Northeast Alabama Community College
Curriculum Committee
Minutes

May 31, 2017

Meeting: The Curriculum Committee held an online meeting on May 31, 2017.

Participating: Dr. Joe Burke, Haley Johnson, Dr. Julia Everett, Jane Hopson, Dr. Mike Kennamer, Rodney Land, Chad Gorham, Greg Millican, Joan Reeves, Angie Stewart, Rob Woodall, Sherry Whitten, Dr. Eric Campbell, Sheila Barnes, Brad Fricks

Not Participating: Sherie Grace

New Business:

Chair Rodney Land convened the online meeting. He asked the committee to review Applications for Additions to the Curriculum for ADM 261, MDT 147, MDT 187, MDT 202, MDT 252, ADM 101, and ADM 114.

All participating members approved the applications. The motion carried.

With no other business to discuss, Mr. Land adjourned the meeting.

Northeast Alabama Community College

Application for Additions to the Curriculum

Directions: (1) Save this form to your computer as a Word document (.doc extension).
(2) Submit the completed form via e-mail to your division director, with a copy e-mailed to the Office of Institutional Planning and Assessment (doddo@nacc.edu).
(3) Submit a signed print copy to your division director.
(4) Attach a copy of the course syllabus.

Please note that the application must be approved by the Curriculum Committee before it is presented to the Vice President/Dean of Instruction for final approval.

1. Course prefix and number: ADM 101 — Course title: PRECISION MEASUREMENT

2. How does this course help achieve or enhance the Northeast Alabama Community College Mission?
This course helps to achieve goals 3 & 7 by offering access to training with learning outcomes which are specific to the needs of our local business and industry employers in related career fields.

3. Give justification for offering this course at Northeast Alabama Community College.
Will add training components to better prepare students for gainful employment.

4. Is this a transfer course? NO

   If so, what is the AGSC Transfer Code Designation (A, B, or C)? N/A

5. Into what degree or certificate program(s) will this course fit? DDT

6. Into what STARS area(s) will the course fit in a transfer program (Areas I-V)? V

7. Is this course listed in the Alabama College System Course Directory? YES
If so, please attach a copy of the ACS directory listing.

DPT	CRS.	COURSE TITLE	THEORY	LAB	COURSE
ADM	101	PRECISION MEASUREMENT	2	1	3

Course Description — Updated 3/15/10

Prerequisite: As determined by college.
NOTE: There is an approved standardized plan-of-instruction for this course.

This course covers the use of precision measurement instruments utilized in inspection. In addition, basic print reading techniques reverse engineering, and related industry standards required in advanced manufacturing disciplines are covered. Upon completion, students should be able to demonstrate correct use of precision measuring instruments, interpret basic prints and apply basic reverse engineering techniques.

Note: This is a suitable substitute for MTT 127.

8. Provide the course description.
This course covers the use of precision measurement instruments utilized in inspection. In addition, basic print reading techniques reverse engineering, and related industry standards required in advanced manufacturing disciplines are covered. Upon completion, students should be able to demonstrate correct use of precision measuring instruments, interpret basic prints and apply basic reverse engineering techniques.

9. Does this course have a previously taught equivalent? If so, please list the prefix, number, title, and track number of the previous course. NO

10. List all degree plans, programs, certificates, and/or transfer guides affected, as well as the corresponding areas (Areas I-V). Attach additional page(s) if necessary.

DDT – AAS
DDT – STC & CER in CADD, Technical Drawing, 3D Modeling & Additive Manufacturing

Signatures on file

Alabama Department of Postsecondary Education

Representing the Alabama Community College System

DRAFT
March 9, 2010

ADM 101

Precision Measurement

Plan of Instruction

Effective Date: Fall 2010 **Version Number: 2010-1**

COURSE DESCRIPTION: This course covers the use of precision measurement instruments utilized in inspection. In addition, basic print reading techniques reverse engineering, and related industry standards required in advanced manufacturing disciplines are covered. Upon completion, students should be able to demonstrate correct use of precision measuring instruments, interpret basic prints and apply basic reverse engineering techniques. This is a **CORE** course and is aligned with NIMS certification standards.

CREDIT HOURS

Theory	2 credit hours
Lab	1 credit hour
Total	3 credit hours

NOTE: Theory credit hours are a 1:1 contact to credit ratio. Colleges may schedule lab hours as manipulative (3:1 contact to credit hour ratio) or experimental (2:1 contact to credit hour ratio).

PREREQUISITE COURSES
Determined by college unless stated otherwise

CO-REQUISITE COURSES
Determined by college unless stated otherwise

GENERAL INSTRUCTIONAL GOALS

- **Cognitive:** Comprehend principles and concepts related to precision measurement.
- **Psychomotor:** Apply principles of precision measurement.
- **Affective:** Value the importance of adhering to policy and procedures related to measurement.

INDUSTRY COMPETENCIES/STUDENT PERFORMANCE

Unless otherwise indicated, evaluation of student's attainment of LEARNING and performance objectives is based on knowledge gained from this course. During performance evaluations, students will be provided necessary tools, equipment, materials, specifications, and any other resources necessary to accomplish the task. Specifications may be in the form of, but not limited to, manufacturer's specifications, technical orders, regulations, national and state codes, certification agencies, locally developed lab assignments, or any combination of specifications.

INDUSTRY COMPETENCIES

- Use a steel rule as a precision measurement instrument.
- Use micrometer precision measurement instruments.
- Use Vernier measuring instruments.
- Use various gages to perform precision measurements.
- Use indicators for measurement purposes.
- Use basic print reading skills.
- Explain industry specifications/standards.
- Sketch a part using reverse engineering techniques.
- Perform geometric measurements.
- Use various measurement instruments to inspect parts.
- Analyze and recommend improvements for production of a single part.

