OFFICE OF INSTRUCTIONAL ENHANCEMENT AND INTERNAL OPERATIONS
Summary of State Board of Education Agenda Items
March 14-15, 2013

OFFICE OF CAREER AND TECHNICAL EDUCATION

07. Approval to begin the Administrative Procedures Act process: To revise the Mississippi Secondary Curriculum Frameworks in Career and Technical Education for (1) Construction: Carpentry Concentration, (2) Culinary Arts, and (3) Introduction to Agriscience

Executive Summary

The following secondary curriculum frameworks are recommended for approval:

*****1. Construction Core
*****2. Carpentry
3. Culinary Arts
4. Introduction to Agriscience

***The *Construction: Carpentry Concentration* curriculum framework will be revised to become separate frameworks named: (1) Construction Core; and (2) Carpentry. All language to be deleted is indicated by strikethrough.**

All curricula frameworks are designed to provide local programs with an instructional foundation that can be used to develop localized instructional management plans and course syllabi. Additionally, the frameworks include the following elements for each revised secondary curricula:

- Program Description
- CIP Code and CIP Name
- Course Outline and Codes
- Curriculum Framework
  - Student Competencies
  - Suggested Student Objectives

Draft curricula for each program were revised and reviewed with input from local district personnel and business/industry collaborators. Approved secondary curricula will be disseminated for implementation in the Fall 2013.

NOTE: The Office of Career and Technical Education has provided printed, bound executive summaries of the curriculum frameworks. The detailed documents are available upon request.

Recommendation: Approval

Back-up material attached

~~Construction:~~ Carpentry ~~Concentration~~

Program CIP: 46.0000 ~~Construction:~~ Carpentry ~~Concentration~~

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The Research and Curriculum Unit (RCU), located in Starkville, Mississippi, as part of Mississippi State University, was established to foster educational enhancements and innovations. In keeping with the land grant mission of Mississippi State University, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

Acknowledgments

The ~~Construction Technology~~ curriculum was presented to the Mississippi Board of Education on April 17, 2008. The following persons were serving on the state board at the time:

Dr. Hank M. Bounds, Executive Secretary
Mr. Claude Hartley, Chair
Mr. William Harold Jones, Vice Chair
Mr. Howell "Hal" N. Gage
Dr. O. Wayne Gann
Ms. Rebecca Harris
Mr. Charles McClelland
Ms. Sondra Parker Caillavet
Ms. Rosetta Richards
Dr. David Sistrunk

Mike Mulvihill, Interim Associate State Superintendent of Education for the Office of Vocational Education and Workforce Development, at the Mississippi Department of Education assembled an oversight committee to provide input throughout the development of the ~~*Construction Technology*~~ *Curriculum Framework and Supporting Materials.* Members of this task force were as follows:

John Bass, Mississippi Manufacturing Association
Mike Barkett, Mississippi Construction Education Foundation
Sam Davis, Mississippi Department of Education
Andy Sims, Mississippi Department of Education
Dr. Bob Fuller, Starkville Public Schools
James Ivy, Northrop Grumman
Sarah Lay, Student, Vicksburg, MS
Dr. Edward C. Mann, University of Southern Mississippi
Jennifer Marshall, Viking Corporation
Jackie McElwain, Kosciusko Public Schools
Mike McCullough, East Mississippi Community College
Darnell Ramshur, Carl Loftin Vocational Center
Kirk Sullivan, Simpson County Vocational Center
Meda Vassar, Pontotoc County School District
Minadene Waldrop, Rankin County Schools
Jo Ann Watts, Research and Curriculum Unit
Doug Ferguson, Research and Curriculum Unit
Haley Weeks, Petal Vocational Center
Bill Welch, Mississippi Department of Education
Maurice Whalen, Clinton Career Complex
Lisa White, Carl Loftin Vocational Center

Also, a special thanks is extended to the teachers who contributed teaching and assessment materials that are included in the framework and supporting materials. Members who contributed were as follows:

Barry Evans, Hinds Community College, Rankin

Steve Hurdle, Oxford-Lafayette School of Applied Technology, Oxford
Marvin Moak, Hinds Community College, Raymond
Edna Nelson, Greenwood Career Center, Greenwood
Darnell Nunn, Humphreys County Vocational Center, Belzoni
Woodrow Price, Martin Luther King Career Technology Center, Woodville
Howie Schiedel, Meridian Community College, Meridian
Larry Stewart, Jackson Career Development Center, Jackson

Appreciation is expressed to the following staff members at the Mississippi Department of Education who provided guidance and insight throughout the development process:

~~Andy Sims, Program Coordinator, Office of Vocational Education and Workforce Development, Mississippi Department of Education~~
~~Chris Wall, Director of Instructional Programs and Student Organizations, Office of Vocational Education and Workforce Development, Mississippi Department of Education~~

Finally, standards in the ~~*Construction Technology*~~ *Curriculum Framework and Supporting Materials* are based on the following:

Contren Learning Series from the National Center for Construction Education and Research
Reprinted with permission from Contren Learning Series, Copyright © 2002, National Center for Construction Education and Research, (352) 334-0920, http://www.nccer.org/index.asp

Applied Academic Credit Benchmarks
Mississippi Department of Education 2007 Mississippi Mathematics Framework Revised

21st Century Skills and Information and Communication Technologies Literacy Standards
In defining 21st century learning, the Partnership for 21st Century Skills has embraced five content and skill areas that represent the essential knowledge for the 21st century: global awareness; civic engagement; financial, economic, and business literacy; learning skills that encompass problem-solving, critical-thinking, and self-directional skills; and Information and Communication Technology (ICT) literacy.

National Educational Technology Standards for Students
Reprinted with permission from *National Educational Technology Standards for Students: Connecting Curriculum and Technology*, Copyright © 2007, ISTE (International Society for Technology in Education), (800) 336-5191 (U.S. and Canada) or (541) 302-3777 (International), iste@iste.org, www.iste.org. All rights reserved. Permission does not constitute an endorsement by ISTE.

ACT College Readiness Standards

The College Readiness Standards are sets of statements intended to help students understand what is expected of them in preparation for the ACT. These standards are integrated into teaching and assessment strategies throughout the curriculum framework.

Preface

Secondary vocational–technical education programs in Mississippi are faced with many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, Mississippi Code of 1972, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, ch. 487, §14; Laws, 1991, ch. 423, §1; Laws, 1992, ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act IV, 2007; and No Child Left Behind Act of 2001).

~~Construction:~~ Carpentry Executive Summary

Program Description

~~Construction is a program or an instructional program that prepares students for employment or continued education in the occupations of carpentry.~~ The curriculum framework for this program was developed in partnership with the Mississippi Construction Education Foundation (MCEF). MCEF is the accredited sponsor for the National Center for Construction Education and Research (NCCER).

When developing this curriculum, writers recognized the importance of differentiating instruction and meeting the needs of the 21st century learner. Teaching strategies included a blend of online and face-to-face instruction. Teaching strategies are aligned with Contren Connect e-books, online lectures, video presentations, online quizzes, active figures, and Spanish content. Students will have access to this information to learn new content as well as review, reinforce, or revise work.

Industry Certification

The NCCER developed and published a set of industry standards that are taught nationwide by contractors, associations, construction users, and secondary and postsecondary schools called the **Contren Learning Series.** When developing this set of standards, the NCCER assembled a team of subject matter experts that represented construction companies and schools across the nation. Each committee met several times and combined experts' knowledge and experience to finalize the set of national industry standards.

As a part of the accreditation process, all Mississippi construction instructors will be required to successfully complete the **Instructor Certification Training Program**. This program ensures that instructors possess a deep knowledge of content of the standards.

This state-of-the-art curriculum is modeled after the eight Mississippi **NCCER Accredited Training and Education Facilities (ATEF)**. In order to become an NCCER ATEF program, school districts must meet a set of guidelines including the following:

1. Use the approved curriculum.
2. All instructors must be NCCER certified.
3. All completed Form 200s and release forms on all student completions are to be forwarded to MCEF for proper approval. MCEF will in turn forward to NCCER for processing.
4. Follow NCCER guidelines on test security and performance profiles.
5. Have an active advisory committee with at least two commercial contractors involved.
6. Follow safety practices and Occupational Safety and Health Administration (OSHA) standards used in the class and lab areas.
7. Involve commercial contractors in class presentations or field trips.
8. All construction programs must be included in the accreditation process.
9. Show active involvement in student leadership development (e.g., VICA and SkillsUSA).
10. Provide demonstrated placement into construction-related occupations, and provide timely reports to MCEF.

