

**MEMORANDUM TO:** Ogden College of Science and Engineering Curriculum Committee

Dr. Jack Rudolph	Dr. James Gary	Dr. Greg Arbuckle
Dr. Martin Stone	Dr. Rong Yang	Dr. John Houryieh
Dr. Bruce Schulte	Dr. Julie Ellis	Dr. Bruce Kessler
Dr. Phil Lienesch	Dr. Warren Campbell	Dr. Richard Schugart
Dr. Cathleen Webb	Dr. David Keeling	Dr. Keith Andrew
Dr. Hemali Rathnayake	Dr. Xingang Fan	Dr. Elizabeth Lemerise
Dr. Les Pesterfield		Dr. Matthew Shake

**FROM:** Kenneth Crawford, Chair

**SUBJECT:** Agenda for Thursday, March 6, 2014 4:00 p.m. in COHH 4123

**A. OLD BUSINESS:**

I. Consideration of the minutes of the February 6, 2014 meeting.

**B. NEW BUSINESS:**

**Consent Items**

**Department of Geography and Geology**

I. Proposal to Revise Course Prerequisites

- a. GEOG 316, Fundamentals of Geographic Information Systems, 4 hrs.
- b. GEOG 418, Internet Geographic Information Systems, 3 hrs.

II. Proposal to Revise Course Catalog Listing

- a. GEOG 317, Geographic Information Systems, 3 hrs.
- b. GEOG 417, GIS Analysis and Modeling

**Action Items**

**Department of Architectural Manufacturing Sciences**

I. Proposal to Create a New Course

- a. AMS 120-M1, Basic Electricity Module 1, 1 hr.
- b. AMS 120-M2, Basic Electricity Module 2, 1 hr.
- c. AMS 120-M3, Basic Electricity Module 3, 1 hr.
- d. AMS 205-M1, CADD for Manufacturing Module 1, 1 hr.
- e. AMS 205-M2, CADD for Manufacturing Module 2, 1 hr.
- f. AMS 205-M3, CADD for Manufacturing Module 3, 1 hr.
- g. AMS 217-M1, Industrial Materials Module 1, 1 hr.
- h. AMS 217-M2, Industrial Materials Module 2, 1 hr.
- i. AMS 217-M3, Industrial Materials Module 3, 1 hr.
- j. AMS 227-M1, Introduction to Manufacturing Methods Module 1, 1 hr.
- k. AMS 227-M2, Introduction to Manufacturing Methods Module 2, 1 hr.

- l. AMS 227-M3, Introduction to Manufacturing Methods Module 3, 1 hr.
- m. AMS 310-M1, Work Design/Ergonomics Module 1, 1 hr.
- n. AMS 310-M2, Work Design/Ergonomics Module 2, 1 hr.
- o. AMS 310-M3, Work Design/Ergonomics Module 3, 1 hr.
- p. AMS 328-M1, Robotics & Machine Vision Module 1, 1 hr.
- q. AMS 328-M2, Robotics & Machine Vision Module 2, 1 hr.
- r. AMS 328-M3, Robotics & Machine Vision Module 3, 1 hr.
- s. AMS 342-M1, Manufacturing Operations Module 1, 1 hr.
- t. AMS 342-M2, Manufacturing Operations Module 2, 1 hr.
- u. AMS 342-M3, Manufacturing Operations Module 3, 1 hr.
- v. AMS 343-M1, Automated Systems Module 1, 1 hr.
- w. AMS 343-M2, Automated Systems Module 2, 1 hr.
- x. AMS 343-M3, Automated Systems Module 3, 1 hr.
- y. AMS 352-M1, Food Processing: Unit Operations Module 1, 1 hr.
- z. AMS 352-M2, Food Processing: Unit Operations Module 2, 1 hr.
- aa. AMS 352-M3, Food Processing: Unit Operations Module 3, 1 hr.
- bb. AMS 356-M1, Systems Design & Operation Module 1, 1 hr.
- cc. AMS 356-M2, Systems Design & Operation Module 2, 1 hr.
- dd. AMS 356-M3, Systems Design & Operation Module 3, 1 hr.
- ee. AMS 370-M1, Computer Numerical Control Module 1, 1 hr.
- ff. AMS 370-M2, Computer Numerical Control Module 2, 1 hr.
- gg. AMS 370-M3, Computer Numerical Control Module 3, 1 hr.
- hh. AMS 371-M1, Quality Assurance Module 1, 1 hr.
- ii. AMS 371-M2, Quality Assurance Module 2, 1 hr.
- jj. AMS 371-M3, Quality Assurance Module 3, 1 hr.
- kk. AMS 390-M1, Project Management Module 1, 1 hr.
- ll. AMS 390-M2, Project Management Module 2, 1 hr.
- mm. AMS 390-M3, Project Management Module 3, 1 hr.
- nn. AMS 394-M1, Lean Manufacturing Module 1, 1 hr.
- oo. AMS 394-M2, Lean Manufacturing Module 2, 1 hr.
- pp. AMS 394-M3, Lean Manufacturing Module 3, 1 hr.
- qq. AMS 396-M1, Introduction to Supply Chain Management Module 1, 1 hr.
- rr. AMS 396-M2, Introduction to Supply Chain Management Module 2, 1 hr.
- ss. AMS 396-M3, Introduction to Supply Chain Management Module 3, 1 hr.
- tt. AMS 430-M1, Technology Management/Team Building Module 1, 1 hr.
- uu. AMS 430-M2, Technology Management/Team Building Module 2, 1 hr.
- vv. AMS 430-M3, Technology Management/Team Building Module 3, 1 hr.
- ww. AMS 490-M1, Senior Research Module 1, 1 hr.
- xx. AMS 490-M2, Senior Research Module 2, 1 hr.
- yy. AMS 490-M3, Senior Research Module 3, 1 hr.

## II. Proposal to Create a New Certificate Program

- a. Automation Certificate, 12 hrs.
- b. Manufacturing and Logistics Certificate, 12 hrs.
- c. Manufacturing Processing and Technology Certificate, 12 hrs.
- d. Six Sigma and Quality Certificate, 12 hrs.

III. Proposal to Revise a Program

- a. Ref. 518, Major in Architectural Sciences, 120 hrs.

**Department of Chemistry**

I. Proposal to Revise a Program

- a. Ref. 335, Minor in Chemistry, 18/21 hrs.

**Department of Geography & Geology**

I. Proposal to Make Multiple Revisions to a Course

- a. GEOG 419, GIS Programming, 3 hrs.
- b. GEOG 423, Transport, Location and GIS, 3 hrs.
- c. GEOG 443, GIS Databases, 3 hrs.
- d. GEOG 477, Special Topics in GIS, 3 hrs.
- e. GEOG 485, Population and Resources, 3 hrs.
- f. GEOG 492, Advanced Spatial Analysis, 3 hrs.

**C. OTHER BUSINESS**

**MEMBERS PRESENT:**

Dr. Martin Stone	Dr. David Keeling
Dr. Bruce Schulte	Dr. John Khouryieh
Dr. Cathleen Webb	Dr. Bruce Kessler
Dr. Phil Linesch	Dr. Richard Schugart
Dr. Hemali Rathnayake	Dr. Keith Andrew
Dr. James Gary	Dr. Elizabeth Lemerise
Dr. Rong Yang	Dr. Andy Mienaltowski, Guest
Dr. Warren Campbell	Dr. Sharon Mutter, Guest
Dr. Greg Arbuckle	Dr. Scott Grubbs, Guest

**FROM:** Ken Crawford, Chair

**OLD BUSINESS:**

Keeling/Arbuckle moved approval of the minutes from the December 5, 2013 and January 16, 2014 meetings. Motion passed.

**NEW BUSINESS:**

**Information Agenda**

All information items were passed as presented.

**Consent Agenda**

**Department of Biology**

All consent items were passed as presented on a Keeling/Lemerise motion.

**Department of Computer Science**

All consent items were passed as presented on a Keeling/Lemerise motion.