MODULE A– STEEL RULE		
Module Description: This module covers the use of the steel rule in inspection and process improvement. Emphasis is placed on the usage, care, and maintenance of the steel rule as a precision measurement instrument. *NIMS Level 1, Duty Areas 2.0 (all) and 3.0 (all) are addressed in this module*.		
INDUSTRY COMPETENCIES	**PERFORMANCE OBJECTIVES**	**KSA**
A1.0 Use a steel rule as a precision measurement instrument.	A1.1 Use the steel rule to perform precision measurements.	3
LEARNING OBJECTIVES		**KSA**
A1.1.1 Complete basic math calculations such as converting fractions to decimals		3
A1.1.2 Differentiate among various types of steel rules.		3
A1.1.3 Read a tape measure		3
A1.1.4 Read a U.S. Conventional steel rule.		3
A1.1.5 Read a metric steel rule.		3
A1.1.6 Use a combination square including a protractor head and a center head		3
A1.1.7 Maintain and store steel rules properly.		3

Module A Outline

- Math calculations
- Tape measure
- Steel rule types and uses
  - US Conventional
  - Metric
- Combination square including protractor head and center head
- Care and maintaining
- Inspection

MODULE B – THE MICROMETER		
Module Description: This module covers the use of the micrometer caliper in inspection and process improvement. Emphasis is placed on the usage, care, and maintenance of the micrometer caliper as a precision measurement instrument. *NIMS Level 1, Duty Areas 2.0 (all) and 3.0 (all) are addressed in this module*.		
INDUSTRY COMPETENCIES	**PERFORMANCE OBJECTIVES**	**KSA**
B1.0 Use micrometer precision measurement instruments.	B1.1 Use micrometers to perform precision measurements.	3

LEARNING OBJECTIVES	KSA
B1.1.1 Differentiate among various types of micrometers including digital micrometers.	3
B1.1.2 Describe considerations for using micrometers in order to obtain accurate readings.	2
B1.1.3 Describe how to read an inch-based micrometer.	3
B1.1.4 Describe how to use an inside micrometer.	2
B1.1.5 Describe how to use a micrometer depth gage.	2
B1.1.6 Describe how to care and maintain micrometers.	3

Module B Outline

- Types and uses
  - Inch-based
  - Inside micrometer
  - Micrometer depth gage
- Care and maintaining
- Inspection

MODULE C – CALIPERS AND VERNIER MEASURING TOOLS

Module Description: This module covers the use of Vernier measuring tools in inspection and process improvement. Emphasis is placed on the usage, care, and maintenance of Vernier measuring tools as precision measurement instruments. *NIMS Level 1, Duty Areas 2.0 (all) and 3.0 (all) are addressed in this module*.

INDUSTRY COMPETENCIES	PERFORMANCE OBJECTIVES	KSA
C1.0 Use Vernier measuring instruments.	C1.1 Use Vernier measuring tools to perform precision measurements.	3

LEARNING OBJECTIVES	KSA
C1.1.1 Differentiate among various types of calipers including digital calipers.	3
C1.1.2 Describe how to read an inch-based Vernier scale.	2
C1.1.3 Describe how to read a metric-based Vernier scale.	2
C1.1.4 Describe considerations for using Vernier calipers in order to obtain accurate readings.	2
C1.1.5 Describe how to use a Universal Vernier Bevel Protractor.	3
C1.1.6 Describe how to and use and read a height gage	2
C1.1.7 Describe how to care and maintain Vernier measuring tools.	3

Module C Outline

- Types and uses
  - Inch-based
  - Metric-based
  - Vernier calipers (inside and outside)
  - Dial calipers (inside and outside)
  - Universal Vernier Bevel Protractor
  - Height gage
- Care and maintaining
- Inspection

MODULE D – GAGES		
Module Description: This module covers the use of gages in inspection and process improvement. Emphasis is placed on the usage, care, and maintenance of gages as precision measurement instruments. *NIMS Level 1, Duty Areas 2.0 (all) and 3.0 (all) are addressed in this module*.		
INDUSTRY COMPETENCIES	**PERFORMANCE OBJECTIVES**	**KSA**
D1.0 Use various gages to perform precision measurements.	D1.1 Use various gages to perform precision measurements.	2
LEARNING OBJECTIVES		**KSA**
D1.1.1 Differentiate between various types of gages.		3
D1.1.2 Describe how to use a plug gage.		2
D1.1.3 Describe how to use a ring gage.		2
D1.1.4 Describe how to use a snap gage.		2
D1.1.5 Describe how to use a thread gage.		2
D1.1.6 Describe how to use gage blocks.		2
D1.1.7 Describe how to use air gages.		2
D1.1.8 Describe how to use optical comparators (manual and CNC)		2
D1.1.9 Describe how to use optical flats.		2
D1.1.10 Describe how to use a thickness gage.		2
D1.1.11 Describe how to use a screw pitch gage.		2
D1.1.12 Describe how to use a fillet and radius gage.		2
D1.1.13 Describe how to use a profilometer		2
D1.1.14 Describe how to use coordinate measuring machines (CMM)		2
D1.1.15 Describe how to use surface plates/angle plates		2
D1.1.16 Describe how to use an inside caliper.		2
D1.1.17 Describe how to use a telescoping gage.		2
D1.1.18 Describe how to use a small hole gage.		2
D1.1.19 Describe how to use a precision toolmaker square		2
D1.1.20 Describe how to care for and maintain various gages.		3

Module D Outline

- Type and uses
  - Plug
  - Ring
  - Snap
  - Thread
  - Gage blocks
  - Air gages
  - Optical comparator (manual and computer numeric control (CNC))
  - Optical flats
  - Thickness
  - Screw pitch
  - Fillet and radius
  - Profilometer
  - Coordinate measuring machine (CMM)
  - Surface plate/angle plates
  - Inside caliper
  - Telescoping gage
  - Small hole gage
  - Precision toolmaker square
- Care and maintaining
- Inspection

MODULE E--INDICATORS

Module Description: This module covers the use of indicators in inspection and process improvement. Emphasis is placed on the usage, care, and maintenance of indicators as precision measurement instruments. *NIMS Level 1, Duty Areas 2.0 (all) and 3.0 (all) are addressed in this module*.