Districts will be required to complete a self-evaluation of all programs and host a site visit from industry to ensure proper lab, safety, and instructional procedures are in place.

Assessment

Students will be assessed using the ~~Construction:~~ Carpentry MS-CPAS2 test. The MS-CPAS2 blueprint can be found at http://info.rcu.msstate.edu/services/curriculum.asp. If there are questions regarding assessment of this program, please contact the construction instructional design specialists at the Research and Curriculum Unit at 662.325.2510.

Student Prerequisites

In order for students to be successful in the ~~Construction~~ program, the following student prerequisites are in place:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math)

   or
3. Instructor Approval and TABE Reading Score (eighth grade or higher)

   or
4. Instructor Approval

Proposed Applied Academic Credit

Applied Math content from the curriculum was aligned to the 2007 Mississippi Math Framework Revised Academic Benchmarks. It is proposed that upon the completion of this program, students will earn 1/2 Applied Math credit that can be used for graduation requirements.

The applied academic credit has ***not*** been approved by the Mississippi Commission on School Accreditation or by the State Board of Education. If there are questions regarding applied academic credit, please contact the Coordinator of Workforce Education at the Research and Curriculum Unit at 662.325.2510.

Licensure Requirements

Teacher license 977 is required to teach ~~Construction:~~ Carpentry. The requirements for the 977 licensure endorsement are listed below:

1. Applicant must hold a 2-year college degree (associate's degree) or higher from an accredited institution of higher education.
2. Applicant with an associate's degree must have at least 2 years of verifiable occupational experience in the past 10 years. Experience must be appropriate to the subject to be taught. Applicant with a bachelor's or higher degree must have at least 1 year of verifiable occupational experience in the past 10 years. Experience must be appropriate to the subject to be taught.
3. Applicant must enroll immediately in the Vocational Instructor Preparation (VIP) or the Redesign Education Program (REP).
4. Applicant must complete the individualized Professional Development Plan (PDP) requirements of the VIP or REP prior to the expiration date of the 3-year vocational license.
5. Applicant must validate occupational competency by earning a passing score on the ~~Construction Technology~~ assessment through NCCER National Craft Assessment and Certification Program.
6. Applicant must successfully complete the Contren Instructor Certification.

7. Applicant must successfully complete an MDE-approved computer literacy certification exam.
8. Applicant must successfully complete certification for an online learning workshop, module, or course that is approved by the MDE.
9. Applicant must successfully complete the Construction certification workshop, module, or course that is approved by the MDE.

Note: If the applicant meets all requirements listed above, that applicant will be issued a **977** endorsement—a 5-year license. If the applicant does not meet **all** requirements, the applicant will be issued a 3-year endorsement (license), and all requirements stated above must be satisfied prior to the ending date of that license.

Professional Learning

The professional learning itinerary for the middle school or individual pathways can be found at http://redesign.rcu.msstate.edu. If you have specific questions about the content of each training session provided, please contact the Research and Curriculum Unit at 662.325.2510, and ask for the Professional Learning Specialist.

Course Outlines

This curriculum framework allows options for local school districts to meet student needs and scheduling demands. One option groups units into ~~four~~ one-Carnegie-unit courses. The second option groups units into ~~two~~ two-Carnegie-unit course~~s~~. A discussion of each option is provided below.

Option 1

Upon completion of this option, the student will be trained to take the **Contren Level 1 Certification** exam. This curriculum consists of ~~four~~ one-credit courses, which should be completed in the following sequence:

~~1. Safety and Orientation to Construction (Course Code: 993102)~~
~~2. Introduction to Construction (Course Code: 993103)~~
~~3.~~1. Theory and Application of Carpentry I (Course Code: 993111)
~~4.~~2. Theory and Application of Carpentry II (Course Code: 993112)

~~**Course Description**: Safety and Orientation to Construction includes an introduction to the field as well as fundamentals of construction safety, tools, math, and blueprint reading and basic carpentry, electrical, masonry, and plumbing skills.~~

~~**Course Description**: Introduction to Construction emphasizes an overview of other construction-related trades such as electrical writing, masonry, and plumbing. This course gives students real-world, hands-on practice in these areas. This one-Carnegie-unit course should only be taken after students successfully pass Safety and Orientation to Construction.~~

Course Description: Theory and Application of Carpentry I includes an in-depth study of materials used in the carpentry field, foundations, and floor framing. This course also reinforces safety related to the construction industry. This one-Carnegie-unit course should only be taken after students successfully pass Introduction to Construction.

Course Description: Theory and Application of Carpentry II includes an in-depth study of wall and ceiling framing, roof framing, windows and doors, and stair layout. This course also reinforces safety related to

the construction industry. This one-Carnegie-unit course should only be taken after students successfully pass Theory and Application of Carpentry, Part A.

~~**Safety and Orientation to Construction (Course Code: 993102)**~~

~~Unit~~		~~Title~~	~~Hours~~
~~1~~		~~Introduction and Orientation~~	~~15~~
~~2~~		~~Basic Safety~~	~~19~~
~~3~~		~~Basic Math~~	~~24~~
~~4~~		~~Hand and Power Tools~~	~~24~~
~~5~~		~~Introduction to Blueprints~~	~~24~~
~~6~~		~~Introduction to Carpentry~~	~~34~~
			~~**140**~~

~~**Introduction to Construction (Course Code: 993103)**~~

~~Unit~~		~~Title~~	~~Hours~~
~~7~~		~~Introduction to Electrical Wiring~~	~~48~~
~~8~~		~~Introduction to Masonry~~	~~48~~
~~9~~		~~Introduction to Plumbing~~	~~44~~
			~~**140**~~

Theory and Application of Carpentry I (Course Code: 993111)

Unit		Title	Hours
10		Orientation (Review and Reinforcement)	5
11		Basic Safety (Review and Reinforcement)	10
12		Construction Math	30
13		Introduction to Materials Used in Construction	20
14		Footing, Foundation, and Floor Framing	75
			140

Theory and Application of Carpentry II (Course Code: 993112)

Unit		Title	Hours
15		Wall, Ceiling, and Roof Framing	86
16		Windows, Doors, and Stairs	54
			140

Option 2

This option will prepare students for employment in the content area chosen and prepare students to complete the **Contren Level 1 Certification**. Students are encouraged to take this certification exam. This curriculum consists of ~~two~~ two-credit course~~s~~, which should be completed in the following sequence:

~~1. Construction (Course Code: 993101)~~
2. Carpentry (Course Code: 993110)

~~**Course Description:** The Construction course introduces students to fundamentals of construction safety, tools, math, and blueprint reading and basic carpentry, electrical, masonry, and plumbing skills. Upon the completion of this course, students will have knowledge to complete the Contren Core Certification.~~

Course Description: The Carpentry course consists of an in-depth study of foundations; wall and ceiling framing; room framing; windows and doors; and stair layout. Upon the completion of this course, students will have the knowledge to complete the Contren Level I Certification.

~~**Construction (Course Code: 993101)**~~

~~Unit~~		~~Title~~	~~Hours~~
~~1~~		~~Introduction and Orientation~~	~~15~~
~~2~~		~~Basic Safety~~	~~19~~
~~3~~		~~Basic Math~~	~~24~~
~~4~~		~~Hand and Power Tools~~	~~24~~
~~5~~		~~Introduction to Blueprints~~	~~24~~
~~6~~		~~Introduction to Carpentry~~	~~34~~
~~7~~		~~Introduction to Electrical Wiring~~	~~48~~
~~8~~		~~Introduction to Masonry~~	~~48~~
~~9~~		~~Introduction to Plumbing~~	~~44~~
			~~**280**~~

Carpentry (Course Code: 993110)

Unit		Title	Hours
10		Orientation (Review and Reinforcement)	5
11		Basic Safety (Review and Reinforcement)	10
12		Construction Math	30
13		Introduction to Materials Used in Construction	20
14		Footing, Foundation, and Floor Framing	75
15		Wall, Ceiling, and Roof Framing	86
16		Windows, Doors, and Stairs	54
			280

2013 Construction Core

Mississippi Department of Education

Program CIP: 46.0000 – Construction

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Foreword

Secondary career-technical education programs in Mississippi are faced with many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, Mississippi Code of 1972, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, ch. 487, §14; Laws, 1991, ch. 423, §1; Laws, 1992, ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act III, 1998; and No Child Left Behind Act of 2001).