**Department of Geography & Geology**

All consent items were passed as presented on a Keeling/Arbuckle motion.

**Department of Psychological Sciences**

All consent items were passed as presented on a Keeling/Lemerise motion.

**Action Agenda**

**Department of Biology**

Keeling/Warren moved to bundle and approve proposals to make multiple revisions to a course, items a-d. Motion passed with a friendly amendment to remove course fees from the BIOL 315 and 327 proposals.

Keeling/Warren moved to bundle and approve proposals to create a new course, items a & b. Motion passed.

Keeling/Lemerise moved to bundle and approve proposals to revise a program, items a & b. Motion passed.

### **Office of the Dean**

Keeling/Warren to approve proposal to create a new certificate program, Food Science Program, 12 hrs. Motion passed with a friendly amendment to correct a grammar error and two course number errors.

### **Department of Geography & Geology**

Keeling/Warren moved to bundle proposals to make multiple revisions to a course, items a-f. Motion passed with a friendly amendment to submit an additional proposal to discontinue GEOG 280 course equivalencies.

Proposal to Revise Course Credit Hours, GEOG 391 was approved on a Keeling/Warren motion.

Proposal to Revise a Program, Ref. 674 was approved on a Keeling/Warren motion.

Proposal to Revise a Program, Ref. 374 was approved on a Keeling/Warren motion.

Proposal to Revise a Program, Ref. 577 was approved on a Keeling/Warren motion.

Proposal to Revise a Program, Ref. 578 was approved on a Keeling/Lemerise motion.

### **Department of Mathematics**

Proposal to Create a New Course, Math 240 was approved on a Keeling/Warren motion.

### **Department of Psychological Sciences**

Keeling/Arbuckle moved to bundle and approve proposals to make multiple revisions to a course, items a & b. Motion passed.

Keeling/Warren moved to approve proposal to create a new course, PSYS 433. Motion passed.

Keeling/Arbuckle moved to approve proposal to create a new course, PSYS 462. Motion passed.

Keeling/Warren moved to approve proposal to create a new course, PSYS 465. Motion passed.

Keeling/Arbuckle moved to approve proposal to revise a program, Ref. 591. Motion passed.

### **OTHER BUSINESS:**

No other business. Meeting was adjourned at 4:56 p.m.

Proposal Date: 2/21/2014

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Revise Course Prerequisites  
(Consent Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

1. **Identification of course:**
  - 1.1 Course prefix (subject area) and number: GEOG 316
  - 1.2 Course title: Fundamentals of Geographic Information Systems
2. **Current prerequisites:** GEOG 100 or GEOL 111, and GEOG 110, or permission of the instructor
3. **Proposed prerequisites:** GEOG 103 or GEOL 103, GEOG 110; or permission of the instructor.
4. **Rationale for the revision of prerequisites:** GEOG 100 has been deleted and replaced by GEOG/GEOL 103. With most of the material taught in GEOL 111 covered in GEOG/L 103, GEOL 111 is no longer needed as a prerequisite.
5. **Effect on completion of major/minor sequence:** None
6. **Proposed term for implementation:** Fall 2014
7. **Dates of prior committee approvals:**

Department of Geography and Geology

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

12/13/2013

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Proposal Date:12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Revise Course Prerequisites  
(Consent Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

1. **Identification of course:**
  - 1.1 Course prefix (subject area) and number: Geog 418
  - 1.2 Course title: Internet Geographic Information Systems
2. **Current prerequisites:** CS 146 and GEOG 417; or permission of instructor.
3. **Proposed prerequisites:** CS 170, and GEOG 417 with a grade of C or better; or permission of instructor.
4. **Rationale for the revision of prerequisites:** CS 170 covers computer programming with Python and it is a more appropriate course than CS 146. A grade of C or better in GEOG 417 is required to cope with the material covered in GEOG 418.
5. **Effect on completion of major/minor sequence:** None
6. **Proposed term for implementation:** Fall 2014
7. **Dates of prior committee approvals:**

Department of Geography and Geology

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

12/13/2013

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Proposal Date: 12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Revise Course Catalog Listing  
(Consent Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

**1. Identification of course:**

- 1.1 Course prefix (subject area) and number: GEOG 317
- 1.2 Course title: Geographic Information Systems

**2. Current course catalog listing:** Basic concepts of spatial science; introduction to data management, display, and analysis using geographic information systems. Course Fee.

**3. Proposed course catalog listing:** The principles, concepts, and applications of GIS. Topics include raster and vector data models, GIS data sources, data acquisition, storage, management, structured query language, relational databases, GIS analysis, and display.

**4. Rationale for revision of the course catalog listing:** We have modified the course description to better reflect the course content. GIS is always evolving and the course content is a reflection of this technology changing.

**5. Proposed term for implementation:** Fall 2014

**6. Dates of prior committee approvals:**

Department of Geography and Geology

12/13/2013

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate



Proposal Date: 12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Revise Course Catalog Listing  
(Consent Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

**1. Identification of course:**

- 1.1 Course prefix (subject area) and number: GEOG 417
- 1.2 Course title: GIS Analysis and Modeling

**2. Current course catalog listing:** Develops expertise with a broad range of spatial analysis functions applied within a cartographic modeling framework. Course Fee.

**3. Proposed course catalog listing:** Develops expertise with a broad range of spatial analysis and modeling functions using GIS. A problem-oriented approach.

**4. Rationale for revision of the course catalog listing:** We have modified the course description to better reflect the course content. GIS is always evolving and the course content is a reflection of this technology changing.

**5. Proposed term for implementation:** Fall 2014

**6. Dates of prior committee approvals:**

Department of Geography and Geology

12/13/2013

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 120-M1
- 1.2 Course title: Basic Electricity Module 1
- 1.3 Abbreviated course title: Basic Electricity Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: Eligibility for MATH 116
- 1.7 Course description: Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Identify basic electrical components in a circuit
  - Read color codes on resistors and find appropriate values of other circuit components
- 3.3 Content outline:  
Portions of the following:
  - Color codes on resistors

- Basic electrical components
- Parallel and series components
- Current, voltage, resistance and power usage
- Basic test equipment for electronics

3.4 Student expectations and requirements:

- Participation
- Homework
- Lab project
- Quizzes
- Tests
- Notebook/Sketchbook

3.5 Tentative texts and course materials: Meade, Russel L. (2007) Foundations of Electronics: Circuits and devices 5th edition, Thomson Delmar Learning

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 120-M2
- 1.2 Course title: Basic Electricity Module 2
- 1.3 Abbreviated course title: Basic Electricity Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 120 – M1
- 1.7 Course description: Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis.
- 3.2 Learning Outcomes:
  - Appropriately operate basic test equipment for the electronics industry
  - Construct Circuits
- 3.3 Content outline:  
Portions of the following:
  - Color codes on resistors

- Basic electrical components
- Parallel and series components
- Current, voltage, resistance and power usage
- Basic test equipment for electronics

3.4 Student expectations and requirements:

- Participation
- Homework
- Lab Projects
- Quizzes
- Tests
- Notebook/Sketchbook

3.5 Tentative texts and course materials: Meade, Russel L. (2007) Foundations of Electronics: Circuits and devices 5th edition, Thomson Delmar Learning

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 120-M3
- 1.2 Course title: Basic Electricity Module 3
- 1.3 Abbreviated course title: Basic Electricity Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 120 – M2
- 1.7 Course description: Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Distinguish between parallel and series components of a circuit
  - Calculate current, voltage, resistance and power usage in a circuit or component of a circuit
- 3.3 Content outline:  
Portions of the following:
  - Color codes on resistors
  - Basic electrical components
  - Parallel and series components

- Current, voltage, resistance and power usage
- Basic test equipment for electronics

3.4 Student expectations and requirements:

- Participation
- Homework
- Lab Projects
- Quizzes
- Tests
- Notebook/Sketchbook

3.5 Tentative texts and course materials: Meade, Russel L. (2007) Foundations of Electronics: Circuits and devices 5th edition, Thomson Delmar Learning

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 205-M1
- 1.2 Course title: CADD for Manufacturing Module 1
- 1.3 Abbreviated course title: CADD for Manufacturing Mod 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: A solids modeling course designed to develop skills on the use of a PC based mechanical design software to build feature-based, parametric solid models of parts and assemblies. Manufacturing drawings - orthographics - of those parts and assemblies are produced.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.3 Relationship of the proposed course to courses offered in other departments: None
- 2.4 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Basic concepts of feature-based, parametric 3D solid modeling
  - Basic concepts of 2D drawing generation
- 3.3 Content outline:



Portions of the following:

- Develop skills on the use of a PC based mechanical design software to build feature-based, parametric solid models of parts and assemblies
- Manufacturing drawings - orthographics

3.4 Student expectations and requirements:

- Participation
- Homework
- Discussions
- Quizzes
- Tests

3.5 Tentative texts and course materials: Dix, M., Riley, P. (2011). Discovering AutoCAD 2011. Prentice Hall. Upper Saddle River, NJ.