INDUSTRY COMPETENCIES	PERFORMANCE OBJECTIVES	KSA
E1.0 Use indicators for measurement purposes.	E1.1 Perform precision measurements using various indicators.	2

LEARNING OBJECTIVES	KSA
E.1.1.1 Differentiate between various types of indicators.	3
E.1.1.2 Describe how to use universal dial test indicators.	2
E.1.1.3 Describe how to use perpendicular dial test (plunger-type) indicators.	2
E.1.1.4 Describe how to use continuous reading indicators.	2
E.1.1.5 Describe how to use digital direct reading indicators.	2
E.1.1.6 Describe how to use various indicator attachments.	2
E.1.1.7 Describe how to care for and maintain various types of indicators and indicator attachments.	3

Module E Outline

- Types and uses
  - Universal dial test
  - Perpendicular dial test (plunger-type)
  - Continuous reading
  - Digital direct reading
- Indicator attachments
- Care and maintaining
- Inspection

MODULE F – BASIC PRINT READING

Module Description: This module covers basic print reading skills needed for the entry level technician in advanced manufacturing.

INDUSTRY COMPETENCIES	PERFORMANCE OBJECTIVES	KSA
F1.0 Use basic print reading skills.	F1.1 Explain and use basic print reading procedures.	3

LEARNING OBJECTIVES	KSA
F1.1.1 Identify alphabet of lines	3
F1.1.2 Locate and interpret various sections of an orthographic projection drawing	3
F1.1.3 Read and interpret types of lettering and dimensions	3
F1.1.4 Read and interpret auxiliary views	3
F1.1.5 Read and interpret detail drawings	3
F1.1.6 Read and interpret assembly drawings	3
F1.1.7 Read and interpret geometric tolerances	3
F1.1.8 Read and interpret section views and details	3
F1.1.9 Read and interpret pictorial drawings	3
F1.1.10 Read and interpret the title block, materials list, notes, and drawing changes on drawings	3
F1.1.11 Read and interpret numerical control prints	3

Module F Outline

- Alphabet of lines
- Orthographic projection drawings
- Lettering and dimensions
- Auxiliary views
- Detail drawings
- Assembly drawings
- Geometric tolerances
- Section views & details
- Pictorial drawings
- Title block
- Materials list
- Notes
- Drawing changes
- Numerical control prints

MODULE G – INDUSTRY STANDARDS

MODULE DESCRIPTION – The purpose of this module is to teach students to use industry standards to identify and verify various compliance measures. Topics include fastener specifications, gears, splines, and serrations, and the importance of adhering to industry standards.

INDUSTRY COMPETENCIES	PERFORMANCE OBJECTIVES	KSA
G1.0 Explain industry specifications/standards.	G1.1 Use industry standards to identify and verify various compliance measures.	2

LEARNING OBJECTIVES	KSA
G1.1.1 Adhere to fastener specification requirements.	2
G1.1.2 Read and explain specifications for gears, splines, and serrations.	3
G1.1.3 Adhere to industry standards.	2

MODULE G OUTLINE:

- Industry Specifications/Standards
  - Fastener specifications
  - Gears, splines, and serrations
  - Industry standard adherence

MODULE H – BASIC REVERSE ENGINEERING CONCEPTS		
Module Description: This module covers basic reverse engineering concepts that are utilized in the manufacturing environment.		
INDUSTRY COMPETENCIES	**PERFORMANCE OBJECTIVES**	**KSA**
H1.0 Sketch a part using reverse engineering techniques.	H1.1 Using precision measurement instruments accurately sketch and dimension a part.	2
LEARNING OBJECTIVES		**KSA**
H1.1.1 Explain reverse engineering processes		2
H1.1.2 Select the appropriate instruments for measuring a part		2
H1.1.3 Measure the part using precision measurement tools		2
H1.1.4 Sketch the part using basic print reading techniques		2
H1.1.5 Verify that part sketch dimensions coincide with actual part dimensions		2

MODULE H OUTLINE:

- Reverse engineering processes
- Instrument selection
- Measurement
- Sketching
- Verification

MODULE I – QUALITY INSPECTION & PROCESS IMPROVEMENT TECHNIQUES		
Module Description: This module covers quality inspection techniques and process improvement. Emphasis is placed on the various types of measurements used to perform inspections, analysis of those inspections, and process improvement recommendations.		
INDUSTRY COMPETENCIES	**PERFORMANCE OBJECTIVES**	**KSA**
I1.0 Perform geometric measurements.	I1.1 Answer questions relative to performing geometric measurements.	2
I2.0 Use various measurement instruments to inspect parts.	I2.1 Select the required measuring instruments and conduct specified inspection procedures to include a written report and justification to accept or reject component parts.	2
I3.0 Analyze and recommend improvements for production of a single part.	I3.1 Document a process improvement recommendation.	2

