Describe the various types of police corruption (to include excessive force) and explore the code

VALIDATION

Course Number and Name: **CRJ 1383** **Criminology**

Description: This course includes the study and practice the nature and significance of criminal behavior. It also explores the theories, statistics, trends, and programs concerning criminal behavior.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Explore the basics of criminology
    a. Differentiate between criminology and criminal justice
    b. Discuss the issues, trends and measurement of crimes in America
2. Discuss the methods of measuring crime
    a. Identify and explain the differences between the three major ways of measuring crime
    b. Summarize the advantages and limitations of such measurements
3. Evaluate victims of crime
    a. Define victimology
    b. Discuss the extent of victimization
    c. Identify the types of victimization and problems associated with each
4. Explore the theories of criminology
    a. Understand the basic premises of major criminological theories
    b. Apply theories to scenarios describing criminal behavior
5. Relate criminological theories to crime
    a. Apply criminological theories to property, violent, white-collar, organized, and public order offenses
    b. Define terrorism and explain the differences between domestic and international incidents

VALIDATION

Course Number and Name: **FOT 1813** **Introduction to Forestry**

Description: A study of the development of the forest industry in Mississippi and the United States. An exploration of occupational careers in forestry including forest products industries. Includes common terms used in forest occupations.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
3	3	0	45

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Trace the development of forestry in Mississippi and in the United States.
    a. Identify major events and people which have influenced the development of forest policy and legislation in Mississippi and in the United States.
    b. Identify and describe practices and techniques in forestry.
2. Explore educational and career opportunities in forestry and the forest products industries.
    a. Identify career opportunities in public and private sectors.
    b. Identify opportunities for continuing education in forestry.
    c. Investigate requirements for different job opportunities including education, working conditions, salaries/wages, and potential for advancement.
3. Apply common terminology used in forest occupations.
    a. Define and apply standard forestry terms.

VALIDATION

Course Number and Name: **CJT 2333** **Criminal Investigation I**

Description: This course includes fundamentals, search and recording, collection and preservation of evidence, finger printing, and photography, sources of information, interviews and interrogation.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Identify the laws governing criminal investigations, procedures and operations
    a. Define Probable Cause
    b. List ingredients to an arrest
    c. Apply all elements of search and seizure to a crime scene
    d. Define and discuss the Fourth Amendment
    e. Discuss Terry v. Ohio
    f. Define the Fourteenth Amendment as it applies to due process – Gideon v. Wainwright
2. Summarize the duties of an investigator or police officer at a crime scene
    a. List duties of a First Responder
    b. Identify duties of crime scene investigator
    c. Describe the types of crime scenes
    d. Demonstrate properly a crime scene search
3. Recognize evidence and protocol in collection and preservation of evidence
    a. Define Types of evidence
    b. Explain collection of evidence procedures
    c. List evidence collection techniques
    d. Apply US Supreme Court case law - Terry v. Ohio
    e. Discuss “Fruit of a Poisonous Tree”
4. Analyze the difference between Interview and Interrogation
    a. Describe objectives of interview and interrogation
    b. Apply Case law - Miranda v. Arizona and Fifth Amendment
    c. Discuss the Admissibility of confessions and admissions
    d. Recognize the signs of deception
5. Recognize the various types of criminal activity
    a. Define crime
    b. Identify types of crime
    c. Differentiate between felony and misdemeanor
    d. Apply investigative technique in solving a crime
6. Explain the process for preparing crime scene evidence for trial purposes
    a. Develop the criminal case
    b. Assemble all evidence for examination
    c. Reconstruct crime scene
    d. Prepare a report following guidelines of report writing
    e. Prepare for testifying

VALIDATION

Course Number and Name: **CJT 2513** **Survey of Criminalistics**

Description: This course identifies the role of police in juvenile delinquency and control. It covers organization, functions, and jurisdiction of juvenile agencies as well as processing, detention, and disposition of cases. Statutes and court procedures applied to juveniles will also be covered in this course