Each secondary career-technical course consists of a series of instructional units which focus on a common theme. All units have been written using a common format which includes the following components:

- Unit Number and Title
- Suggested Time on Task - An estimated number of clock hours of instruction that should be required to teach the competencies and objectives of the unit. A minimum of 140 hours of instruction is required for each Carnegie unit credit. The curriculum framework should account for approximately 75-80 percent of the time in the course.
- Competencies and Suggested Objectives
    - A competency represents a general concept or performance that students are expected to master as a requirement for satisfactorily completing a unit. Students will be expected to receive instruction on all competencies.
    - The suggested objectives represent the enabling and supporting knowledge and performances that will indicate mastery of the competency at the course level.
- Suggested Teaching Strategies - This section of each unit indicates strategies that can be used to enable students to master each competency. Emphasis has been placed on strategies which reflect active learning methodologies. Teachers should feel free to modify or enhance these suggestions based on needs of their students and resources available in order to provide optimum learning experiences for their students.
- Suggested Assessment Strategies - This section indicates strategies that can be used to measure student mastery. Examples of suggested strategies could include rubrics, class participation, reflection, and journaling. Again, teachers should feel free to modify or enhance these suggested assessment strategies based on local needs and resources.
- Integrated Academic Topics, Workplace Skills, Technology Standards, and Occupational Standards - This section identifies related academic topics as required in the Subject Area Assessment Program (SATP) in Algebra I, Biology I, English II, and U. S. History from 1877, which are integrated into the content of the unit. It also identifies 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. The need for these types of skills have been recognized for some time and

the 21st Century Skills are adapted in part from the 1991 report from the U.S. Secretary of Labor's Commission on Achieving Necessary Skills (SCANS). Another important aspect of learning and working in the 21st century involves technology skills, and the International Society for Technology in Education, developers of the National Education Technology Standards (NETS), were strategic partners in the Partnership for 21st Century Skills.

- References - A list of suggested references is provided for each unit. The list includes some of the primary instructional resources that may be used to teach the competencies and suggested objectives. Again, these resources are suggested and the list may be modified or enhanced based on needs and abilities of students and on available resources.

Course Description

The Construction Core instructional program provides a foundation of knowledge to prepare students for employment or continued education in several occupations related to the construction industry. The curriculum framework for this program was developed in partnership with the Mississippi Construction Education Foundation (MCEF). MCEF is the accredited sponsor for the National Center for Construction Education and Research (NCCER).

When developing this curriculum, the authors recognized the importance of incorporating differentiated instruction and the needs of the 21st-century learners. Therefore, teaching strategies include a blend of online and face-to-face instruction that align with NCCER Connect e-books, online lectures, video presentations, online quizzes, active figures, and Spanish content. Students will have access to this information both to learn new content as well as to review, reinforce, or revise their work.

Industry Certification

The NCCER published the ***Learning Series*** as the set of industry standards that should be taught nationwide by contractors, associations, and secondary and postsecondary schools**.** To develop the *Learning Series*, the NCCER assembled a team of subject-matter experts that represented construction companies and schools across the nation. Each committee met several times, combining experts' knowledge and experience to finalize the benchmarks and requirements included in the standards.

As a part of the certification process, all Mississippi Construction pathway instructors will be required to successfully complete the **Instructor Certification Training Program**. Doing so ensures that instructors possess the necessary comprehensive knowledge and understanding of the standards.

This state-of-the-art curriculum is modeled after the Mississippi **NCCER Accredited Training and Education Facilities (ATEF)**. In order to become an NCCER ATEF program, school districts must meet the following set of requirements:

1. Use the approved curriculum.
2. All instructors must be NCCER certified.
3. All completed Form 200s and release forms on all student completions are to be forwarded to MCEF for proper approval. MCEF will in turn forward to NCCER for processing.
4. Follow NCCER guidelines on test security and performance profiles.
5. Have an active advisory committee with at least two commercial contractors involved.
6. Follow safety practices and Occupational Safety and Health Administration (OSHA) standards in the class and lab areas.
7. Involve commercial contractors in class presentations or field trips.
8. All construction programs must be included in the accreditation process.
9. Show active involvement in student leadership development (SkillsUSA).
10. Provide demonstrated placement into construction-related occupations, and provide timely reports to MCEF.
11. Districts will be required to complete a self-evaluation of all programs and host a site visit for a representative from industry to ensure that proper lab, safety, and instructional procedures are in place.

Assessment

Students will be assessed using the Construction Core Year 1 MS-CPAS2 test. The MS-CPAS2 blueprint can be found at http://info.rcu.msstate.edu/services/curriculum.asp. If there are questions regarding assessment of this program, please contact the Architecture & Construction instructional design specialist at the Research and Curriculum Unit at 662.325.2510.

Student Prerequisites

In order for students to be successful in the Construction program, the following student prerequisites are in place:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math)

   or

3. Instructor Approval and TABE Reading Score (eighth grade or higher)

   or

4. Instructor Approval

Teacher Licensure

The latest teacher licensure information can be found at http://www.mde.k12.ms.us/educator-licensure.

Professional Learning

If you have specific questions about the content of any of training sessions provided, please contact the Research and Curriculum Unit at 662.325.2510 and ask for a professional-learning specialist.

Option 1

This curriculum consists of the following two 1-Carnegie unit courses:

1. Safety and Orientation to Construction (Course Code: 993102)
2. Introduction to Construction (Course Code: 993103)

Course Description: Safety and Orientation to Construction includes an introduction to the field as well as fundamentals of construction safety, tools, math, and blueprint reading, as well as basic carpentry, electrical, masonry, and plumbing skills.

Course Description: Introduction to Construction emphasizes an overview of construction-related trades such as carpentry, electrical wiring, masonry, and plumbing. This course gives students' real-world, hands-on practice in these areas. This course should be taken only after students successfully pass Safety and Orientation to Construction.

Safety and Orientation to Construction (Course Code: 993102)

Unit		Title	Hours
1		Introduction and Orientation	15
2		Basic Safety	24
3		Basic Math	29
4		Hand and Power Tools	24
5		Introduction to Blueprints	24
6		Introduction to Materials Handling	24
			140

Introduction to Construction (Course Code: 993103)

Unit		Title	Hours
7		Introduction to Carpentry	38
8		Introduction to Electrical Wiring	34
9		Introduction to Masonry	34
10		Introduction to Plumbing	34
			140

Option 2

This curriculum consists of the following one 2-Carnegie-unit course:

Construction (Course Code: 993101)

Course Description: The Construction course introduces students to fundamentals of construction safety, tools, math, and blueprint reading, as well as basic carpentry, electrical, masonry, and plumbing skills.