LEARNING OBJECTIVES		**KSA**
I1.1.1	Define linear measure, angular measure, and circular measure.	2
I1.1.2	Convert linear measurements between units.	2
I1.1.3	Explain and give examples of various forms of tolerance.	2
I1.1.4	Perform angular measurement	2
I2.1.1	Explain considerations for inspecting parts.	2
I2.1.2	Explain the importance of inspecting the tolerances and specifications of machine parts.	2
I2.1.3	Select the appropriate measurement instrument(s) for an inspection.	1
I2.1.4	Describe various techniques to obtain accurate measurement.	3
I2.1.5	Inspect machined parts for compliance	2
I3.1.1	State the purpose of process adjustment in single part production.	1
I3.1.2	Describe the activities associated with process adjustment in a single part production.	3
I3.1.3	Write a process improvement recommendation	3

Module I Outline

- Geometric measurement
  - Definitions
    - Linear
    - Angular
    - Circular
  - Conversion
  - Tolerance
  - Angular measurement
- Inspection
  - Tolerances & specifications
  - Measurement instruments
    - Selection
    - Purpose
    - Use
  - Importance
- Process improvements
  - Adjustments
  - Activities

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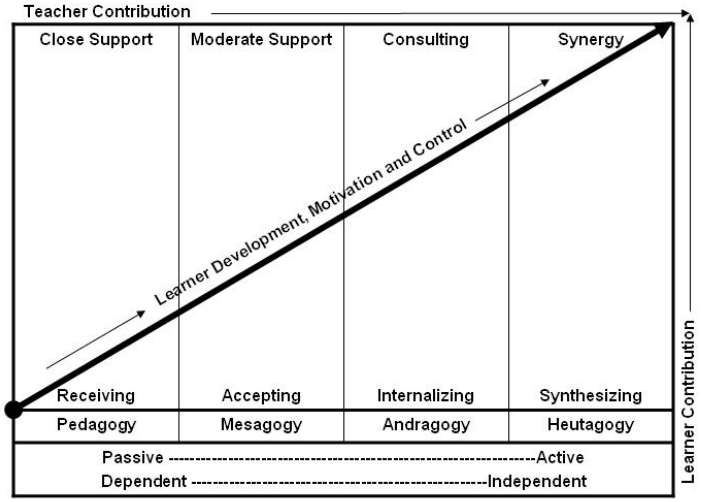
LEARNING OUTCOMES TABLE OF SPECIFICATIONS

The table below identifies the percentage of learning objectives for each module. **Instructors should develop sufficient numbers of test items at the appropriate level of evaluation.**

	Limited Knowledge and Proficiency 1	Moderate Knowledge and Proficiency 2	Advanced Knowledge and Proficiency 3	Superior Knowledge and Proficiency 4
Module A			100%	
Module B		50%	50%	
Module C		57%	43%	
Module D		89%	11%	
Module E		71%	29%	
Module F			100%	
Module G		67%	33%	
Module H		100%		
Module I	17%	58%	25%	

Learner's Knowledge, Skills and Abilities		
Indicator	**Key Terms**	**Description**
1	Limited Knowledge and Proficiency	• Identifies basic facts and terms about the subject or competency. • Performs simple tasks associated with the competency. Needs to be told or shown how to do most tasks. • Requires close supervision.
2	Moderate Knowledge and Proficiency	• Identifies relationship of basic facts and states general principles and can determine step-by-step procedures for doing the competency. • Performs most parts of the competency. Needs help only on hardest parts. • Requires limited supervision.
3	Advanced Knowledge and Proficiency	• Analyzes facts and principles and draws conclusions about the subject to include why and when the competency must be done and why each step is needed. Can predict outcomes. • Performs all parts of the competency. Needs only a spot check of completed work. • Requires little or no direct supervision.
4	Superior Knowledge and Proficiency	• Can evaluate conditions and make appropriate decisions as related to resolving problems. • Performs competency quickly and accurately with no direct supervision and is able to instruct and supervise others.

Teaching and Learning Continuum



Northeast Alabama Community College

Application for Additions to the Curriculum

Directions: (1) Save this form to your computer as a Word document (.doc extension).
(2) Submit the completed form via e-mail to your division director, with a copy e-mailed to the Office of Institutional Planning and Assessment (doddo@nacc.edu).
(3) Submit a signed print copy to your division director.
(4) Attach a copy of the course syllabus.

Please note that the application must be approved by the Curriculum Committee before it is presented to the Vice President/Dean of Instruction for final approval.

1. Course prefix and number: ADM 114 — Course title: DESIGN INNOVATION

2. How does this course help achieve or enhance the Northeast Alabama Community College Mission?
This course helps to achieve goals 3 & 7 by offering access to training with learning outcomes which are specific to the needs of our local business and industry employers in related career fields.

3. Give justification for offering this course at Northeast Alabama Community College.
Will add training components to better prepare students for gainful employment.

4. Is this a transfer course? NO

   If so, what is the AGSC Transfer Code Designation (A, B, or C)? N/A

5. Into what degree or certificate program(s) will this course fit? DDT

6. Into what STARS area(s) will the course fit in a transfer program (Areas I-V)? V

7. Is this course listed in the Alabama College System Course Directory? YES
If so, please attach a copy of the ACS directory listing.

DPT	CRS.	COURSE TITLE	THEORY	LAB	COURSE
ADM	114	DESIGN INNOVATION	1	2	3

Course Description — Added 3/17/15

Prerequisite: As determined by college.