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Explore nature and extent of delinquency
    a. Define juvenile delinquency
    b. Explain the concept of parens patriae and its importance in juvenile justice
    c. Define "Child Savers" and discuss their philosophy in relation to preventing juvenile delinquency
    d. Detail trends in juvenile delinquency
    e. Identify the special characteristics of serious, violent, and chronic juvenile offenders
2. Discuss delinquency theories
    a. Identify and explain major premises of choice, biological, psychological, and sociological theories
    b. Apply appropriate theories to various scenarios
3. Recognize the social context of delinquency
    a. Explain ways that family dynamics govern adolescent behavior
    b. Explore the effects of parenting on pro-social and delinquent behaviors
    c. Comprehend the nature and extent of the maltreatment of children
    d. Discuss the rights afforded to students within the school
    e. Identify major U.S. Supreme Court decisions that control the behavior of students and school officials on school property
    f. Identify how drugs and alcohol are related to delinquency
4. Examine the juvenile justice system
    a. Discuss factors which affect how police officers respond to juvenile issues
    b. Identify and define the classifications of children that fall under youth court jurisdiction
    c. Be familiar with the different stages of the juvenile court process
    d. Identify and apply major U.S. Supreme Court decisions as related to due process for juveniles
        i. In re Gault
        ii. In re Winship
        iii. United States v. Kent
        iv. McKeiver v. Pennsylvania

VALIDATION

Course Number and Name: **AGT1714** **Applied Soils – Conservation and Use**

Description: A course to introduce students to the general principles of soil conservation and safe use. It includes instruction in the soil formation process, properties of soils, soil texture, and soil management for optimum safe use. Note: AGR 2314 Basic Soils may be substituted for this course.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	3	2	75

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Describe the soil formation process.
    a. Describe the chemical and biological properties of soils.
    b. Discuss the different types of erosion.
    c. Identify the horizons of a soil profile.
2. Describe the different physical properties of soils.
    a. Define the term soil texture, and relate texture to productivity and management.
    b. Classify soils as to general textural class.
    c. Describe how soil pH affects plant growth and nutrient availability, and state methods that can be used to raise or lower pH.
3. Describe the properties of soil water.
    a. Define the relationship between soil type and water holding capacity.
    b. Discuss the need for water conservation.
    c. Describe the mechanics of soil drainage (man-mad and natural).
    d. Compare the advantages and disadvantages of different types of irrigation systems.

VALIDATION

Course Number and Name: **FOT 1114** **Forest Measurements I**

Description: A course covering fundamentals of forest measurement. Includes instruction in locating land on a map, applying sampling techniques, and processing and summarizing field data.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Establish the physical location of timber and forest products to be cruised
    a. Apply U.S. Public Land Survey procedures to locate land on a map
    b. Physically locate corners and boundaries of land to be cruised from a map
    c. Make a preliminary study of the property to determine sampling technique, topography, cruise intensity, and direction of cruise lines
2. Apply sampling techniques to measure standing timber and forest products on a given tract of land
    a. Describe the different types of sampling techniques used in measuring standing timber including line plot, strip, and prism cruising
    b. Select the appropriate sampling technique, intensity, and equipment to measure standing timber on a given tract
    c. Measure standing timber on the given tract according to the sampling technique and intensity stated
    d. Record data following industry accepted practices
3. Process field data to determine volume and weight of forest products on a given plot of land
    a. Interpret raw data from a cruise.for the individual tract by product class and species (hardwood, pine, pulpwood, sawtimber, specialty products)
4. Summarize field data and prepare a cruise report
    a. Prepare a detailed cruise report including legal description, timber volumes and values by species and class, average volume per acre, and average volume per tree

VALIDATION

Course Number and Name: **FOT 1124** **Forest Measurements II**

Description: A continuation of Forest Measurement I with emphasis on electronic and computer applications in forest measurement.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Perform forest measurements using computerized equipment
    a. Determine acreage of a parcel of land using a global positioning instrument
    b. Determine sampling intensity needed from GPS data
    c. Compute tract volume using a data recorder
    d. Download and process tract volume
    e. Digitize a tract map from field information
    f. Generate a computerized report of findings
    g. Obtain timber price reports