Construction (Course Code: 993101)

Unit		Title	Hours
1		Introduction and Orientation	15
2		Basic Safety	24
3		Basic Math	29
4		Hand and Power Tools	24
5		Introduction to Blueprints	24
6		Introduction to Materials Handling	24
7		Introduction to Carpentry	38
8		Introduction to Electrical Wiring	34
9		Introduction to Masonry	34
10		Introduction to Plumbing	34
			280

Carpentry

Program CIP: 46.0201 Carpentry

Ordering Information

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Acknowledgments

The Carpentry curriculum was presented to the Mississippi Board of Education on April 17, 2008. The following persons were serving on the state board at the time:

Dr. Hank M. Bounds, Executive Secretary
Mr. Claude Hartley, Chair
Mr. William Harold Jones, Vice Chair
Mr. Howell "Hal" N. Gage
Dr. O. Wayne Gann
Ms. Rebecca Harris
Mr. Charles McClelland
Ms. Sondra Parker Caillavet
Ms. Rosetta Richards
Dr. David Sistrunk

Mike Mulvihill, Interim Associate State Superintendent of Education for the Office of Vocational Education and Workforce Development, at the Mississippi Department of Education assembled an oversight committee to provide input throughout the development of the *Carpentry Curriculum Framework and Supporting Materials.* Members of this task force were as follows:

John Bass, Mississippi Manufacturing Association
Mike Barkett, Mississippi Construction Education Foundation
Sam Davis, Mississippi Department of Education
Andy Sims, Mississippi Department of Education
Dr. Bob Fuller, Starkville Public Schools
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Sarah Lay, Student, Vicksburg, MS
Dr. Edward C. Mann, University of Southern Mississippi
Jennifer Marshall, Viking Corporation
Jackie McElwain, Kosciusko Public Schools
Mike McCullough, East Mississippi Community College
Darnell Ramshur, Carl Loftin Vocational Center
Kirk Sullivan, Simpson County Vocational Center
Meda Vassar, Pontotoc County School District
Minadene Waldrop, Rankin County Schools
Jo Ann Watts, Research and Curriculum Unit
Doug Ferguson, Research and Curriculum Unit
Haley Weeks, Petal Vocational Center
Bill Welch, Mississippi Department of Education
Maurice Whalen, Clinton Career Complex
Lisa White, Carl Loftin Vocational Center

Also, a special thanks is extended to the teachers who contributed teaching and assessment materials that are included in the framework and supporting materials. Members who contributed were as follows:

Barry Evans, Hinds Community College, Rankin
Steve Hurdle, Oxford-Lafayette School of Applied Technology, Oxford
Marvin Moak, Hinds Community College, Raymond
Edna Nelson, Greenwood Career Center, Greenwood
Darnell Nunn, Humphreys County Vocational Center, Belzoni
Woodrow Price, Martin Luther King Career Technology Center, Woodville
Howie Schiedel, Meridian Community College, Meridian
Larry Stewart, Jackson Career Development Center, Jackson

Appreciation is expressed to the following staff members at the Mississippi Department of Education who provided guidance and insight throughout the development process:

Mike Barkett, Office of Career and Technical Education, Mississippi Department of Education

Bill McGrew, Director of Instructional Programs, Office of Career and Technical Education, Mississippi Department of Education

Finally, standards in the *Carpentry Curriculum Framework and Supporting Materials* are based on the following:

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Applied Academic Credit Benchmarks
Mississippi Department of Education 2007 Mississippi Mathematics Framework Revised

21st Century Skills and Information and Communication Technologies Literacy Standards
In defining 21st century learning, the Partnership for 21st Century Skills has embraced five content and skill areas that represent the essential knowledge for the 21st century: global awareness; civic engagement; financial, economic, and business literacy; learning skills that encompass problem-solving, critical-thinking, and self-directional skills; and Information and Communication Technology (ICT) literacy.

National Educational Technology Standards for Students
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ACT College Readiness Standards

The College Readiness Standards are sets of statements intended to help students understand what is expected of them in preparation for the ACT. These standards are integrated into teaching and assessment strategies throughout the curriculum framework.

Preface

Secondary vocational–technical education programs in Mississippi are faced with many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, Mississippi Code of 1972, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, ch. 487, §14; Laws, 1991, ch. 423, §1; Laws, 1992, ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act IV, 2007; and No Child Left Behind Act of 2001).

Carpentry Executive Summary

Program Description

The curriculum framework for this program was developed in partnership with the Mississippi Construction Education Foundation (MCEF). MCEF is the accredited sponsor for the National Center for Construction Education and Research (NCCER).

When developing this curriculum, writers recognized the importance of differentiating instruction and meeting the needs of the 21st century learner. Teaching strategies included a blend of online and face-to-face instruction. Teaching strategies are aligned with Contren Connect e-books, online lectures, video presentations, online quizzes, active figures, and Spanish content. Students will have access to this information to learn new content as well as review, reinforce, or revise work.

Industry Certification

The NCCER developed and published a set of industry standards that are taught nationwide by contractors, associations, construction users, and secondary and postsecondary schools called the **Contren Learning Series.** When developing this set of standards, the NCCER assembled a team of subject matter experts that represented construction companies and schools across the nation. Each committee met several times and combined experts' knowledge and experience to finalize the set of national industry standards.

As a part of the accreditation process, all Mississippi construction instructors will be required to successfully complete the **Instructor Certification Training Program**. This program ensures that instructors possess a deep knowledge of content of the standards.

This state-of-the-art curriculum is modeled after the eight Mississippi **NCCER Accredited Training and Education Facilities (ATEF)**. In order to become an NCCER ATEF program, school districts must meet a set of guidelines including the following:

1. Use the approved curriculum.
2. All instructors must be NCCER certified.
3. All completed Form 200s and release forms on all student completions are to be forwarded to MCEF for proper approval. MCEF will in turn forward to NCCER for processing.
4. Follow NCCER guidelines on test security and performance profiles.
5. Have an active advisory committee with at least two commercial contractors involved.
6. Follow safety practices and Occupational Safety and Health Administration (OSHA) standards used in the class and lab areas.
7. Involve commercial contractors in class presentations or field trips.
8. All construction programs must be included in the accreditation process.
9. Show active involvement in student leadership development (e.g., VICA and SkillsUSA).
10. Provide demonstrated placement into construction-related occupations, and provide timely reports to MCEF.

Districts will be required to complete a self-evaluation of all programs and host a site visit from industry to ensure proper lab, safety, and instructional procedures are in place.

Assessment

Students will be assessed using the Carpentry MS-CPAS2 test. The MS-CPAS2 blueprint can be found at http://info.rcu.msstate.edu/services/curriculum.asp. If there are questions regarding assessment of this program, please contact the construction instructional design specialists at the Research and Curriculum Unit at 662.325.2510.

Student Prerequisites

In order for students to be successful in the Carpentry program, the following student prerequisites are in place:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math)

   or
3. Instructor Approval and TABE Reading Score (eighth grade or higher)

   or
4. Instructor Approval

Proposed Applied Academic Credit

Applied Math content from the curriculum was aligned to the 2007 Mississippi Math Framework Revised Academic Benchmarks. It is proposed that upon the completion of this program, students will earn 1/2 Applied Math credit that can be used for graduation requirements.

The applied academic credit has ***not*** been approved by the Mississippi Commission on School Accreditation or by the State Board of Education. If there are questions regarding applied academic credit, please contact the Coordinator of Workforce Education at the Research and Curriculum Unit at 662.325.2510.

Licensure Requirements

Teacher license 977 is required to teach Carpentry. The requirements for the 977 licensure endorsement are listed below:

1. Applicant must hold a 2-year college degree (associate's degree) or higher from an accredited institution of higher education.
2. Applicant with an associate's degree must have at least 2 years of verifiable occupational experience in the past 10 years. Experience must be appropriate to the subject to be taught. Applicant with a bachelor's or higher degree must have at least 1 year of verifiable occupational experience in the past 10 years. Experience must be appropriate to the subject to be taught.
3. Applicant must enroll immediately in the Vocational Instructor Preparation (VIP) or the Redesign Education Program (REP).
4. Applicant must complete the individualized Professional Development Plan (PDP) requirements of the VIP or REP prior to the expiration date of the 3-year vocational license.
5. Applicant must validate occupational competency by earning a passing score on the Commercial Carpentry assessment through NCCER National Craft Assessment and Certification Program.
6. Applicant must successfully complete the Contren Instructor Certification.
7. Applicant must successfully complete an MDE-approved computer literacy certification exam.
8. Applicant must successfully complete certification for an online learning workshop, module, or course that is approved by the MDE.
9. Applicant must successfully complete the Construction certification workshop, module, or course that is approved by the MDE.

Note: If the applicant meets all requirements listed above, that applicant will be issued a **977** endorsement—a 5-year license. If the applicant does not meet **all** requirements, the applicant will

be issued a 3-year endorsement (license), and all requirements stated above must be satisfied prior to the ending date of that license.