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 205-M2
- 1.2 Course title: CADD for Manufacturing Mod 2
- 1.3 Abbreviated course title: CADD for Manufacturing Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 205 – M1
- 1.7 Course description: A solids modeling course designed to develop skills on the use of a PC based mechanical design software to build feature-based, parametric solid models of parts and assemblies. Manufacturing drawings - orthographics - of those parts and assemblies are produced.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
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- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis
- 3.2 Learning Outcomes:
  - 3D solids modeling to related manufacturing operations
  -
- 3.3 Content outline:  
Portions of the following:

- Develop skills on the use of a PC based mechanical design software to build feature-based, parametric solid models of parts and assemblies
- Manufacturing drawings - orthographics

3.4 Student expectations and requirements:

- Participation
- Homework
- Discussions
- Quizzes
- Tests

3.5 Tentative texts and course materials: Dix, M., Riley, P. (2011). Discovering AutoCAD 2011. Prentice Hall. Upper Saddle River, NJ.

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 205-M3
- 1.2 Course title: CADD for Manufacturing Mod 3
- 1.3 Abbreviated course title: CADD for Manufacturing Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 205 – M2
- 1.7 Course description: A solids modeling course designed to develop skills on the use of a PC based mechanical design software to build feature-based, parametric solid models of parts and assemblies. Manufacturing drawings - orthographics - of those parts and assemblies are produced.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Data exchanges of 3D solid modeling databases
- 3.3 Content outline:  
Portions of the following:

- Develop skills on the use of a PC based mechanical design software to build feature-based, parametric solid models of parts and assemblies
- Manufacturing drawings - orthographics

3.4 Student expectations and requirements:

- Participation
- Homework
- Discussions
- Quizzes
- Tests

3.5 Tentative texts and course materials: Dix, M., Riley, P. (2011). Discovering AutoCAD 2011. Prentice Hall. Upper Saddle River, NJ.

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 217-M1
- 1.2 Course title: Industrial Materials Module 1
- 1.3 Abbreviated course title: Industrial Materials Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: Math 116 or higher
- 1.7 Course description: Survey of materials concepts and their applications to the production of manufactured items. Included will be basic procedures for testing manufacturing materials and discussions of materials processing concepts and cautions.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Design mechanical structures based on materials properties, classification, structure property application relationship
- 3.3 Content outline:  
Portions of the following:

- Introduction to materials, classification of materials
- Structure of the materials
- Properties of the materials and their measurement
- Laboratory experiences on testing of materials
- Metals and alloys
- Polymers, ceramic and composites
- Failures of materials
- Materials and process selection

3.4 Student expectations and requirements:

- Quizzes
- Assignments
- Final Exam

3.5 Tentative texts and course materials: Murray, G., White, C.V. and Weise, W. (2008) Introduction to Engineering Materials (2nd ed.), CRC press, Taylor & Francis Group, ISBN 1-57444-683-5

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 217-M2
- 1.2 Course title: Industrial Materials Module 2
- 1.3 Abbreviated course title: Industrial Materials Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 217 – M1
- 1.7 Course description: Survey of materials concepts and their applications to the production of manufactured items. Included will be basic procedures for testing manufacturing materials and discussions of materials processing concepts and cautions.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis
- 3.2 Learning Outcomes:
  - Perform fundamental materials testing for industrial applications
  - Originate laboratory reports on different mechanical properties testing
- 3.3 Content outline:  
Portions of the following:
  - Introduction to materials, classification of materials
  - Structure of the materials



- Properties of the materials and their measurement
- Laboratory experiences on testing of materials
- Metals and alloys
- Polymers, ceramic and composites
- Failures of materials
- Materials and process selection

3.4 Student expectations and requirements:

- Attendance
- Lab report
- Lab viva

3.5 Tentative texts and course materials: Murray, G., White, C.V. and Weise, W. (2008) Introduction to Engineering Materials (2nd ed.), CRC press, Taylor & Francis Group, ISBN 1-57444-683-5

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 217-M3
- 1.2 Course title: Industrial Materials Module 3
- 1.3 Abbreviated course title: Industrial Materials Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 217 – M2
- 1.7 Course description: Survey of materials concepts and their applications to the production of manufactured items. Included will be basic procedures for testing manufacturing materials and discussions of materials processing concepts and cautions.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Calculate mechanical properties from real life examples
  - Select appropriate materials, perform necessary testing and calculate different properties for industrial design and applications
- 3.3 Content outline:

Portions of the following:

- Introduction to materials, classification of materials
- Structure of the materials
- Properties of the materials and their measurement
- Laboratory experiences on testing of materials
- Metals and alloys
- Polymers, ceramic and composites
- Failures of materials
- Materials and process selection

3.4 Student expectations and requirements:

- Quizzes
- Assignments
- Final Exam

3.5 Tentative texts and course materials: Murray, G., White, C.V. and Weise, W. (2008) Introduction to Engineering Materials (2nd ed.), CRC press, Taylor & Francis Group, ISBN 1-57444-683-5

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 227-M1
- 1.2 Course title: Introduction to Manufacturing Methods Module 1
- 1.3 Abbreviated course title: Intro to Manufact Methods Mod 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Ability to read prints and asses measurements
  - Displaying safety in all aspects of operation of equipment and lab proceedings
- 3.3 Content outline:  
Portions of the following:
  - Identify common shop hazards

- Identify and use common shop safety equipment
- Use rules, vernier calipers, dial calipers, and micrometers in machine shop measurements
- Properly use horizontal and vertical band saw machines
- Properly use brake and shear machines in sheet metal operations
- Properly use drill presses and milling/drilling machines in drilling, countersinking, counter boring, and reaming operations
- Learn basic casting methods
- Tap holes by hand
- Properly perform basic functions on a vertical milling machine
- Properly perform basic functions on a horizontal milling machine
- Properly perform basic functions on a turning machine
- Properly perform basic functions on a surface grinder
- Describe grinding wheel types and uses, and the dressing operation
- Understand basic principles of welding operations

3.4 Student expectations and requirements:

- Lab participation
- Homework
- Lab projects
- Outline for paper
- Paper written
- Tests
- Quizzes
- Lab cleanup

3.5 Tentative texts and course materials: Kibbe, R. R., Meyer, R. O., Neely, J. E., and White, W. T., (2010), Machine Tool Practices, (9th Edition). Prentice Hall

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences  
OCSE Curriculum Committee

2/7/14

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University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 227 - M2
- 1.2 Course title: Intro to Manufacturing Methods Module 2
- 1.3 Abbreviated course title: Intro to Manufact Methods Mod 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 227 – M1
- 1.7 Course description: A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis
- 3.2 Learning Outcomes:
  - Working with hand and machine tools
- 3.3 Content outline:

Portions of the following:

  - Identify common shop hazards
  - Identify and use common shop safety equipment
  - Use rules, vernier calipers, dial calipers, and micrometers in machine shop measurements
  - Properly use horizontal and vertical band saw machines
  - Properly use brake and shear machines in sheet metal operations