VALIDATION

Course Number and Name: **FOT 1314 Forest Protection**

Description: A course in methods and techniques for protecting forests from fire, insect, and disease damage. Includes instruction in prescribed burning procedures.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Apply prescribed burning methods
    a. Identify and describe weather factors that affect prescribed burning, including NOAA and other forecasting tools
    b. Describe factors that influence timing of a prescribed burn
    c. Describe regulations and liability associated with prescribed burning
    d. Compare the different types of prescribed burn methods including backfire, head fire, flank fire, spot fire, and aerial ignition
    e. Develop a prescribed burn plan that includes notification of appropriate agencies, personnel, and adjacent land owners; a safety evacuation plan; application for burn permit; location of fire breaks; specific burn techniques to be employed; and fire control procedures and equipment to be used
    f. Conduct a prescribed burn and evaluate the results
2. Apply fire suppression techniques
    a. Describe direct and indirect fire suppression techniques including plow lanes and backfires, and direct attack
    b. Prepare a report on a specific fire in the local area and analyze the procedures used in suppression
3. Apply insect control techniques
    a. Identify common insect pests associated with trees including physical recognition, life cycle, and probable reasons for attack
    b. Describe control methods and strategies for implementation
4. Apply disease control methods.
    a. Identify common diseases associated with trees including recognition/diagnosis of the disease, and life cycle
    b. Describe control methods and strategies for implementation

VALIDATION

Course Number and Name: **FOT 1414 Forest Products Utilization**

Description: This course is designed to give the student experience in calculations, estimating, and blueprint reading.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4`	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Describe principles that apply to processing of forest products
    a. Identify primary and secondary forest product industries
    b. Describe the microscopic characteristics of wood
    c. Evaluate the wood-water relationship
    d. Identify marketing information and factors that determine log and lumber cost
2. Apply principles of forest products processing
    a. Grade trees, logs, and lumber
    b. Compare different methods for treating forest products
    c. Compare the different processes for kiln drying forest products

VALIDATION

Course Number and Name: **FOT 1714** **Applied Dendrology**

Description: A study of trees and woody vines including their classification and commercial uses.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Apply the binomial classification system
    a. Classify forest plant species according to the binomial classification system
2. Apply site-species relationships
    a. Compare the distribution of trees and woody vines in Mississippi by regions in the state
3. Identify commercially important tree species
    a. Identify important tree species in the area, utilizing leaves, buds, bark, and site observations and their uses (economic, esthetic, and recreational)
    b. Compare the relative economic importance of tree species by price for all wood products produced

VALIDATION

Course Number and Name: **FOT 2124** **Forest Surveying and Spatial Applications**

Description: A course to provide land surveying skills required in the forest industry. Includes instruction in interpreting legal descriptions, deeds, maps, and spatial imagery. This includes demonstration of surveying practices and spatial imagery practices and equipment.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Interpret the legal description of land
   a. Use the U. S. Public Land survey system to locate and describe a given parcel of land on a map
   b. Use the U. S. Public Land survey system to write a legal description for a given parcel of land
2. Locate and interpret land deeds
   a. Search indices to locate land records
   b. Trace the chain of title for a given parcel of land over a given period of time (title search)
   c. Interpret land deeds to determine location, ownership, type of conveyance, distances, and directions of boundaries and corners, and other parameters associated with deeds
3. Interpret maps and spatial imagery
   a. Interpret topographic maps to determine boundaries and corners, acreage, legal description of land, elevations, and landmarks for a given parcel of land
   b. Interpret spatial imagery to determine boundaries and corners, acreage, legal description of land, elevations, and landmarks for a given parcel of land
4. Demonstrate the use of surveying equipment and instruments in forestry technology occupations
   a. Demonstrate use and proper care of surveying instruments and equipment including compasses, transits, global positioning system (GPS) receivers, and distance measuring equipment
5. Demonstrate surveying practices used in forestry technology occupations
   a. Locate and mark corners and boundary lines for a given parcel of land
   b. Demonstrate the use of GPS and distance measuring equipment

VALIDATION

Course Number and Name: **FOT 2214** **Advanced GPS/GIS in Forestry**

Description: A course that includes use of remote sensing imagery and geographic information systems software in forest operations.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Explain principles of remote sensing interpretation and application of aerial photos and other remote sensing images
   a. Select project areas for evaluation
   b. Find resources for project area image data
   c. Inspect and process image data of project areas for target information
   d. Explore other resources and methods of remote sensing
2. Examine the use of the global positioning system and geographic information systems software
   a. Demonstrate the use of the global positioning system to find latitude, longitude, and elevation
   b. Demonstrate the use of the global positioning system to find state plane coordinates
   c. Obtain base station location for differential correction
   d. Record location coordinates for routing and navigation
   e. Process data into X and Y coordinates
   f. Generate tract maps and determine acreage using GIS