Professional Learning

The professional learning itinerary for the middle school or individual pathways can be found at http://redesign.rcu.msstate.edu. If you have specific questions about the content of each training session provided, please contact the Research and Curriculum Unit at 662.325.2510, and ask for the Professional Learning Specialist.

Course Outlines

This curriculum framework allows options for local school districts to meet student needs and scheduling demands. One option groups units into two one-Carnegie-unit courses. The second option groups units into one two-Carnegie-unit course. A discussion of each option is provided below.

Option 1

Upon completion of this option, the student will be trained to take the **Contren Level 1 Certification** exam. This curriculum consists of two one-credit courses, which should be completed in the following sequence:

1. Theory and Application of Carpentry I (Course Code: 993111)
2. Theory and Application of Carpentry II (Course Code: 993112)

Course Description: Theory and Application of Carpentry I includes an in-depth study of materials used in the carpentry field, foundations, and floor framing. This course also reinforces safety related to the construction industry. This one-Carnegie-unit course should only be taken after students successfully pass Introduction to Construction.

Course Description: Theory and Application of Carpentry II includes an in-depth study of wall and ceiling framing, roof framing, windows and doors, and stair layout. This course also reinforces safety related to the construction industry. This one-Carnegie-unit course should only be taken after students successfully pass Theory and Application of Carpentry, Part A.

Theory and Application of Carpentry I (Course Code: 993111)

Unit		Title	Hours
10		Orientation (Review and Reinforcement)	5
11		Basic Safety (Review and Reinforcement)	10
12		Construction Math	30
13		Introduction to Materials Used in Construction	20
14		Footing, Foundation, and Floor Framing	75
			140

Theory and Application of Carpentry II (Course Code: 993112)

Unit		Title	Hours
15		Wall, Ceiling, and Roof Framing	86
16		Windows, Doors, and Stairs	54
			140

Option 2

This option will prepare students for employment in the content area chosen and prepare students to complete the **Contren Level 1 Certification**. Students are encouraged to take this certification exam. This curriculum consists of one two-credit course, which should be completed in the following sequence:

1. Carpentry (Course Code: 993110)

Course Description: The Carpentry course consists of an in-depth study of foundations; wall and ceiling framing; room framing; windows and doors; and stair layout. Upon the completion of this course, students will have the knowledge to complete the Contren Level I Certification.

Carpentry (Course Code: 993110)

Unit		Title	Hours
10		Orientation (Review and Reinforcement)	5
11		Basic Safety (Review and Reinforcement)	10
12		Construction Math	30
13		Introduction to Materials Used in Construction	20
14		Footing, Foundation, and Floor Framing	75
15		Wall, Ceiling, and Roof Framing	86
16		Windows, Doors, and Stairs	54
			280

Culinary Arts

Program CIP: 12.0500 Culinary Arts

Ordering Information

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Acknowledgments

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Mr. Claude Hartley, Chair
Mr. William Harold Jones, Vice Chair
Mr. Howell "Hal" N. Gage
Dr. O. Wayne Gann
Ms. Rebecca Harris
Mr. Charles McClelland
Ms. Sondra Parker Caillavet
Ms. Rosetta Richards
Dr. David Sistrunk

Special thanks is extended to the members of the *Culinary Arts Curriculum Framework and Supporting Materials* Professional Advisory Team. Members of this team include the following:

Derrick Scales, Cracker Barrel
Chef David Stutts, Magnolia Regional Hospital, Corinth, MS
Stevie Wortham, Sodexho Foodservice Food Production Manager
Chef Frank Lauterman, Manager H.S. Relations Orlando Culinary Academy
W. Don Sally, CFBE, FMP, Director of Food and Beverage, Hollywood Casino Tunica
Patricia Allen, Cafeteria Supervisor
Larry Williams, Delta Citizens Alliance
Mike Cashion, Executive Director, Mississippi Restaurant Association
Dr. James Fitzgerald, Mississippi University for Women Culinary Arts Institute
Matthew Bedwell, McAlister's Deli, Starkville, MS
Sarah Labensky, Red Dog Enterprises, LLC
Jay Yates, The Veranda/Foodworks MGMT LLC
Donnie Mitchell, Broma's Deli, Brookhaven, MS
Troy Smith, Long's Fish Camp, Enterprise, MS

Also, special thanks to the teachers who contributed teaching and assessment materials that are included in the framework and supporting materials. Members who contributed include the following:

Linda Durand, Greenville Technical Center, Greenville, MS
Shirlaurence Fair, Carl Keen Vocational Center, Clarksdale, MS
Tim Gilmore, Northeast Mississippi Community College, Booneville, MS
Robert Rhymes, Coahoma Community College, Clarksdale, MS

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Dianne Different, Program Coordinator, Office of Vocational Education and Workforce Development, Mississippi Department of Education

Chris Wall, Director of Instructional Programs and Student Organizations, Office of Vocational Education and Workforce Development, Mississippi Department of Education

Gratitude is expressed to the members of the Technology Advisory Committee. This committee played an instrumental role in the development of the *Culinary Arts Curriculum Framework and Supporting Materials* Laboratory Specifications. Members of this committee include the following:

Dr. Doug Belk, Technology Coordinator, Pascagoula School District
Mr. Mike Mulvihill, Interim Associate Superintendent, Office of Vocational Education and Workforce Development
Ms. Christy Todd, Education Specialist, Office of Vocational Education and Workforce Development

Finally, standards in the *Culinary Arts Curriculum Framework and Supporting Materials* are based on the following:

Academic Standards

Mississippi Department of Education Subject Area Testing Program

ACT College Readiness Standards

The College Readiness Standards are sets of statements intended to help students understand what is expected of them in preparation for the ACT. These standards are integrated into teaching and assessment strategies throughout the curriculum framework.

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~~National Restaurant Association Educational Foundation~~

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~~ServSafe Standards~~

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Preface

Secondary vocational–technical education programs in Mississippi are faced with many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, Mississippi Code of 1972, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, ch. 487, §14; Laws, 1991, ch. 423, §1; Laws, 1992, ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act IV, 2007; and No Child Left Behind Act of 2001).

Executive Summary

Program Description

Culinary Arts is a pathway for students in the Human Science, Art, and Humanities career cluster. The following description is from the current Standard Course of Study, for Career-Technical Education, Mississippi Department of Education.

The Culinary Arts pathway program includes classroom and hands-on experiences that will prepare students for employment or continuing education in the foodservice industry. This program was written to incorporate the **National Restaurant Associations (NRA) ProStart** learning objectives. Any student who successfully completes this program and the mentoring requirements of the NRA can take the National ProStart Certificate of Achievement exam. This is a national certification program recognized throughout the foodservice industry. Each district should implement a maximum student number due to the size of each lab.

Industry Certification

This program was designed to articulate to postsecondary Food Production, Hotel and Restaurant Management, and Culinary Arts. Industry standards are based on the *National Restaurant Association ProStart Certification and the National Restaurant Association ServSafe Certification*.

Assessment

Students will be assessed using the Culinary Arts MS-CPAS2 test. The MS-CPAS2 blueprint can be found at http://info.rcu.msstate.edu/services/curriculum.asp. If there are questions regarding assessment of this program, please contact the Culinary Arts instructional design specialists at the Research and Curriculum Unit at 662.325.2510.

Student Prerequisites

In order for students to be able to experience success in the Culinary Arts program, the following student prerequisites are in place:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math)

or

3. Instructor Approval and TABE Reading Score (eighth grade or higher)

or

4. Instructor Approval

Proposed Applied Academic Credit

The mathematics content in the Culinary Arts program is meaningful and useful to students who are entering the foodservice industry. Applied mathematics content was aligned to the 2007 Mississippi Mathematics Framework Revised Academic Benchmarks.