- Properly use drill presses and milling/drilling machines in drilling, countersinking, counter boring, and reaming operations
- Learn basic casting methods
- Tap holes by hand
- Properly perform basic functions on a vertical milling machine
- Properly perform basic functions on a horizontal milling machine
- Properly perform basic functions on a turning machine
- Properly perform basic functions on a surface grinder
- Describe grinding wheel types and uses, and the dressing operation
- Understand basic principles of welding operations

3.4 Student expectations and requirements:

- Lab participation
- Homework
- Lab projects
- Outline for paper
- Paper written
- Tests
- Quizzes
- Lab cleanup

3.5 Tentative texts and course materials: Kibbe, R. R., Meyer, R. O., Neely, J. E., and White, W. T., (2010), Machine Tool Practices, (9th Edition). Prentice Hall

4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

6. Proposed term for implementation: Fall 2014

7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 227-M3
- 1.2 Course title: Intro to Manufacturing Methods Module 3
- 1.3 Abbreviated course title: Intro to Manufact Methods Mod
- 1.4 3 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 227 – M2
- 1.7 Course description: A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Understanding the basic use of hand operated machinery for manufacturing
- 3.3 Content outline:  
Portions of the following:
  - Identify common shop hazards
  - Identify and use common shop safety equipment
  - Use rules, vernier calipers, dial calipers, and micrometers in machine shop measurements
  - Properly use horizontal and vertical band saw machines
  - Properly use brake and shear machines in sheet metal operations

- Properly use drill presses and milling/drilling machines in drilling, countersinking, counter boring, and reaming operations
- Learn basic casting methods
- Tap holes by hand
- Properly perform basic functions on a vertical milling machine
- Properly perform basic functions on a horizontal milling machine
- Properly perform basic functions on a turning machine
- Properly perform basic functions on a surface grinder
- Describe grinding wheel types and uses, and the dressing operation
- Understand basic principles of welding operations

3.4 Student expectations and requirements:

- Lab participation
- Homework
- Lab projects
- Outline for paper
- Paper written
- Tests
- Quizzes
- Lab cleanup

3.5 Tentative texts and course materials: Kibbe, R. R., Meyer, R. O., Neely, J. E., and White, W. T., (2010), Machine Tool Practices, (9th Edition). Prentice Hall

4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

6. Proposed term for implementation: Fall 2014

7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences  
OCSE Curriculum Committee  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 310-M1
- 1.2 Course title: Work Design/Ergonomics Module 1
- 1.3 Abbreviated course title: Work Design/Ergonomics Mod 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: MATH 116
- 1.7 Course description: Design for people-machine interaction, including an introduction to the relevant underlying human sciences. Theory, data, and measurement problems in human information processing, training and industrial safety

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Analyze the functions of the human body and its interactions with the environment
- Apply the principles of ergonomic design for jobs and products in industry design machine interaction
- Investigate the similarities and differences between "work design" and "ergonomics"

- Design for manual, semi-automated and automated work system and calculate different important parameters of work system
- Apply the principles for good design and understand the consequences of poor job and product design
- Apply the knowledge in real life design of manufacturing parts, assemblies as well as work system

### 3.3 Content outline:

Portions of the following:

- Introduction to human factor and/or ergonomics and its importance
- Fundamentals of human factor/ergonomics
- Posture and movement
- Information and operation
- Environmental factors
- Work organization jobs and tasks design
- Design for manual, semi-automated and automated work system
- Design for health, safety and comfort
- Human-computer interaction
- Learning the ergonomic approach
- Case study/application examples of human factors and ergonomics: Website design, office design, manufacturing plant design etc

### 3.4 Student expectations and requirements:

- Quizzes
- Assignments
- Discussions
- Term paper
- Mid-term exam
- Final exam

### 3.5 Tentative texts and course materials:

- Dul, J. and Weerdmeester, B. (2008) Ergonomics for Beginners: A Quick Reference Guide (3rd ed.), CRC press, Taylor & Francis Group, ISBN 978-1-4200-7751-3
- Mikell P. Groover (2007) Work Systems and the Methods, Measurement, and Management of Work, Pearson Education, Inc., ISBN 0-13-140650-7.

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty

- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 310-M2
- 1.2 Course title: Work Design/Ergonomics Mod 2
- 1.3 Abbreviated course title: Work Design/Ergonomics Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 310 – M1
- 1.7 Course description: Design for people-machine interaction, including an introduction to the relevant underlying human sciences. Theory, data, and measurement problems in human information processing, training and industrial safety

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Analyze the functions of the human body and its interactions with the environment
- Apply the principles of ergonomic design for jobs and products in industry
- Design
- For asks and Jobs; Health, Safety and Comfort; People
- Machine interaction
- Investigate the similarities and differences between

- "Work Design" and "Ergonomics"
- Design for manual, semi-automated and automated work system and calculate different important parameters of work system
- Apply the principles for good design and understand the consequences of poor job and product design
- Apply the knowledge in real life design of manufacturing parts, assemblies as well as work system

### 3.3 Content outline:

Portions of the following:

- Analyze the functions of the human body and its interactions with the environment
- Apply the principles of ergonomic design for jobs and products in industry design machine interaction
- Investigate the similarities and differences between "work design" and "ergonomics"
- Design for manual, semi-automated and automated work system and calculate different important parameters of work system
- Apply the principles for good design and understand the consequences of poor job and product design
- Apply the knowledge in real life design of manufacturing parts, assemblies as well as work system

### 3.1 Content outline:

Portions of the following:

- Introduction to human factor and/or ergonomics and its importance
- Fundamentals of human factor/ergonomics
- Posture and movement
- Information and operation
- Environmental factors
- Work organization jobs and tasks design
- Design for manual, semi-automated and automated work system
- Design for health, safety and comfort
- Human-computer interaction
- Learning the ergonomic approach
- Case study/application examples of human factors and ergonomics: Website design, office design, manufacturing plant design etc

### 3.2 Student expectations and requirements:

- Quizzes
- Assignments
- Discussions
- Term paper
- Mid-term exam
- Final exam

3.3 Tentative texts and course materials:

- Dul, J. and Weerdmeester, B. (2008) Ergonomics for Beginners: A Quick Reference Guide (3rded.), CRC press, Taylor & Francis Group, ISBN 978-1-4200-7751-3
- Mikell P. Groover (2007) Work Systems and the Methods, Measurement, and Management of Work, Pearson Education, Inc., ISBN 0-13-140650-7.

4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

6. Proposed term for implementation: Fall 2014

7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14



Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 310-M3
- 1.2 Course title: Work Design/Ergonomics Module 3
- 1.3 Abbreviated course title: Work Design/Ergonomics Mod 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 310 – M2
- 1.7 Course description: Design for people-machine interaction, including an introduction to the relevant underlying human sciences. Theory, data, and measurement problems in human information processing, training and industrial safety

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Analyze the functions of the human body and its interactions with the environment
- Apply the principles of ergonomic design for jobs and products in industry design machine interaction
- Investigate the similarities and differences between "work design" and "ergonomics"

- Design for manual, semi-automated and automated work system and calculate different important parameters of work system
- Apply the principles for good design and understand the consequences of poor job and product design
- Apply the knowledge in real life design of manufacturing parts, assemblies as well as work system

### 3.1 Content outline:

Portions of the following:

- Introduction to human factor and/or ergonomics and its importance
- Fundamentals of human factor/ergonomics
- Posture and movement
- Information and operation
- Environmental factors
- Work organization jobs and tasks design
- Design for manual, semi-automated and automated work system
- Design for health, safety and comfort
- Human-computer interaction
- Learning the ergonomic approach
- Case study/application examples of human factors and ergonomics: Website design, office design, manufacturing plant design etc

### 3.2 Student expectations and requirements:

- Quizzes
- Assignments
- Discussions
- Term paper
- Mid-term exam
- Final exam

### 3.3 Tentative texts and course materials:

- Dul, J. and Weerdmeester, B. (2008) Ergonomics for Beginners: A Quick Reference Guide (3rded.), CRC press, Taylor & Francis Group, ISBN 978-1-4200-7751-3
- Mikell P. Groover (2007) Work Systems and the Methods, Measurement, and Management of Work, Pearson Education, Inc., ISBN 0-13-140650-7.