VALIDATION

Course Number and Name: **FOT 2424** **Timber Harvesting**

Description: A course dealing with harvesting practices including development of timber harvesting, regulations, harvesting plans, best management practices, and timber contracts (legal terminology). Includes observations of logging operations.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	1	6	105

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Describe timber harvesting equipment and practices used in the southeastern United States
    a. Describe how timber harvesting practices have evolved over time in response to economic, environmental, and regulatory factors
    b. Discuss the use of harvesting equipment including operating costs, advantages, and limitations
    c. Observe equipment in logging operations and prepare a report based on the observations
2. Identify regulations associated with timber harvesting operations
    a. Describe safety regulations for timber harvesting operations
    b. Describe environmental regulations for timber harvesting operations
3. Prepare a timber harvesting plan for a given parcel of timber
    a. Identify and describe Best Management Practices (BMP's) for timber harvesting,including minimizing visual and environmental impact
    b. Prepare a logging plan for a given tract of timber to include placement of decks, skid trails and roads, equipment to be used, access to public roads, and BMP's to be used
4. Interpret a timber sale contract (legal terminology)
    a. Identify essential elements of a timber sale contract including owner, location, timber removal period, type of payment, and special considerations

VALIDATION

Course Number and Name: **FOT 2614** **Silviculture I**

Description: A course dealing with the growth and development of trees and stands. Includes instruction in principles of tree and stand growth and development, regeneration, and intermediate cuttings.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Apply principles of tree physiology (silvics)
    a. Describe the factors that affect growth of individual trees in the forest
    b. Describe factors that affect the growth and development of forest stands
2. Apply principles of regeneration and reproductive methods
    a. Describe procedures for implementing regeneration of timber stands, including natural regeneration and artificial regeneration
    b. Prepare a regeneration plan for a given parcel of land
3. Select intermediate cutting procedures for various stands of timber
    a. Describe the different types of intermediate cuttings to include release cuttings, thinnings, pruning, and salvage
    b. Select the appropriate intermediate cutting procedure for a given stand of timber
    c. Select trees for intermediate cutting

VALIDATION

Course Number and Name: **FOT 2624** **Silviculture II**

Description: A continuation of Silviculture I with emphasis on site preparation and regeneration practices.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Apply site preparation practices used in forestry
    a. Describe the different types of site preparation practices used in forestry including prescribed burning, shear and rake, chopping, herbicidal treatments, and planting with herbicide applications
    b. Compare costs and benefits of each different type of site preparation practice
    c. Prepare a site preparation plan for a given tract of land to include procedures, budget, timing, acreage treated, and participation in government programs
2. Apply regeneration practices used in forestry
    a. Describe the advantages and disadvantages of the different types of natural and artificial regeneration practices
    b. Describe the use of genetically improved seedlings in regeneration
    c. Describe the different types of planting practices used in artificial regeneration
    d. Observe and participate in tree planting activities and inspections
    e. Describe the process of genetic tree improvement

VALIDATION

Course Number and Name: **FOT 291 (1-6) Special Problem in Forestry Technology**

Description: A course designed to provide the student with practical application of skills and knowledge gained in other Forest Technology courses. The instructor works closely with the student to insure that the selection of a project will enhance the student's learning experience.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
1-6	0	2-6	30-90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Develop a written plan which details the activities and projects to be completed
    a. Use a written plan which details the activities and projects to be completed
    b. Perform written occupational objectives in the special problem
2. Assess accomplishment of objectives
    a. Prepare daily written assessments of accomplishment of objectives
    b. Present weekly written reports to the instructor of activities performed and objectives accomplished
3. Use and follow a set of written guidelines for the special problem
    a. Develop and follow a set of written guidelines for the special problem

VALIDATION

Course Number and Name: **FOT 292 (1-6)** **Supervised Work Experience in Forestry Technology**

Description: A course which is a cooperative program involving students, employers, and educational staff and is designed to integrate the student's technical studies with real world situations. Variable credit is awarded on the basis of one semester hour per 45 contact hours.