Licensure Requirements

Mississippi teacher license endorsement 972 is needed to teach the Culinary Arts pathway. Requirements for the 972 educator endorsement are listed below:

1. Applicant must have earned an AA degree or higher.
2. Applicant must enroll immediately in the Vocational Instructor Preparation (VIP) or the Redesign Education Program (REP).
3. Applicant must complete the individualized Professional Development Plan (PDP) requirements of the VIP or REP prior to the expiration date of the 3-year vocational license.
4. Applicant must complete all components of the national Prostart Certification program.
5. Applicant must successfully complete the ServSafe certification exam (updated every 5 years).
6. Applicant must successfully complete an approved computer literacy certification exam.
7. Applicant must successfully complete a certification for an online learning workshop, module, or course that is approved by the Mississippi Department of Education.
8. Applicant must successfully complete a Culinary Arts certification workshop, module, or course that is approved by the Mississippi Department of Education.

Professional Learning

If you have specific questions about the content of each training session provided, please contact the Research and Curriculum Unit at 662.325.2510, and ask for the Professional Learning Specialist.

Course Outlines

This curriculum provides options for local school districts to meet student needs and scheduling demands. The first option groups units into four 1-Carnegie unit courses. The second option groups units into two 2-Carnegie courses. Please see below for a description of each option.

Option 1

This option consists of four 1-credit courses that should be completed in the following sequence:

1. Orientation to Culinary Arts (Course Code: 996002)
2. Theory and Applications of Culinary Arts I (Course Code: 996004)
3. Theory and Applications of Culinary Arts II (Course Code: 96005)
4. Advanced Studies in Culinary Arts (Course Code: 996006)

Course Description: Orientation to Culinary Arts includes the foundation skills necessary in the foodservice industry. Content such as food safety and sanitation, equipment, safety and security, culinary foundations and math, and an introduction to the hospitality industry are included in the course. Mastery of the competencies listed in the food safety and sanitation unit will prepare the student to take the NRA's ServSafe exam to become ServSafe Food Safety certified. As of

January 1, 1999, every foodservice establishment in Mississippi must have a full-time certified food manager employed in order to meet the FDA Food Code requirements. Students are encouraged to take this exam.

Course Description: Theory and Applications of Culinary Arts I emphasizes real-world, hands-on practice of food preparation. Food preparation techniques included in this course include breakfast foods, dairy, and sandwiches; fruits, vegetables, salads, and garnishes; and potatoes and grains. This one-Carnegie unit course should only be taken after students successfully pass Orientation to Culinary Arts (Course Code: 995002).

Course Description: Theory and Applications of Culinary Arts II emphasizes real-world, hands-on practice of food preparation. Food preparation techniques included in this course include desserts and baked goods; meat, poultry, and seafood; and stocks, sauces, and soups. This one-Carnegie unit course should only be taken after students successfully pass Theory and Applications of Culinary Arts (Course Code: 995004).

Course Description: Advanced Studies in Culinary Arts is a culminating course that places emphasis on an internship experience. While they participate in the on-the-job training, the students will use their skills that are related to management and business concepts, customer communication, and customer service. Before students can complete the Advanced Placement Culinary Arts course, they must meet the following requirements:

Score 80% or higher on the MS-CPAS2 summative assessment.
Attendance rate of 92% or better in the Orientation to Culinary Arts (Course Code: 996002) and the Theory and Applications of Culinary Arts parts A and B (Course Code: 996004 and 996005)
Find a job related to the culinary industry.

Orientation to Culinary Arts (One Carnegie Unit) – Course Code: 996002

Unit		Title	Hours
1		Introduction	10
2		Human Relations Management	25
3		Food Safety and Sanitation	30
4		Foodservice Equipment, Safety, and Security	30
5		Culinary Foundations	35
			130

~~Theory and Applications of Culinary Arts I (One Carnegie Unit) – Course Code: 996004~~

~~Unit~~		~~Title~~	~~Hours~~
~~6~~		~~Breakfast Foods, Dairy, and Sandwiches~~	~~25~~
~~7~~		~~Fruits, Vegetables, Salads, and Garnishes~~	~~35~~
~~8~~		~~Culinary Math~~	~~25~~
			~~85~~

~~Theory and Applications of Culinary Arts II (One Carnegie Unit) – Course Code: 996005~~

~~Unit~~		~~Title~~	~~Hours~~
~~9~~		~~Orientation~~	~~20~~
~~10~~		~~Hospitality Industry~~	~~30~~
~~11~~		~~Potatoes and Grains~~	~~25~~
~~12~~		~~Customer Communication and Service~~	~~25~~
~~13~~		~~Desserts and Baked Goods~~	~~25~~
			~~125~~

~~Advanced Studies in Culinary Arts (One Carnegie Unit) – Course Code: 996006~~

~~Unit~~		~~Title~~	~~Hours~~
~~14~~		~~Culinary Business Concepts~~	~~45~~
~~15~~		~~Meat, Poultry, and Seafood~~	~~25~~
~~16~~		~~Stocks, Sauces, and Soups~~	~~25~~
			~~95~~

~~Option 2~~

~~This option consists of two 2-Carnegie unit courses that should be completed in the following sequence.~~

1. ~~Culinary Arts I (Course Code: 996000)~~
2. ~~Culinary Arts II (Course Code: 996001)~~

~~Course Description~~~~: Culinary Arts I is the first course of the program. Food preparation techniques included in this course are breakfast foods, dairy, sandwiches, salads, garnishes, fruits, and vegetables. Management skills emphasized are basic customer service, food safety and sanitation, workplace safety and security, culinary basics, equipment, nutrition, human resources, math, and food cost control. Mastery of the competencies listed in the food safety and sanitation unit will prepare students to take the NRA's ServSafe exam to become ServSafe Food Safety certified. As of January 1, 1999, every foodservice establishment in Mississippi must have a full-time certified food manager employed in order to meet the FDA Food Code requirements. Students are encouraged to take this exam.~~

Course Description: Culinary Arts II is a continuation of the emphasis on management and food preparation. Management topics include marketing, accounting, purchasing, inventory, and advanced customer service. Food preparation techniques covered include potatoes, grains, desserts, baked goods, meat, poultry, seafood, stocks, sauces, and soups. An exploration of culinary history is also included in this course. The course should be taken after the student has successfully passed Culinary Arts I.

Culinary Arts I (Course Code: 996000)

Unit		Title	Hours
1		Introduction	10
2		Human Relations Management	25
3		Food Safety and Sanitation	30
4		Foodservice Equipment, Safety, and Security	30
5		Culinary Foundations	35
6		Breakfast Foods, Dairy, and Sandwiches	25
7		Fruits, Vegetables, Salads, and Garnishes	35
8		Culinary Math	25
			215

Culinary Arts II (Course Code: 996001)

Unit		Title	Hours
9		Orientation	20
10		Hospitality Industry	30
11		Potatoes and Grains	25
12		Customer Communication and Service	25
13		Desserts and Baked Goods	25
14		Culinary Business Concepts	45
15		Meat, Poultry, and Seafood	25
16		Stocks, Sauces, and Soups	25
			220

2013 Culinary Arts

Mississippi Department of Education

Program CIP: 01.0003 – Culinary Arts

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Foreword

Secondary career-technical education programs in Mississippi are faced with many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, Mississippi Code of 1972, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, ch. 487, §14; Laws, 1991, ch. 423, §1; Laws, 1992, ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act III, 1998; and No Child Left Behind Act of 2001).

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- Integrated Academic Topics, Workplace Skills, Technology Standards, and Occupational Standards - This section identifies related academic topics as required in the Subject Area Assessment Program (SATP) in Algebra I, Biology I, English II, and U. S. History from 1877, which are integrated into the content of the unit. It also identifies 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. The need for these types of skills have been recognized for some time and

the 21st Century Skills are adapted in part from the 1991 report from the U.S. Secretary of Labor's Commission on Achieving Necessary Skills (SCANS). Another important aspect of learning and working in the 21st century involves technology skills, and the International Society for Technology in Education, developers of the National Education Technology Standards (NETS), were strategic partners in the Partnership for 21st Century Skills.

- References - A list of suggested references is provided for each unit. The list includes some of the primary instructional resources that may be used to teach the competencies and suggested objectives. Again, these resources are suggested and the list may be modified or enhanced based on needs and abilities of students and on available resources.