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty

- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

6. Proposed term for implementation: Fall 2014

7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 328-M1
- 1.2 Course title: Robotics & Machine Vision Mod 1
- 1.3 Abbreviated course title: Robotics & Machine Vision Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: Introduction to capabilities and limitations of robotic and machine vision systems, as well as fundamentals of programming. Laboratory activities are focused toward manufacturing applications.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Identify the capabilities and limitations of robotic systems
  - Observe manufacturing applications of robotic systems
- 3.3 Content outline:

Portions of the following:

- Introduction to industrial robotics

- Fundamentals of robotics
- Programming the robot
- Industrial application
- Use of sensors
- Robotics in manufacturing
- Future of robotics
- Applications of robotics

3.4 Student expectations and requirements:

- Quizzes
- Homework
- Tests
- Labs

3.5 Tentative texts and course materials:

Robotics: Theory and Industrial Applications  
 Author: Ross, Larry, T.  
 ISBN: 978-1-60525-321-3  
 Goodheart Willcox

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences  
OCSE Curriculum Committee  
 Undergraduate Curriculum Committee  
 University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 328-M2
- 1.2 Course title: Robotics & Machine Vision Module 2
- 1.3 Abbreviated course title: Robotics & Machine Vision Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 328-M1
- 1.7 Course description: Introduction to capabilities and limitations of robotic and machine vision systems, as well as fundamentals of programming. Laboratory activities are focused toward manufacturing applications.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis.
- 3.2 Learning Outcomes:
  - Integrate robotics and machine vision applications with automated equipment
- 3.3 Content outline:

Portions of the following:

- Introduction to industrial robotics
- Fundamentals of robotics

- Programming the robot
- Industrial application
- Use of sensors
- Robotics in manufacturing
- Future of robotics
- Applications of robotics

3.4 Tentative texts and course materials:  
 Robotics: Theory and Industrial Applications  
 Author: Ross, Larry, T.  
 ISBN: 978-1-60525-321-3  
 Goodheart Willcox

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences  
OCSE Curriculum Committee  
 Undergraduate Curriculum Committee  
 University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 328-M3
- 1.2 Course title: Robotics & Machine Vision Module 3
- 1.3 Abbreviated course title: Robotics & Machine Vision Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 328-M2
- 1.7 Course description: Introduction to capabilities and limitations of robotic and machine vision systems, as well as fundamentals of programming. Laboratory activities are focused toward manufacturing applications.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture-Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Develop specification for robotic and vision systems in automated manufacturing applications
  - Develop and apply programming techniques for robotics and machine vision
- 3.3 Content outline:

Portions of the following:

Portions of the following:



- Introduction to industrial robotics
- Fundamentals of robotics
- Programming the robot
- Industrial application
- Use of sensors
- Robotics in manufacturing
- Future of robotics
- Applications of robotics

3.4 Student expectations and requirements:

- Quizzes
- Homework
- Test 1, 2, 3
- Labs

3.5 Tentative texts and course materials:  
 Robotics: Theory and Industrial Applications  
 Author: Ross, Larry, T.  
 ISBN: 978-1-60525-321-3  
 Goodheart Willcox

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 342-M1
- 1.2 Course title: Manufacturing Operations Mod 1
- 1.3 Abbreviated course title: Manufacturing Operations Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: Survey of methods for designing products for improved quality and manufacturability in industry, and designing manufacturing processes for improved reliability.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Discuss ethical situations dealing with manufacturing situation on discussion boards.
  - Match manufacturing terms to appropriate process needed to improve quality of products
  - Compare manufacturing processes involved in making products more reliable

3.3 Content outline:

Portions of the following:

- Fundamentals of materials
- Structure of metals
- Mechanical behavior and testing
- Physical properties of metals
- General properties of metal alloys, ferrous metals, nonferrous metals, polymers, ceramics, graphite, diamond, and composite materials
- Metal-casting process
- Rolling of metals
- Forging
- Machining processes
- Fabrication of microelectronic devices

3.4 Student expectations and requirements:

- Quizzes
- Article Summary
- Participation
- Homework
- Final

3.5 Tentative texts and course materials: None Required (All readings supplied on Blackboard)

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

2/7/14

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 342-M2
- 1.2 Course title: Manufacturing Operations Module 2
- 1.3 Abbreviated course title: Manufacturing Operations Mod 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 271 or AMS 271-M3 or consent of instructor
- 1.7 Course description: Survey of methods for designing products for improved quality and manufacturability in industry, and designing manufacturing processes for improved reliability.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Discuss ethical situations dealing with manufacturing situation on discussion boards.
  - Match manufacturing terms to appropriate process needed to improve quality of products
  - Compare manufacturing processes involved in making products more reliable
- 3.3 Content outline:

Portions of the following:

- Fundamentals of materials
- Structure of metals
- Mechanical behavior and testing
- Physical properties of metals
- General properties of metal alloys, ferrous metals, nonferrous metals, polymers, ceramics, graphite, diamond, and composite materials
- Metal-casting process
- Rolling of metals
- Forging
- Machining processes
- Fabrication of microelectronic devices

3.4 Student expectations and requirements:

- Quizzes
- Article Summary
- Participation
- Homework
- Final

3.5 Tentative texts and course materials: None Required (All readings supplied on Blackboard)

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 342-M3
- 1.2 Course title: Manufacturing Operations Module 3
- 1.3 Abbreviated course title: Manufacturing Operations Mod 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 271-M2
- 1.7 Course description: Survey of methods for designing products for improved quality and manufacturability in industry, and designing manufacturing processes for improved reliability.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Discuss ethical situations dealing with manufacturing situation on discussion boards.
  - Match manufacturing terms to appropriate process needed to improve quality of products
  - Compare manufacturing processes involved in making products more reliable
- 3.3 Content outline:

Portions of the following:

- Fundamentals of materials
- Structure of metals
- Mechanical behavior and testing
- Physical properties of metals
- General properties of metal alloys, ferrous metals, nonferrous metals, polymers, ceramics, graphite, diamond, and composite materials
- Metal-casting process
- Rolling of metals
- Forging
- Machining processes
- Fabrication of microelectronic devices

3.4 Student expectations and requirements:

- Quizzes
- Article Summary
- Participation
- Homework
- Final

3.5 Tentative texts and course materials: None Required (All readings supplied on Blackboard)

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 343-M1
- 1.2 Course title: Automated Systems Module 1
- 1.3 Abbreviated course title: Automated Systems Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 120 or AMS 120-M3 or approval of instructor.
- 1.7 Course description: Techniques of automated systems dealing with material handling, PLC, and off-the-shelf computer control systems. Programming the microprocessor for control applications may be included.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Understand basic digital logic gates and Boolean algebra
  - Understand PLC hardwire installation
  - Define parameters and components of automated systems;
  - Define inputs and outputs for automated systems

- 3.3 Content outline:

Portions of the following:

- Basic digital logic gates and Boolean Algebra
- An overall look at PLCs
- Devices to which PLC I/O modules are connected
- Relation of digital logic to contact coil logic
- Creating ladder diagrams from process control descriptions
- Register basics
- PLC timer functions
- PLC counter functions
- PLC arithmetic functions
- PLC number comparison functions
- PLC SKIP and MASTER CONTROL RELEY functions
- Jump functions

3.4 Student expectations and requirements:

- Quizzes
- Homework
- Tests
- Labs

3.5 Tentative texts and course materials:

1. Petruzella, F.D. (2011). Programmable Logic Controllers 4<sup>th</sup> Ed. McGraw Hill, New York, NY.
2. Petruzella, F.D. (2011). Programmable Logic Controllers Activities Manual 4<sup>th</sup> Ed. McGraw Hill, New York, NY