Hour Breakdown:

Semester Credit Hours	Lecture	Externship	Contact Hours
1-6	0	3-18	45-270

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Follow a set of instructor-written guidelines for the supervised work experience program
2. Apply skills needed to be a viable member of the workforce
    a. Prepare a description of skills to be developed in the supervised work experience program
    b. Practice skills needed to be a viable member of the workforce
3. Practice human relationship skills in the supervised work experience program
4. Practice positive work habits, responsibilities, and ethics
5. Develop written occupational objectives in the supervised work experience program
6. Assess performance of occupational skills
    a. Prepare daily written assessments of work performance as specified in the occupational objectives
    b. Present weekly written reports to the instructor of activities performed and objectives accomplished

VALIDATION

Course Number and Name: **FOT 294 (1-6)** **Special Problem in Conservation Law**

Description: A course designed to provide the student with practical application of skills and knowledge gained in other Conservation Law courses. The instructor works closely with the student to insure that the selection of a project will enhance the student's learning experience.

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
1-6	0	2-6	30-90

Prerequisite: Instructor approved

Student Learning Outcomes:

1. Develop a written plan which details the activities and projects to be completed
    a. Use a written plan which details the activities and projects to be completed
    b. Perform written occupational objectives in the special problem
2. Assess accomplishment of objectives
    a. Prepare daily written assessments of accomplishment of objectives
    b. Present weekly written reports to the instructor of activities performed and objectives accomplished
3. Use and follow a set of written guidelines for the special problem
    a. Develop and follow a set of written guidelines for the special problem

APPENDIX A: RECOMMENDED TOOLS AND EQUIPMENT

CAPITALIZED ITEMS

1. GPS unit (1 per 4 students)
2. Hand-held 2-way radio (1 per 4 students)
3. HAGLOF Distance Measuring Device (1 per 4 students)
4. Electronic Hypsometer (1 per 4 students)
5. Field data recorder (1 per program)
6. Laptop computer to military specs, with accessories (1 per teacher)
7. Microcomputer with CD-ROM (1 per student)
8. Microcomputer laser printer (networked) (1 per network)
9. Digitizing tablet for computer (1 per program)
10. Electronic distance measure unit (1 per 10 students)
11. Van (1 per 10 students)
12. Drone (1 per 5 students)
13. Electronic Tablet (1 per 2 students)

NON-CAPITALIZED ITEMS

1. Diameter tape (1 per 3 students)
2. Clinometer (1 per 3 students)
3. Loggers tape (1 per 3 students)
4. Prism (1 per 3 students)
5. Tally book (1 per 3 students)
6. Compass (1 per 3 students)
7. Cruiser's vest or field bag (1 per 3 students)
8. Surveyor's transit with stadia (1 per 10 students)
9. Staff compass (1 per 10 students)
10. Range pole (1 per 10 students)
11. Gunter's chain (1 per 10 students)
12. Chain pins (1 bundle per 10 students)
13. Tree marking devices (1 per 2 students)
14. Increment borer (1 per 2 students)
15. Bark gauge (1 per 2 students)
16. Hard hats (1 per student)
17. Snake leggings (1 per student)
18. Safety glasses or goggles (1 per student)
19. Ear plugs or muffs (1 per student)
20. First aid kit (1 per 10 students)
21. Drip torch (1 per 10 students)
22. Backpack water pump (1 per 5 students)
23. Fire rake (1 per 5 students)
24. Fire flap (1 per 5 students)
25. Fire axe (1 per 5 students)
26. Round point shovel (1 per 5 students)
27. Wind speed detector (1 per 1 program)
28. Fire weather kit (1 per program)
29. Lumber rules (1 per student)
30. Moisture meter (1 per 5 students)
31. Tree injector (1 per 5 students)
32. Tree planting bar (1 per 5 students)
33. Hoe-dad planter (1 per 5 students)
34. Tree planting bag (1 per 5 students)
35. Caliper (1 per 2 Students)

RECOMMENDED INSTRUCTIONAL AIDS

It is recommended that instructors have access to the following items:

1. Microcomputer integrated software package (word processing, spreadsheet and data base)
2. Digitizing software package
3. Timber cruising software package
4. GPS mapping system software
5. Wood identification kit
6. Video camera/recorder
7. TV/monitor and /DVD player
8. Cart, AV (for use with TV monitor and/DVD)
9. LED projector

APPENDIX B: CURRICULUM DEFINITIONS AND TERMS

- Course Name – A common name that will be used by all community 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 Certificate Required Course – A required course for all students completing a career certificate.
    - Technical Certificate Required Course – A required course for all students completing a technical certificate.
    - Technical Elective – Elective courses that are available for colleges to offer to students.