This course introduces students to concepts that enable them to think like a designer when approaching architectural, engineering and additive manufacturing tasks. Emphasis will be placed on design and problem-solving skills when working independently, or with a team. This course focuses on giving students exposure to creativity, problem solving skills, and the design processes in which a design- centered approached will be employed to develop innovated solutions. This course includes components to develop basic skills to express innovated solutions to design problems with the application of projects, drawings, as well as oral and written communication skills. Students will be introduced to related computer based tools used by architect, engineers, and design manufacturers. (e.g., spreadsheet, word processing, presentation software, and Internet).

8. Provide the course description.
This course introduces students to concepts that enable them to think like a designer when approaching architectural, engineering and additive manufacturing tasks. Emphasis will be placed on design and problem-solving skills when working independently, or with a team. This course focuses on giving students exposure to creativity, problem solving skills, and the design processes in which a design- centered approached will be

employed to develop innovated solutions. This course includes components to develop basic skills to express innovated solutions to design problems with the application of projects, drawings, as well as oral and written communication skills. Students will be introduced to related computer based tools used by architect, engineers, and design manufacturers. (e.g., spreadsheet, word processing, presentation software, and Internet).

9. Does this course have a previously taught equivalent? If so, please list the prefix, number, title, and track number of the previous course. NO

10. List all degree plans, programs, certificates, and/or transfer guides affected, as well as the corresponding areas (Areas I-V). Attach additional page(s) if necessary.

DDT – AAS
DDT – STC & CER in CADD, Technical Drawing, 3D Modeling & Additive Manufacturing

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Last Revision: Spring 2017

SYLLABUS

ADM 114 **Design Innovation**
3 Semester Credit Hour **5 Contact Hours**

I. Course Description

This course introduces students to concepts that enable them to think like a designer when approaching architectural, engineering and additive manufacturing tasks. Emphasis will be placed on design and problem-solving skills when working independently, or with a team. This course focuses on giving students exposure to creativity, problem solving skills, and the design processes in which a design- centered approached will be employed to develop innovated solutions. This course includes components to develop basic skills to express innovated solutions to design problems with the application of projects, drawings, as well as oral and written communication skills. Students will be introduced to related computer based tools used by architect, engineers, and design manufacturers. (e.g., spreadsheet, word processing, presentation software, and Internet).

II. Prerequisite

DDT 144

III. Course Textbook, Manuals, or Other Required Materials

TBD

IV. Course Learning Outcomes

A. The student will apply knowledge of the design method process as a problem-solving tool.
B. The student will utilize drafting and design technology tools to plan, execute and present the results of a design task.

V. Outline of Course Topics

A. Define project parameters
B. State project objectives
C. Introduce possible project solutions
D. Perform tasks necessary to generate project solution
E. Evaluate and process project results
F. Present completed project

This class also allows practical application of the knowledge, skills, and affective lesson material covered in the program core courses.

VI. Methods of Instruction

A. Informal lecture
B. Demonstration
C. Lab exercises
D. Case studies
E. Experiments

VII. Evaluation and Assessment

Course Grade Assessment:

- This course will observe standard grading tiers: 90-100, A; 80-89, B; 70-79, C; 60-69, D; below 60, F.
- Grades will be calculated based on the total number of points earned divided by the total number of points possible.
- Additionally, using the Workplace Readiness Skills Rubric, an assessment of students' workplace readiness will be scored based on factors of employability including but not limited to: attendance, punctuality, work ethics, honesty, organization, time management, professionalism, behavior, attitude, personal presentation, communication, listening, teamwork and conflict management.

VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. Statement on Discrimination/Harassment

Northeast Alabama Community College and the Alabama Community College System are committed to providing both employment and educational environments free of harassment or discrimination related to an individual's race, color, gender, religion, national origin, age, or disability. Such harassment is a violation of Alabama Community College System policy. Any practice or behavior that constitutes harassment or discrimination will not be tolerated.

X. Statement of Adherence to ADA Guidelines

Instructors will adhere to the Americans With Disabilities Act and/or Section 504of the Rehabilitation Act (1973) and will publish the following statement on course outlines given to students at the beginning of each semester: "Any individual who qualifies for reasonable accommodations under the Americans With Disabilities Act or Section 504 of the Rehabilitation Act (1973) should notify the instructor immediately."

Northeast Alabama Community College

Application for Additions to the Curriculum

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(3) Submit a signed print copy to your division director.
(4) Attach a copy of the course syllabus.

Please note that the application must be approved by the Curriculum Committee before it is presented to the Vice President/Dean of Instruction for final approval.

1. Course prefix and number: ADM 261 — Course title: Reverse Engineering

2. How does this course help achieve or enhance the Northeast Alabama Community College Mission?
This course helps to achieve goals 3 & 7 by offering access to training with learning outcomes which are specific to the needs of our local business and industry employers in related career fields.

3. Give justification for offering this course at Northeast Alabama Community College.
Will add training components to better prepare students for employment.

4. Is this a transfer course? NO

   If so, what is the AGSC Transfer Code Designation (A, B, or C)? N/A

5. Into what degree or certificate program(s) will this course fit? DDT

6. Into what STARS area(s) will the course fit in a transfer program (Areas I-V)? V

7. Is this course listed in the Alabama College System Course Directory? YES
If so, please attach a copy of the ACS directory listing.

DPT	CRS.	COURSE TITLE	THEORY	LAB	COURSE
ADM	261	REVERSE ENGINEERING	1	2	3
Course Description				Added	3/17/15
Prerequisite: As determined by college. During this course students learn the process of quality control inspection of parts and uses of reverse engineering processes employing 3D printing, scanning, and Coordinate Measuring Machine (CMM technologies). Emphasis is on using applicable software to produce 3D models or converting scanned images into 3D models; using CMM for parts inspection and generating points cloud for 3D modeling; interfacing generated models with reverse engineering methods.					