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

2/7/14

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 343-M2
- 1.2 Course title: Automated Systems Module 2
- 1.3 Abbreviated course title: Automated Systems Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 343-M1
- 1.7 Course description: Techniques of automated systems dealing with material handling, PLC, and off-the-shelf computer control systems. Programming the microprocessor for control applications may be included. Lecture and laboratory.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis.
- 3.2 Learning Outcomes:
  - Write and execute relay ladder logic program
  - Develop relay ladder logic programming language
  - Create automated solutions to manufacturing problems
- 3.3 Content outline:

Portions of the following:

  - Basic digital logic gates and Boolean Algebra
  - An overall look at PLCs

- Devices to which PLC I/O modules are connected
- Relation of digital logic to contact coil logic
- Creating ladder diagrams from process control descriptions
- Register basics
- PLC timer functions
- PLC counter functions
- PLC arithmetic functions
- PLC number comparison functions
- PLC SKIP and MASTER CONTROL RELEY functions
- Jump functions

3.4 Student expectations and requirements:

- Quizzes
- Homework
- Tests
- Labs

3.5 Tentative texts and course materials:

1. Petruzella, F.D. (2011). Programmable Logic Controllers 4<sup>th</sup> Ed. McGraw Hill, New York, NY.
2. Petruzella, F.D. (2011). Programmable Logic Controllers Activities Manual 4<sup>th</sup> Ed. McGraw Hill, New York, NY

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 343-M3
- 1.2 Course title: Automated Systems Module 3
- 1.3 Abbreviated course title: Automated Systems Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 343-M2
- 1.7 Course description: Techniques of automated systems dealing with material handling, PLC, and off-the-shelf computer control systems. Programming the microprocessor for control applications may be included.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Manage automated systems and processes
- 3.3 Content outline:

Portions of the following:

- Basic digital logic gates and Boolean Algebra
- An overall look at PLCs

- Devices to which PLC I/O modules are connected
- Relation of digital logic to contact coil logic
- Creating ladder diagrams from process control descriptions
- Register basics
- PLC timer functions
- PLC counter functions
- PLC arithmetic functions
- PLC number comparison functions
- PLC SKIP and MASTER CONTROL RELEY functions
- Jump functions

3.4 Student expectations and requirements:

- Quizzes
- Homework
- Tests
- Labs

3.5 Tentative texts and course materials:

1. Petruzella, F.D. (2011). Programmable Logic Controllers 4<sup>th</sup> Ed. McGraw Hill, New York, NY.
2. Petruzella, F.D. (2011). Programmable Logic Controllers Activities Manual 4<sup>th</sup> Ed. McGraw Hill, New York, NY

4. **Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

5. **Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

6. **Proposed term for implementation: Fall 2014**

7. **Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences  
OCSE Curriculum Committee  
 Undergraduate Curriculum Committee  
 University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 352-M1
- 1.2 Course title: Food Processing: Unit Operations Module 1
- 1.3 Abbreviated course title: Food Processing Unit Op Mod 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: An overview of unit operations and processing techniques used in food processing industry. Topics include thermal processing, low temperature preservation, dehydration, irradiation, enzyme technology, separation and concentration, evaporation and distillation, and high-pressure and minimal processing methods.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Explain the basic terms and principles of food processing
  - Understand the concepts of food processing and preservation and their relationship to food safety and quality



- Explain how each type of food processing technique is employed to preserve the food.
- Identify the food processing equipment required to make the most common food products.

### 3.3 Content outline:

Portions of the following:

- Properties of food processing
- Raw material preparation
- Separation and concentration of food components
- Heat processing
- Pasteurization
- Heat sterilization
- Evaporation and distillation
- Dehydration, smoking, baking, roasting, frying, chilling at modified atmospheres, freezing, freeze drying and freeze concentration
- Fermentation and enzyme technology
- High-pressure processing
- Minimal processing methods

### 3.4 Student expectations and requirements:

- Tests
- Final exam
- Quizzes
- Term paper
- Homework

3.5 Tentative texts and course materials: Fellows, P.J. (2009). Food Processing Technology - Principles and Practice, 3<sup>rd</sup> edition. CRC Press, Boca Raton, FL. ISBN# 9781439808214.

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

2/7/14

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 352-M2
- 1.2 Course title: Food Processing: Unit Operations Module 2
- 1.3 Abbreviated course title: Food Processing Unit Op Mod 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 352-M1
- 1.7 Course description: An overview of unit operations and processing techniques used in food processing industry. Topics include thermal processing, low temperature preservation, dehydration, irradiation, enzyme technology, separation and concentration, evaporation and distillation, and high-pressure and minimal processing methods.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Explain the basic terms and principles of food processing
  - Understand the concepts of food processing and preservation and their relationship to food safety and quality

- Explain how each type of food processing technique is employed to preserve the food.
- Identify the food processing equipment required to make the most common food products.

### 3.3 Content outline:

Portions of the following:

- Properties of food processing
- Raw material preparation
- Separation and concentration of food components
- Heat processing
- Pasteurization
- Heat sterilization
- Evaporation and distillation
- Dehydration, smoking, baking, roasting, frying, chilling at modified atmospheres, freezing, freeze drying and freeze concentration
- Fermentation and enzyme technology
- High-pressure processing
- Minimal processing methods

### 3.4 Student expectations and requirements:

- Tests
- Final exam
- Quizzes
- Term paper
- Homework

3.5 Tentative texts and course materials: Fellows, P.J. (2009). Food Processing Technology - Principles and Practice, 3<sup>rd</sup> edition. CRC Press, Boca Raton, FL. ISBN# 9781439808214.

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 352-M3
- 1.2 Course title: Food Processing: Unit Operations Module 3
- 1.3 Abbreviated course title: Food Processing Unit Op Mod 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 352-M2
- 1.7 Course description: An overview of unit operations and processing techniques used in food processing industry. Topics include thermal processing, low temperature preservation, dehydration, irradiation, enzyme technology, separation and concentration, evaporation and distillation, and high-pressure and minimal processing methods.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Explain the basic terms and principles of food processing
  - Understand the concepts of food processing and preservation and their relationship to food safety and quality
  - Explain how each type of food processing technique employed to preserve the food.

- Identify the food processing equipment required to make the most common food products.

3.3 Content outline:

Portions of the following:

- Properties of food processing
- Raw material preparation
- Separation and concentration of food components
- Heat processing
- Pasteurization
- Heat sterilization
- Evaporation and distillation
- Dehydration, smoking, baking, roasting, frying, chilling at modified atmospheres, freezing, freeze drying and freeze concentration
- Fermentation and enzyme technology
- High-pressure processing
- Minimal processing methods

3.4 Student expectations and requirements:

- Tests
- Final exam
- Quizzes
- Term paper
- Homework

3.5 Tentative texts and course materials: Fellows, P.J. (2009). Food Processing Technology - Principles and Practice, 3<sup>rd</sup> edition. CRC Press, Boca Raton, FL. ISBN# 9781439808214.

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

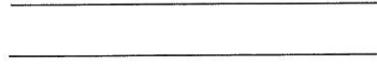
Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

2/7/14

University Senate





Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 356-M1
- 1.2 Course title: Systems Design & Op Mod 1
- 1.3 Abbreviated course title: Systems Design & Operation Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 271 or AMS 271-M3
- 1.7 Course description: A study of manufacturing organizations and their administration, facilities layout, work systems, forecasting and decision making. Applications of resource planning determining product demand, controlling inventory, goods and services.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Identify key features in setting up a manufacturing organization and its administration
  - Utilize standard principles in planning, designing, and locating a plant and the facilities within it
  - Make forecasts and plan for capacity in relation to facilities and equipment
  - Make decisions under certainty and uncertainty
  - Set up production rates based upon product demand and standard data systems

- Support the management team by controlling inventory and scheduling production based upon consumer demand
- Utilize and interpret MRP

### 3.3 Content outline:

Portions of the following:

- Introduction
- Planning and design
- Product development
- Production charts and systems
- Requirements and selection of machines
- Building, organization, communications, and selected support requirements
- Materials handling
- Facility location
- Inventory control
- Aggregate planning
- MRP and ERP
- JIT and lean Operations
- Scheduling

### 3.4 Student expectations and requirements:

- Quizzes
- Exams
- Video reports
- Assignments

3.5 Tentative texts and course materials: Operations Management. (11th edition or earlier through the 9th). William J. Stevenson, McGraw-Hill Irwin.