- Description – A short narrative that includes the major purpose(s) of the course

- 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

- Student Learning Outcomes – A listing of the student outcomes (major concepts and performances) 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:
    - 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
    - Activities that develop a higher level of mastery on the existing competencies and suggested objectives
    - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
    - 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
    - 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 college. 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 all of the required Career Certificate courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college.

VALIDATION

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

    - Adding new student learning outcomes to complement the existing competencies and suggested objectives in the program framework
    - Revising or extending the student learning outcomes
    - 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)

APPENDIX C: COURSE CROSSWALK

Course Crosswalk Conservation Law Enforcement and Forestry Technology CIP 03.0208 – Conservation Law Enforcement CIP 03.0511 Forestry Technology					
Note: Courses that have been added or changed in the 2017 curriculum are highlighted.					
Existing			**Revised**		
2011 MS Curriculum Framework			**2018 MS Curriculum Framework**		
Course Number	**Course Title**	**Hours**	**Course Number**	**Course Title**	**Hours**
CRJ 1313	Introduction to Criminal Justice	3	CJT 1313	Introduction to Criminal Justice	3
CJR 1383	Criminology	3	CJT 1383	Criminology	3
CRJ2333	Criminal Investigation	3	CJT 2333	Criminal Investigation I	3
CRJ 2513	Juvenile Justice	3	CJT 2513	Juvenile Justice	3
			AGT 1714	Applied Soils-Conservation and Use	4
FOT 1114	Forest Measurements I	4	FOT 1114	Forest Measurements I	4
FOT 1124	Forest Measurements II		FOT 1124	Forest Measurements II	
FOT 1314	Forest Protection	4	FOT 1314	Forest Protection	4
FOT 1414	Forest Products Utilization	4	FOT 1414	Forest Products Utilization	4
FOT 1714	Applied Dendrology	4	FOT 1714	Applied Dendrology	4
FOT 2124	Forest Surveying and Spatial Applications	4	FOT 2124	Forest Surveying and Spatial Applications	4
FOT 2214	Apps of GIS/GPS in Forestry	4	FOT 2214	Apps of GIS/GPS in Forestry	4
FOT 2614	Silviculture I	4	FOT 2614	Silviculture I	4
FOT 2624	Silviculture II	4	FOT 2624	Silviculture II	4
FOT 2214	Advanced GIS/GPS in Forestry	4	FOT 2214	Advanced GIS/GPS in Forestry	4
FOT 291(1-3)	Special Problem in Forestry Technology	1-3	FOT 291(1-3)	Special Problem in Forestry Technology	1-3
FOT 292 (1-6)	Supervised Work Experience in Forestry Technology	1-6	FOT 292 (1-6)	Supervised Work Experience in Forestry Technology	1-6

APPENDIX D: RECOMMENDED TEXTBOOKS

Conservation Law Enforcement Text Book List **CIP 03.0208 – Conservation Law Enforcement**		
Book Title	**Author (s)**	**ISBN**
Fish and Wildlife Management A Handbook for Mississippi Landowners	Adam T. Rohnke and James L. Cummings	978-I-62846-027-8

Forestry Technology Text Book List **CIP 03.0511 – Forestry Technology**		
Book Title	**Author (s)**	**ISBN**
Forest Measurements	Avery and Burkhart	0-07-366176-7
Conducting Prescribed Fires A Comprehensive Manual	John R. Weir	978-1-60344-134-6
Textbook of Dendrology Ninth Edition	James W. Hardin, Donald J. Leopold and Fred M. White	0-07-366171-6
Mississippi Forests And Forestry	James E. Fickle	1-57806-308-6
Fundamentals of Soil Science -8E	Henry D. Foth	0-471-52279-1
Intro to Forests and Renewable Resources	Hendee, Dawson, Shatpe	978-1-57766-746-9
Audubon Society Field Guide to North American Trees: Eastern Region	National Audubon Society	978-0394507606
Elementary Timber Measurements	Wiant	Out of Production We have permission from publisher to print on campus
The Practice of Silviculture	Smith,Larson,Kelty,Ashton	0-471-10941-x
Forest Measurements	Avery and Burkhart	978-0-07-366176-6
Forest Products and Wood Science: An Introduction	Shmulsky and Jones	9780813820743
Surveying for Forestry and the Natural Resources	Jim Kiser	Publication from Oregon State University no ISBN
Mississippi Trees	Hodges, Evans, and Garnett	MSU Extension and Mississippi Forestry Commission Publication no ISBN