8. Provide the course description.
During this course students learn the process of quality control inspection of parts and uses of reverse engineering processes employing 3D printing, scanning, and Coordinate Measuring Machine (CMM technologies). Emphasis is on using applicable software to produce 3D models or converting scanned images into 3D models; using CMM for parts inspection and generating points cloud for 3D modeling; interfacing generated models with reverse engineering methods.

9. Does this course have a previously taught equivalent? If so, please list the prefix, number, title, and track number of the previous course. NO

10. List all degree plans, programs, certificates, and/or transfer guides affected, as well as the corresponding areas (Areas I-V). Attach additional page(s) if necessary. DDT – AAS – Area V

Signatures on file

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Last Revision: Spring 2017

SYLLABUS

ADM 261 **Reverse Engineering**
3 Semester Credit Hour **5 Contact Hours**

I. Course Description

During this course students learn the process of quality control inspection of parts and uses of reverse engineering processes employing 3D printing, scanning, and Coordinate Measuring Machine (CMM technologies). Emphasis is on using applicable software to produce 3D models or converting scanned images into 3D models; using CMM for parts inspection and generating points cloud for 3D modeling; interfacing generated models with reverse engineering methods.

II. Prerequisite

Permission of instructor; within two semesters of graduation.

III. Course Textbook, Manuals, or Other Required Materials

TBD

IV. Course Learning Outcomes

A. The student will comprehend principles and concepts related to quality control and inspection within manufacturing related industries.
B. The student will utilize design technology software and equipment to evaluate, document and redesign a product.

V. Outline of Course Topics

A. Methods of quality control inspection
B. 3D Printing concepts

C. 3D Scanning
D. CMM technologies
E. 3D Modeling

This class also allows practical application of the knowledge, skills, and affective lesson material covered in the program core courses.

VI. Methods of Instruction

A. Informal lecture
B. Demonstration
C. Lab exercises
D. Case studies
E. Experiments

VII. Evaluation and Assessment

Course Grade Assessment:

- This course will observe standard grading tiers: 90-100, A; 80-89, B; 70-79, C; 60-69, D; below 60, F.
- Grades will be calculated based on the total number of points earned divided by the total number of points possible.

VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. Statement on Discrimination/Harassment

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X. Statement of Adherence to ADA Guidelines

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Northeast Alabama Community College

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(3) Submit a signed print copy to your division director.
(4) Attach a copy of the course syllabus.

Please note that the application must be approved by the Curriculum Committee before it is presented to the Vice President/Dean of Instruction for final approval.

1. Course prefix and number: MDT 147 — Course title: Inventor CADD

2. How does this course help achieve or enhance the Northeast Alabama Community College Mission?
This course helps to achieve goals 3 & 7 by offering access to training with learning outcomes which are specific to the needs of our local business and industry employers in related career fields.

3. Give justification for offering this course at Northeast Alabama Community College.
Will add training components to better prepare students for gainful employment.

4. Is this a transfer course? no
If so, what is the AGSC Transfer Code Designation (A, B, or C)? _____

5. Into what degree or certificate program(s) will this course fit? DDT

6. Into what STARS area(s) will the course fit in a transfer program (Areas I-V)? V

7. Is this course listed in the Alabama College System Course Directory? yes
If so, please attach a copy of the ACS directory listing.

DPT CODE	CRS #	COURSE TITLE	CREDIT HOURS THEORY	LAB	COURSE
MDT	147	INVENTOR CADD	2	1	3

Course Description — Updated 01/23/12

PREREQUISITE: As required by program.

In this course students will use the beginning and intermediate techniques of Inventor computer-aided drafting/design software to develop and render 3-D solids. Topics include sketching, 3-D modeling commands, specialized software applications, development of 2-D drawings from the 3-D models, rendering and plotting. The student will be able to develop the sketches necessary to create 3-D solids and turn them into 2-D drawings for fabrication.

8. Provide the course description.
In this course students will use the beginning and intermediate techniques of Inventor computer-aided drafting/design software to develop and render 3D solids. Topics include sketching, 3D modeling commands, specialized software applications, development of 2D drawings from the 3D models, rendering and plotting. The student will be able to develop the sketches necessary to create 3D solids and turn them into 2D drawings for fabrication.

9. Does this course have a previously taught equivalent? If so, please list the prefix, number, title, and track number of the previous course. no

10. List all degree plans, programs, certificates, and/or transfer guides affected, as well as the corresponding areas (Areas I-V). Attach additional page(s) if necessary.
DDT – AAS
DDT – STC & CER in CADD, Technical Drawing, 3D Modeling & Additive Manufacturing

Signatures on file

Last Revision: Spring 2017

SYLLABUS

MDT 147 **Inventor CADD**
3 Semester Credit Hour **4 Contact Hours**

I. Course Description

In this course students will use the beginning and intermediate techniques of Inventor computer-aided drafting/design software to develop and render 3D solids. Topics include sketching, 3D modeling commands, specialized software applications, development of 2D drawings from the 3D models, rendering and plotting. The student will be able to develop the sketches necessary to create 3D solids and turn them into 2D drawings for fabrication.

II. Prerequisite

DDT 144 Basic 3D Modeling

III. Course Textbook, Manuals, or Other Required Materials

Textbook to be selected by instructor to correspond with software version

IV. Course Learning Outcomes

A. The student will develop sketches necessary to create 3D solid models
B. The student will use 3D solid models to create 2D drawings for fabrication

V. Outline of Course Topics

This class allows practice in sketching, 3D modeling commands, specialized software applications, development of 2D drawings from the 3D models, rendering and plotting.