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 356-M2
- 1.2 Course title: Systems Design & Operation Module 2
- 1.3 Abbreviated course title: Systems Design & Op Mod 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 356-M1
- 1.7 Course description: A study of manufacturing organizations and their administration, facilities layout, work systems, forecasting and decision making. Applications of resource planning determining product demand, controlling inventory, goods and services.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods

3.2 Learning Outcomes:

Portions of the following:

- Identify key features in setting up a manufacturing organization and its administration
- Utilize standard principles in planning, designing, and locating a plant and the facilities within it
- Make forecasts and plan for capacity in relation to facilities and equipment
- Make decisions under certainty and uncertainty
- Set up production rates based upon product demand and standard data systems

- Support the management team by controlling inventory and scheduling production based upon consumer demand
- Utilize and interpret MRP

### 3.3 Content outline:

Portions of the following:

- Introduction
- Planning and design
- Product development
- Production charts and systems
- Requirements and selection of machines
- Building, organization, communications, and selected support requirements
- Materials handling
- Facility location
- Inventory control
- Aggregate planning
- MRP and ERP
- JIT and lean Operations
- Scheduling

### 3.4 Student expectations and requirements:

- Quizzes
- Exams
- Video reports
- Assignments

3.5 Tentative texts and course materials: Operations Management. (11th edition or earlier through the 9th). William J. Stevenson, McGraw-Hill Irwin.

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

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2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 356-M3
- 1.2 Course title: Systems Design & Operation Module 3
- 1.3 Abbreviated course title: Systems Design & Op Mod 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 356-M2
- 1.7 Course description: A study of manufacturing organizations and their administration, facilities layout, work systems, forecasting and decision making. Applications of resource planning determining product demand, controlling inventory, goods and services.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Identify key features in setting up a manufacturing organization and its administration
  - Utilize standard principles in planning, designing, and locating a plant and the facilities within it
  - Make forecasts and plan for capacity in relation to facilities and equipment
  - Make decisions under certainty and uncertainty
  - Set up production rates based upon product demand and standard data systems

- Support the management team by controlling inventory and scheduling production based upon consumer demand
- Utilize and interpret MRP

### 3.3 Content outline:

Portions of the following:

- Introduction
- Planning and design
- Product development
- Production charts and systems
- Requirements and selection of machines
- Building, organization, communications, and selected support requirements
- Materials handling
- Facility location
- Inventory control
- Aggregate planning
- MRP and ERP
- JIT and lean Operations
- Scheduling

### 3.4 Student expectations and requirements:

- Quizzes
- Exams
- Video reports
- Assignments

3.5 Tentative texts and course materials: Operations Management. (11th edition or earlier through the 9th). William J. Stevenson, McGraw-Hill Irwin.

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:



Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

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2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 370-M1
- 1.2 Course title: Computer Numerical Control Module 1
- 1.3 Abbreviated course title: Computer Numeric Control Mod 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 227 or AMS 227-M3 or consent of instructor.
- 1.7 Course description: Computer-aided manufacturing techniques including manual and computer-assisted numerical control. Students program and operate CNC machining centers.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Demonstrate knowledge of fundamental G & M codes
  - Build competencies in print reading
- 3.3 Content outline:

Portions of the following:

- Computer aided machining
- Computer numerical control (CNC)
- Programming and operation
- Computer aided machining (CAM) software

3.4 Student expectations and requirements:

- CAM programming projects
- Participation
- Discussion
- Assigned paper
- Quizzes
- Exams

3.5 Tentative texts and course materials: Gizelbach, R. A. (2009). CNC Machining, Fundamentals and Applications. Goodheart-Wilcox. Tinley Parks, IL

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 370-M2
- 1.2 Course title: Computer Numerical Control Module 2
- 1.3 Abbreviated course title: Computer Numeric Control Mod 2
- 1.4
- 1.5 Credit hours: 1 Variable credit: No
- 1.6 Grade type: Standard letter grade
- 1.7 Prerequisites: AMS 370-M1
- 1.8 Course description: Computer-aided manufacturing techniques including manual and computer-assisted numerical control. Students program and operate CNC machining centers. Lecture and Laboratory.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis.
- 3.2 Learning Outcomes:
  - Draw and post-process using CAM software
- 3.3 Content outline:

Portions of the following:

- Computer aided machining

- Computer numerical control (CNC)
- Programming and operation
- Computer aided machining (CAM) software

3.4 Student expectations and requirements:

- CAM programming projects
- Participation
- Discussion
- Assigned paper
- Quizzes
- Exams

3.5 Tentative texts and course materials: Gizelbach, R. A. (2009). CNC Machining, Fundamentals and Applications. Goodheart-Wilcox. Tinley Parks, IL

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

\_\_\_\_\_ 2/7/14  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 370-M3
- 1.2 Course title: Computer Numerical Control Module 3
- 1.3 Abbreviated course title: Computer Numeric Control Mod 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 370-M2
- 1.7 Course description: Computer-aided manufacturing techniques including manual and computer-assisted numerical control. Students program and operate CNC machining centers.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Perform set-up of PRZ on machine tools
  - Perform code editing and equipment troubleshooting
- 3.3 Content outline:

Portions of the following:

- Computer aided machining

- Computer numerical control (CNC)
- Programming and operation
- Computer aided machining (CAM) software

3.4 Student expectations and requirements:

- CAM programming projects
- Participation
- Discussion
- Assigned paper
- Quizzes
- Exams

3.5 Tentative texts and course materials: Giselbach, R. A. (2009). CNC Machining, Fundamentals and Applications. Goodheart-Wilcox. Tinley Parks, IL

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 371-M1
- 1.2 Course title: Quality Assurance Module 1
- 1.3 Abbreviated course title: Quality Assurance Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: A study of quality assurance techniques. Application of Statistical Process Control (SPC), acceptance sampling, military standards 105D and 414. Quality organizations and standards.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Discuss the basic principles and methods associated with total quality and performance excellence.
  - Describe tools for quality and process improvement, including kaizen, the deming cycle, six sigma AMAIC, lean thinking, and the 7 QC tools.
  - Gain an appreciation of the importance of quality control
  - Utilize methods of establishing a quality control system



- Demonstrate the use of analytical tools in quality control
- Discuss quality concepts as related to profitability and customer satisfaction
- Discuss the importance of teamwork, employee engagement and leadership in a high-performance environment.

### 3.3 Content outline:

Portions of the following:

- Introduction to quality and performance excellence
- History of quality
- Defining quality
- Total quality in organizations (manufacturing, services, health care, education, public sector)
- Quality philosophies
- Frameworks to quality
- Tools and techniques for quality design and control and quality improvement
- Quality in customer-supplier relationships

### 3.4 Student expectations and requirements:

- Quizzes
- Exams
- Participation
- Assignments
- Term project

Tentative texts and course materials: Quality and Performance Excellence by James R. Evans, 7th edition, 2014. South-Western Cengage Learning. ISBN-13: 9781133955931(The book is also available as an e-book through CourseSmart)

### 3.5

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 371-M2
- 1.2 Course title: Quality Assurance Module 2
- 1.3 Abbreviated course title: Quality Assurance Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: A study of quality assurance techniques. Application of Statistical Process Control (SPC), acceptance sampling, military standards 105D and 414. Quality organizations and standards.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods

- 3.2 Learning Outcomes:

Portions of the following:

- Discuss the basic principles and methods associated with total quality and performance excellence.
- Describe tools for quality and process improvement, including kaizen, the deming cycle, six sigma AMAIC, lean thinking, and the 7 QC tools.
- Gain an appreciation of the importance of quality control
- Utilize methods of establishing a quality control system

- Demonstrate the use of analytical tools in quality control
- Discuss quality concepts as related to profitability and customer satisfaction
- Discuss the importance of teamwork, employee engagement and leadership in a high-performance environment.