Pathway Description

Culinary Arts is a pathway for students in the Hospitality and Tourism Career Cluster. The following description is from the Mississippi Department of Education's current Standard Course of Study for Career–Technical Education.

The Culinary Arts Pathway includes classroom and hands-on experiences that will prepare students for employment or continuing education in the foodservice industry. This program was written to incorporate the **National Restaurant Associations (NRA) ProStart** learning objectives. Any student who successfully completes this program and the mentoring requirements will be eligible to take the National ProStart Certificate of Achievement exam, which is a certification recognized in the foodservice industry nationwide.

Industry Certification

This program was designed to articulate to postsecondary Food Production, Hotel and Restaurant Management, and Culinary Arts. Industry standards are based on the NRA's ProStart and ServSafe Certifications.

Assessment

Students will be assessed at the end of their first year using the first-year Mississippi Career Planning and Assessment System (MS-CPAS2) test for Culinary Arts, which is based on content from the first year of Culinary Arts curriculum. At the end of their second year, students will be assessed using the second-year MS-CPAS2 test for Culinary Arts, which is based on content from the second year of the Culinary Arts curriculum. The MS-CPAS2 blueprint can be found at http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx. Any questions regarding

assessment of this program should be directed to the Culinary Arts instructional design specialists at the Research and Curriculum Unit who can be reached at 662.325.2510.

Student Prerequisites

In order for students to experience success in the Culinary Arts program, the following student prerequisites are required:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math course)

   or

3. Instructor approval and a TABE Reading Score of eighth grade or higher

   or

4. Instructor approval

Applied Academic Credit

The mathematics content in the Culinary Arts program is meaningful and useful to students who are entering the foodservice industry. Applied mathematics content was aligned to the 2007 Mississippi Mathematics Framework Revised Academic Benchmarks.

Teacher Licensure

The latest teacher licensure information can be found at http://www.mde.k12.ms.us/educator-licensure.

Professional Learning

For specific questions about the content of any of the training sessions provided, please contact the Research and Curriculum Unit at 662.325.2510 and ask for a professional-learning specialist.

Option 1—Four 1-Carnegie-Unit Courses

This curriculum consists of four one-credit courses, which should be completed in the following sequence:

1. Orientation to Culinary Arts — Course Code: 996002
2. Theory and Application of Culinary Arts I — Course Code: 996004
3. Theory and Application of Culinary Arts II — Course Code: 996005
4. Advanced Studies in Culinary Arts — Course Code: 996006

Course Description: Orientation to Culinary Arts includes a survey of the foundational skills necessary in the foodservice industry. Content such as food safety and sanitation, equipment, safety and security, culinary foundations and math, and an introduction to the hospitality industry are included in the course. Mastery of the competencies listed in the food safety and sanitation unit will prepare the student to take the NRA's ServSafe exam to become ServSafe Food Safety certified. As of January 1, 1999, every foodservice establishment in Mississippi must have a full-time certified food manager employed in order to meet the FDA Food Code requirements. Students are encouraged to take this exam (Course Code: 996002).

Course Description: Theory and Applications of Culinary Arts I emphasizes real-world, hands-on practice of food preparation. Food preparation techniques included in this course include breakfast foods, dairy, and sandwiches; fruits, vegetables, salads, and garnishes; and potatoes and grains. This 1-Carnegie unit course should be taken only after students successfully pass Orientation to Culinary Arts (Course Code: 99004).

Course Description: Theory and Applications of Culinary Arts II emphasizes real-world, hands-on practice of food preparation. Food preparation techniques included in this course include desserts and baked goods; meat, poultry, and seafood; and stocks, sauces, and soups. This 1-

Carnegie unit course should be taken only after students successfully pass Theory and Applications of Culinary Arts I (Course Code: 996005).

Course Description: Advanced Studies in Culinary Arts is a culminating course that places emphasis on an internship experience. While students participate in on-the-job training, they will use their skills related to management and business concepts, customer communication, and customer service. Before students can complete the Advanced Placement Culinary Arts course, they must meet the following requirements (Course Code: 996006):

- Score 80% or higher on the MS-CPAS2 summative assessment or ProStart Exam;
- Maintain an attendance rate of 92% or better in Orientation to Culinary Arts (Course Code: 996002), Theory and Applications of Culinary Arts parts A and B (Course Code: 996004 and 996005), and Advanced Studies in Culinary Arts (Course Code: 996006) courses; and
- Find a job related to the culinary industry.

Course Name Orientation to Culinary Arts **— Course Code: 996002**

Unit	Unit Name	Hours
1	Introduction	32
2	Food Safety and Sanitation	28
3	Workplace Safety	26
4	Professionalism and Utilizing Standard Recipes	26
5	Equipment and Techniques	28
Total		140

Course Name Theory and Application of Culinary Arts I **— Course Code: 996004**

Unit	Unit Name	Hours
6	Stocks, Sauces, and Soups	27
7	Communication	27
8	Management Essentials	30
9	Fruits and Vegetables	29
10	Serving Your Guests	27
Total		140

Course Name Theory and Application of Culinary Arts II **— Course Code: 996005**

Unit	Unit Name	Hours
11	Potatoes and Grains	19
12	Building a Successful Career in the Industry	22
13	Dairy Products, Breakfast Foods, and Sandwiches	21
14	Nutrition	19

15	Cost Control	19
16	Salads and Garnishing	19
17	Purchasing and Inventory	21
Total		140

Course Name Advanced Studies in Culinary Arts **— Course Code: 996006**

Unit	Unit Name	Hours
18	Meat, Poultry, and Seafood	28
19	Marketing	28
20	Desserts and Baked Goods	28
21	Sustainability in the Restaurant and Foodservice Industry	28
22	Global Cuisine	28
Total		140

Option 2—Two 2-Carnegie-Unit Courses

This curriculum consists of two two-credit courses, which should be completed in the following sequence:

1. Culinary Arts I —Course Code: 996000
2. Culinary Arts II—Course Code: 996001

Course Description: Culinary Arts I See Orientation to Culinary Arts and Theory and

Application of Culinary Arts I course descriptions under Option 1.

Course Description: Culinary Arts II See Theory and Application of Culinary Arts II and

Advanced Studies in Culinary Arts course descriptions under Option 1.

Course Name Culinary Arts I **—Course Code: 996000**

Unit	Unit Name	Hours
1	Introduction	21
2	Food Safety and Sanitation	31
3	Workplace Safety	24
4	Professionalism and Utilizing Standard Recipes	24
5	Equipment and Techniques	24
6	Stocks, Sauces, and Soups	22
7	Communication	23
8	Management Essentials	24
9	Fruits and Vegetables	21
10	Serving Your Guests	23
11	Potatoes and Grains	21
12	Building a Successful Career in the Industry	22
Total		280

Course Name Culinary Arts II—**Course Code: 996001**

Unit	Unit Name	Hours
13	Dairy Products, Breakfast Foods, and Sandwiches	24
14	Nutrition	30
15	Cost Control	33
16	Salads and Garnishing	26
17	Purchasing and Inventory	30
18	Meat, Poultry, and Seafood	28
19	Marketing	28
20	Desserts and Baked Goods	25
21	Sustainability in the Restaurant and Foodservice Industry	25
22	Global Cuisine	33
Total		280

2007 Mississippi Curriculum Framework

Secondary Introduction to Agriscience
(Program CIP: 01.0001 – Introduction to Agriscience)

Direct inquiries to

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MDE Staff	Wilbur Chancellor – Agricultural Education Program Coordinator
Professional Curriculum Advisory Team	Hinds Community College Agriculture Advisory Committee

Standards in this document are based on information from the following organizations:

Agriculture, Food, and Natural Resources Standards	Adapted from the publication, *Career Cluster Resources for Agriculture, Food, and Natural Resources*, National Association of State Directors of Career and Technical Education. The complete text of this document can be found at http://www.careerclusters.org/ClusterDocuments/agdocuments/AGFinal.pdf
Academic Standards	Mississippi Department of Education Subject Area Testing Program
21st Century Skills	Reproduced with permission of the Partnership for 21st Century Skills. Further information may be found at www.21stcenturyskills.org

Preface

Secondary Introduction to Agriscience Research Synopsis

Articles, books, Web sites, and other materials listed at the end of each unit were considered during the revision process. *Career Cluster Resources for Agriculture, Food, and Natural Resources*, *Successful Farming*, *Progressive Farmer*, and *Journal of Agricultural Education* were especially useful in providing insight into trends and issues in the field. These references are suggested for use by instructors and students during the study of the topics outlined.