This class also allows practical application of the knowledge, skills, and affective lesson material covered in the program core courses.

VI. Methods of Instruction

A. Informal lecture
B. Demonstration
C. Lab exercises
D. Case studies
E. Experiments

VII. Evaluation and Assessment

Course Grade Assessment:

- This course will observe standard grading tiers: 90-100, A; 80-89, B; 70-79, C; 60-69, D; below 60, F.
- Grades will be calculated based on the total number of points earned divided by the total number of points possible.

VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. Statement on Discrimination/Harassment

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X. Statement of Adherence to ADA Guidelines

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Northeast Alabama Community College

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(3) Submit a signed print copy to your division director.
(4) Attach a copy of the course syllabus.

Please note that the application must be approved by the Curriculum Committee before it is presented to the Vice President/Dean of Instruction for final approval.

1. Course prefix and number: MDT 187 Course title: Advanced Inventor CADD

2. How does this course help achieve or enhance the Northeast Alabama Community College Mission?
This course helps to achieve goals 3 & 7 by offering access to training with learning outcomes which are specific to the needs of our local business and industry employers in related career fields.

3. Give justification for offering this course at Northeast Alabama Community College.
Will add training components to better prepare students for gainful employment.

4. Is this a transfer course? no
If so, what is the AGSC Transfer Code Designation (A, B, or C)? _____

5. Into what degree or certificate program(s) will this course fit? DDT

6. Into what STARS area(s) will the course fit in a transfer program (Areas I-V)? V

7. Is this course listed in the Alabama College System Course Directory? yes
If so, please attach a copy of the ACS directory listing.

DPT CODE	CRS #	COURSE TITLE	CREDIT HOURS THEORY	LAB	COURSE
MDT	187	ADVANCED INVENTOR CADD	2	1	3
Course Description				Updated	01/23/12
PREREQUISITE: As required by program. In this course students will use advanced techniques of Inventor computer-aided drafting/design software to develop and render 3-D solid model assemblies. Topics include advanced sketching and 3D-modeling commands, animation software applications and stress analysis applications. The student will be able to develop the sketches necessary to create 3-D solids, assemblies, animation and perform stress analysis on parts and assemblies.					

8. Provide the course description.
In this course students will use advanced techniques of Inventor computer-aided drafting/design software to develop and render 3D solid model assemblies. Topics include advanced sketching and 3D modeling commands, animation software applications and stress analysis applications. The student will be able to develop the sketches necessary to create 3D solids, assemblies, animation and perform stress analysis on parts and assemblies.

9. Does this course have a previously taught equivalent? If so, please list the prefix, number, title, and track number of the previous course. no

10. List all degree plans, programs, certificates, and/or transfer guides affected, as well as the corresponding areas (Areas I-V). Attach additional page(s) if necessary.
DDT – AAS
DDT – STC & CER in CADD, Technical Drawing, 3D Modeling & Additive Manufacturing

Signatures on file

Last Revision: Spring 2017

SYLLABUS

MDT 187 **Advanced Inventor CADD**
3 Semester Credit Hour **4 Contact Hours**

I. Course Description

In this course students will use advanced techniques of Inventor computer-aided drafting/design software to develop and render 3D solid model assemblies. Topics include advanced sketching and 3D modeling commands, animation software applications and stress analysis applications. The student will be able to develop the sketches necessary to create 3D solids, assemblies, animation and perform stress analysis on parts and assemblies.

II. Prerequisite

DDT 147 Inventor CADD

III. Course Textbook, Manuals, or Other Required Materials

Textbook to be selected by instructor to correspond with software version

IV. Course Learning Outcomes

A. The student will develop sketches necessary to create 3D solid models and assemblies
B. The student will perform stress analysis on parts and assemblies

V. Outline of Course Topics

This class allows practice in advanced sketching and 3D modeling commands, animation software applications and stress analysis applications.

This class also allows practical application of the knowledge, skills, and affective lesson material covered in the program core courses.

VI. Methods of Instruction

A. Informal lecture
B. Demonstration
C. Lab exercises
D. Case studies
E. Experiments

VII. Evaluation and Assessment

Course Grade Assessment:

- This course will observe standard grading tiers: 90-100, A; 80-89, B; 70-79, C; 60-69, D; below 60, F.
- Grades will be calculated based on the total number of points earned divided by the total number of points possible.

VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

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Please note that the application must be approved by the Curriculum Committee before it is presented to the Vice President/Dean of Instruction for final approval.

1. Course prefix and number: MDT 202 Course title: SolidWorks CADD

2. How does this course help achieve or enhance the Northeast Alabama Community College Mission?
This course helps to achieve goals 3 & 7 by offering access to training with learning outcomes which are specific to the needs of our local business and industry employers in related career fields.

3. Give justification for offering this course at Northeast Alabama Community College.
Will add training components to better prepare students for gainful employment.

4. Is this a transfer course? no
If so, what is the AGSC Transfer Code Designation (A, B, or C)? _____

5. Into what degree or certificate program(s) will this course fit? DDT

6. Into what STARS area(s) will the course fit in a transfer program (Areas I-V)? V

7. Is this course listed in the Alabama College System Course Directory? yes
If so, please attach a copy of the ACS directory listing.

DPT CODE	CRS #	COURSE TITLE	CREDIT HOURS THEORY	LAB	COURSE
MDT	202	SOLID WORKS CADD	2	1	3
Course Description				Updated	01/23/12
PREREQUISITE: As required by program This course introduces the student to parametric, feature-based solid modeling using the 3-D concepts of SOLID WORKS computer-aided design software. This course covers the commands, concepts, views, dimensioning, and techniques to design solid-model parts quicker than 2-D software. The student will be able to use SOLID WORKS computer-aided design software to properly draw the views necessary to manufacture a part.					

8. Provide the course description.
This course introduces the student to parametric, feature-based solid modeling using the 3D concepts of SolidWorks computer-aided design software. This course covers the commands, concepts, views, dimensioning and techniques to design solid-model parts quicker than 2D software. The student will be able to use SolidWorks computer-aided design software to properly draw the views necessary to manufacture a part.

9. Does this course have a previously taught equivalent? If so, please list the prefix, number, title, and track number of the previous course. no

10. List all degree plans, programs, certificates, and/or transfer guides affected, as well as the corresponding areas (Areas I-V). Attach additional page(s) if necessary.

DDT – AAS
DDT – STC & CER in CADD, Technical Drawing, 3D Modeling & Additive Manufacturing

S Signatures on file

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Last Revision: Spring 2017

SYLLABUS

MDT 202 **SolidWorks CADD**
3 Semester Credit Hour **4 Contact Hours**

I. Course Description

This course introduces the student to parametric, feature-based solid modeling using the 3D concepts of SolidWorks computer-aided design software. This course covers the commands, concepts, views, dimensioning and techniques to design solid-model parts quicker than 2D software. The student will be able to use SolidWorks computer-aided design software to properly draw the views necessary to manufacture a part.

II. Prerequisite

DDT 144 Basic 3D Modeling

III. Course Textbook, Manuals, or Other Required Materials

Textbook to be selected by instructor to correspond with software version

IV. Course Learning Outcomes

A. The student will develop sketches necessary to create 3D solid models
B. The student will use 3D solid models to create 2D drawings for fabrication

V. Outline of Course Topics

This class allows practice in sketching, 3D modeling commands, specialized software applications, development of 2D drawings from the 3D models, rendering and plotting.

This class also allows practical application of the knowledge, skills, and affective lesson material covered in the program core courses.

VI. Methods of Instruction

A. Informal lecture
B. Demonstration
C. Lab exercises
D. Case studies
E. Experiments

VII. Evaluation and Assessment

Course Grade Assessment:

- This course will observe standard grading tiers: 90-100, A; 80-89, B; 70-79, C; 60-69, D; below 60, F.
- Grades will be calculated based on the total number of points earned divided by the total number of points possible.

VIII. Attendance

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1. Course prefix and number: MDT 252 — Course title: Advanced SolidWorks CADD

2. How does this course help achieve or enhance the Northeast Alabama Community College Mission?
This course helps to achieve goals 3 & 7 by offering access to training with learning outcomes which are specific to the needs of our local business and industry employers in related career fields.

3. Give justification for offering this course at Northeast Alabama Community College.
Will add training components to better prepare students for gainful employment.

4. Is this a transfer course? no
If so, what is the AGSC Transfer Code Designation (A, B, or C)? _____

5. Into what degree or certificate program(s) will this course fit? DDT

6. Into what STARS area(s) will the course fit in a transfer program (Areas I-V)? V

7. Is this course listed in the Alabama College System Course Directory? yes
If so, please attach a copy of the ACS directory listing.

DPT CODE	CRS #	COURSE TITLE	CREDIT HOURS THEORY	LAB	COURSE
MDT	252	ADVANCED SOLID WORKS CADD	2	1	3
Course Description				Updated	01/23/12
PREREQUISITE: MDT 202 This course broadens the student's concepts of parametric, feature-based, solid modeling using the 3-D concepts of parts. The student will be able to use SOLID WORKS computer-aided design software to properly draw the views necessary to manufacture advanced, designed parts.					

8. Provide the course description.
This course broadens the student's concepts of parametric, feature-based solid modeling using the 3D concepts of parts. The student will be able to use SolidWorks computer-aided design software to properly draw the views necessary to manufacture advanced designed parts.

9. Does this course have a previously taught equivalent? If so, please list the prefix, number, title, and track number of the previous course. no

10. List all degree plans, programs, certificates, and/or transfer guides affected, as well as the corresponding areas (Areas I-V). Attach additional page(s) if necessary.
DDT – AAS

DDT – STC & CER in CADD, Technical Drawing, 3D Modeling & Additive Manufacturing

Submitted by Date

Signatures on file

Last Revision: Spring 2017

SYLLABUS

MDT 252 **Advanced SolidWorks CADD**
3 Semester Credit Hour **4 Contact Hours**

I. Course Description

This course broadens the student's concepts of parametric, feature-based solid modeling using the 3D concepts of parts. The student will be able to use SolidWorks computer-aided design software to properly draw the views necessary to manufacture advanced designed parts.

II. Prerequisite

MDT 202 SolidWorks CADD

III. Course Textbook, Manuals, or Other Required Materials

Textbook to be selected by instructor to correspond with software version

IV. Course Learning Outcomes

A. The student will develop sketches necessary to create 3D solid models
B. The student will use 3D solid models to create 2D drawings for manufacturing

V. Outline of Course Topics

This class allows practice in sketching, 3D modeling commands, specialized software applications, development of 2D drawings from the 3D models, rendering and plotting.

This class also allows practical application of the knowledge, skills, and affective lesson material covered in the program core courses.

VI. Methods of Instruction

A. Informal lecture
B. Demonstration
C. Lab exercises
D. Case studies
E. Experiments

VII. Evaluation and Assessment

Course Grade Assessment:

- This course will observe standard grading tiers: 90-100, A; 80-89, B; 70-79, C; 60-69, D; below 60, F.
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VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

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