Industry advisory team members from schools throughout the state 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 included punctuality, motivation, communication, leadership, and positive attitude. Occupation-specific skills stated included mechanical reasoning, math, general computer, and welding. Safety practices emphasized included general farm safety.

Instructors from schools throughout the state were also asked to give input on changes to be made to the curriculum framework. Changes suggested for the curriculum included more specificity and less repetition in competencies and objectives, less time spent on the scientific method since students have studied the concepts since elementary school, and covering biotechnology earlier in the program.

Curriculum

The following state/national standards were referenced in each course of the curriculum.

- *Mississippi Department of Education Subject Area Testing Program Academic Standards*
- *21st Century Skills*
- *Career Cluster Resources for Agriculture, Food, and Natural Resources* as published by the National Association of State Directors of Career and Technical Education

Industry and instructor comments, along with current research, were considered by the curriculum revision team during the revision process; and 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 March 6-8, 2006, curriculum revision meeting included:

- Competencies and objectives were reviewed to ensure accuracy and appropriateness. Some were rewritten to provide broader competencies and more specific, measurable objectives. Where appropriate, competencies were combined to ensure clarity and minimize repetition.
- Suggested teaching and assessment strategies were added that incorporate preassessment, introductory and closure material, varied projects, mastery learning, and the use of various forms of technology. The integration of workplace and academic skills including math, science, English, and history was also documented.
- The units Introduction to Agriscience and Opportunities in Agriscience were combined into an introductory unit including information about careers and appropriate soft skills.
- The unit Introduction to Agriscience Lab and Safety was expanded to include a discussion of laboratory safety and the scientific method.
- The unit Principles of Soil Science was expanded to include environmental and natural resources and was renamed Principles of Environmental and Natural Resources.
- The unit Introduction to Biotechnology was moved forward in the curriculum so that the information on biotechnology was covered prior to other topics in agriculture because so much information in these units is related to advances with biotechnology.

- The Recommended Tools and Equipment list was updated.

Assessment

Students will not be assessed with a MS-CPAS2 or licensure test since the program is classified as an enrichment program. Students' grades will be used to determine mastery in this program.

Professional Learning

It is suggested that instructors participate in professional learning related to the following concepts:

- Demonstration of varied teaching and assessment strategies by other agriculture teachers
- Biotechnology and laboratory technique (including lab specimen production) demonstrations by other agriculture teachers and scientific supply company representatives
- Availability of postsecondary educational programs and employment opportunities for students
- Use of the Mississippi Agriculture Education BRIDGE site on Blackboard®
- 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.

Foreword

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Program Description

Introduction to Agriscience serves as an introduction to the science of agriculture and will provide a solid foundation for advanced agriscience classes or for additional agriculture/science classes. Students will be introduced to agricultural science topics including biotechnology, animal science, mechanical technology, food science, plant science, environmental and natural resources, and entomology. These concepts are taught through classroom and laboratory instruction and applications such as the Supervised Agricultural Experience Program (SAE) and FFA Career Development Activities. This program will utilize the problem solving method of instruction and will rely upon the agricultural information systems, including the Internet. Leadership, citizenship, and cooperation skills are taught through participation in FFA activities. The FFA is an intra-curricular vocational student organization designed to provide a learning laboratory for the implementation of this curriculum.

Introduction to Agriscience is intended to be a one-year course of study. Students completing the course will receive one Carnegie unit for science and an additional 0.5 Carnegie unit for completion of the Supervised Agricultural Experience (SAE).

Industry standards referenced are from the *Career Cluster Resources for Agriculture, Food, and Natural Resources*, National Association of State Directors of Career and Technical Education.

Course Outline

Introduction to Agriscience

Course CIP Code: 02.9990

Course Description: Introduction to Agriscience is the entry level course of the secondary Agriscience program. Students in Introduction to Agriscience will gain foundation competencies related to agriscience opportunities and careers, safety and the scientific method, human relations/leadership/FFA activities, supervised agricultural experience (SAE), biotechnology, animal science, mechanical technology, food and fiber science, plant science, environmental and natural resources, and entomology. (1-1½ Carnegie units, depending upon time spent in the course)

Unit	Title	Hours
1	Introduction to Agriscience Opportunities and Careers	10
2	Introduction to Agriscience Lab Safety and the Scientific Method	10
3	Human Relations/Leadership/FFA Activities	10
4	Supervised Agricultural Experience (SAE) in Agriscience	10
5	Introduction to Biotechnology	9
6	Basic Principles of Animal Science	13
7	Mechanical Technology in Agriscience	8
8	Principles of Food Science	8
9	Principles of Plant Science	9
10	Principles of Environmental and Natural Resources	9
11	Principles of Entomology	9

2013 Introduction to Agriscience

Mississippi Department of Education

Program CIP: 01.0001 – Introduction to Agriscience

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The Research and Curriculum Unit (RCU), located in Starkville, MS, as part of Mississippi State University, was established to foster educational enhancements and innovations. In keeping with the land grant mission of Mississippi State University, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

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- References - A list of suggested references is provided for each unit. The list includes some of the primary instructional resources that may be used to teach the competencies and suggested objectives. Again, these resources are suggested and the list may be modified or enhanced based on needs and abilities of students and on available resources.

Course Description

The Introduction to Agriscience course introduces students to the broad field of agriculture, biotechnology, and natural resources, including the production of plants and animals and the management of natural resources. The program includes instruction in the applied sciences related to plant and animal production and natural resource conservation and management, as well as introduces agribusiness management practices and maintenance of facilities and equipment. Students in the course will participate in active learning exercises, including integral activities of the FFA organization and supervised experiences. Students who successfully complete the competencies in this course will possess fundamental knowledge and skills that can be used to secure entry-level employment or as a foundation for continuing their education. Industry standards are adapted from *Career Cluster Resources for Agriculture, Food, and Natural Resources,* a publication developed by the National Association of State Directors of Career and Technical Education.

Industry Certification

No national industry-recognized certifications are known to exist at this time. However, competencies and suggested performance indicators in the Introduction to Agriscience course have been correlated to the National Agriculture, Food, and Natural Resources (AFNR) Career Cluster Content Standards that have been reviewed and endorsed at the national level by the National Council on Agricultural Education.

Student Prerequisites

In order for students to be able to experience success in the Introduction to Agriscience course, the following prerequisites are in place:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math)
3. Instructor approval and a TABE Reading Score of eighth grade or higher

or

1. TABE Reading Score (eighth grade or higher)
2. Instructor approval

or

1. Instructor approval

Applied Academic Credit

Content of the Introduction to Agriscience course has been aligned to the *2010 Mississippi Science Curriculum Framework*. Students who successfully complete the Introduction to Agriscience curriculum will receive one Carnegie unit for science and an additional 0.5 Carnegie unit for completion of the Supervised Agricultural Experience (SAE).

Teacher Licensure

The latest teacher licensure information can be found at http://www.mde.k12.ms.us/educator-licensure.

Professional Learning

If you have specific questions about the content of any of training sessions provided, please contact the Research and Curriculum Unit at 662.325.2510 and ask for a professional-learning specialist.

Course Name Introduction to Agriscience **Course Code: 029990**

Unit	Unit Name	Hours
1	Introduction to Agriscience Opportunities and Careers	5
2	Introduction to Agriscience Lab Safety and the Scientific Method	10
3	Human Relations and FFA Activities	8
4	Experiential Learning (SAE)	6
5	Mechanical Technologies in Agriscience	15
6	Introduction to Biotechnology	12
7	Principles of Animal Science	13
8	Principles of Plant Science	10
9	Principles of Entomology	9
10	Principles of Natural Resources	9
11	Alternative and Sustainable Technologies	12
Total		109