### 3.3 Content outline:

Portions of the following:

- Introduction to quality and performance excellence
- History of quality
- Defining quality
- Total quality in organizations (manufacturing, services, health care, education, public sector)
- Quality philosophies
- Frameworks to quality
- Tools and techniques for quality design and control and quality improvement

Quality in customer-supplier relationships

### 3.4 Student expectations and requirements:

- Quizzes
- Exams
- Participation
- Assignments
- Term project

Tentative texts and course materials: Quality and Performance Excellence by James R. Evans, 7th edition, 2014. South-Western Cengage Learning. ISBN-13: 9781133955931 (The book is also available as an e-book through CourseSmart)

### 3.5

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

2/7/14

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 371-M3
- 1.2 Course title: Quality Assurance Module 3
- 1.3 Abbreviated course title: Quality Assurance Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: A study of quality assurance techniques. Application of Statistical Process Control (SPC), acceptance sampling, military standards 105D and 414. Quality organizations and standards.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Discuss the basic principles and methods associated with total quality and performance excellence.
  - Describe tools for quality and process improvement, including kaizen, the deming cycle, six sigma AMAIC, lean thinking, and the 7 QC tools.
  - Gain an appreciation of the importance of quality control
  - Utilize methods of establishing a quality control system

- Demonstrate the use of analytical tools in quality control
- Discuss quality concepts as related to profitability and customer satisfaction
- Discuss the importance of teamwork, employee engagement and leadership in a high-performance environment.

### 3.3 Content outline:

Portions of the following:

- Introduction to quality and performance excellence
- History of quality
- Defining quality
- Total quality in organizations (manufacturing, services, health care, education, public sector)
- Quality philosophies
- Frameworks to quality
- Tools and techniques for quality design and control and quality improvement
- Quality in customer-supplier relationships

### 3.4 Student expectations and requirements:

- Quizzes
- Exams
- Participation
- Assignments
- Term project

Tentative texts and course materials: Quality and Performance Excellence by James R. Evans, 7th edition, 2014. South-Western Cengage Learning. ISBN-13: 9781133955931(The book is also available as an e-book through CourseSmart)

### 3.5

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

2/7/14

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 390-M1
- 1.2 Course title: Project Management Module 1
- 1.3 Abbreviated course title: Project Management Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: Junior standing or AMS major
- 1.7 Course description: Core concepts of project management based on processes of initiating, planning, executing, controlling, and closing projects. Topics include project proposals, project selection, scope definition, CPM and PERT scheduling, budgeting, control techniques, and project manager skills.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Describe basic project management techniques and structures.
- Develop project work breakdown structures and critical path schedules, and allocate resources.
- Analyze data to create cost control models including earned value analysis.
- Identify and develop risk management plans that support project objectives.
- Develop, supervise, and improve a comprehensive project plan.

3.3 Content outline:

Portions of the following:

- Organized project structures
- Delivery systems
- Work breakdown analysis
- Benefits of planning
- Leadership responsibilities
- Executive authority

3.4 Student expectations and requirements:

- Homework
- Projects
- Discussion
- Quizzes
- Exams

3.5 Tentative texts and course materials: Portny, S. E., Mantel, S. J., Meredith, J. R., Shafer, S. M., Sutton, M. M., and Kramer, B. E. (2008). "Wiley Pathways Project Management," John Wiley & Sons., New York, ISBN 978-0-470-11124-6

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 390-M2
- 1.2 Course title: Project Management Module 2
- 1.3 Abbreviated course title: Project Management Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 390-M1
- 1.7 Course description: Core concepts of project management based on processes of initiating, planning, executing, controlling, and closing projects. Topics include project proposals, project selection, scope definition, CPM and PERT scheduling, budgeting, control techniques, and project manager skills.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Describe basic project management techniques and structures.
- Develop project work breakdown structures and critical path schedules, and allocate resources.
- Analyze data to create cost control models including earned value analysis.

- Identify and develop risk management plans that support project objectives.
- Develop, supervise, and improve a comprehensive project plan.

3.3 Content outline:

Portions of the following:

- Organized project structures
- Delivery systems
- Work breakdown analysis
- Benefits of planning
- Leadership responsibilities
- Executive authority

3.4 Student expectations and requirements:

- Homework
- Projects
- Discussion
- Quizzes
- Exams

3.5 Tentative texts and course materials: Portny, S. E., Mantel, S. J., Meredith, J. R., Shafer, S. M., Sutton, M. M., and Kramer, B. E. (2008). "Wiley Pathways Project Management," John Wiley & Sons., New York, ISBN 978-0-470-11124-6

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 390-M3
- 1.2 Course title: Project Management Module 3
- 1.3 Abbreviated course title: Project Management Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 390-M2
- 1.7 Course description: Core concepts of project management based on processes of initiating, planning, executing, controlling, and closing projects. Topics include project proposals, project selection, scope definition, CPM and PERT scheduling, budgeting, control techniques, and project manager skills.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Describe basic project management techniques and structures.
- Develop project work breakdown structures and critical path schedules, and allocate resources.
- Analyze data to create cost control models including earned value analysis.
- Identify and develop risk management plans that support project objectives.
- Develop, supervise, and improve a comprehensive project plan.

3.3 Content outline:

Portions of the following:

- Organized project structures
- Delivery systems
- Work breakdown analysis
- Benefits of planning
- Leadership responsibilities
- Executive authority

3.4 Student expectations and requirements:

- Homework
- Projects
- Discussion
- Quizzes
- Exams

3.5 Tentative texts and course materials: Portny, S. E., Mantel, S. J., Meredith, J. R., Shafer, S. M., Sutton, M. M., and Kramer, B. E. (2008). "Wiley Pathways Project Management," John Wiley & Sons., New York, ISBN 978-0-470-11124-6

4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

6. Proposed term for implementation: Fall 2014

7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 394-M1
- 1.2 Course title: Lean Manufacturing Module 1
- 1.3 Abbreviated course title: Lean Manufacturing Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: Introduction to the production system and the role of inventory, market characterization, aggregate planning, lean manufacturing and the just-in-time philosophy.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Apply the basic principles of lean manufacturing system
- Investigate origins and underlying principles of the lean production system
- Develop plant wise lean strategies
- Originate the goals of lean production for specific areas
- Design lean facilities, layout, fixtures for production system
- Solve practical problems of lean production

- Implement cellular manufacturing in industries

### 3.3 Content outline:

Portions of the following:

- The birth of lean production system
- Lean manufacturing and the Toyota production system
- Inventory and variation
- Stability
- The significance of lead time
- Standardized work
- Just-in-time
- Jidoka
- Involvement
- Planning and goals
- Strategies to becoming lean
- How to implement lean
- The culture of lean production
- Cellular manufacturing

### 3.4 Student expectations and requirements:

- Attendance
- Quizzes
- Discussions
- Exams
- Final exam

### 3.5 Tentative texts and course materials: Dennis, P. (2002) Lean Production Simplified, Productivity Press, New York, ISBN 1-56327-262-8

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None



6. Proposed term for implementation: Fall 2014

7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 394-M2
- 1.2 Course title: Lean Manufacturing Module 2
- 1.3 Abbreviated course title: Lean Manufacturing Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 394-M1
- 1.7 Course description: Introduction to the production system and the role of inventory, market characterization, aggregate planning, lean manufacturing and the just-in-time philosophy.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Apply the basic principles of lean manufacturing system
- Investigate origins and underlying principles of the lean production system
- Develop plant wise lean strategies
- Originate the goals of lean production for specific areas
- Design lean facilities, layout, fixtures for production system
- Solve practical problems of lean production

- Implement cellular manufacturing in industries

### 3.3 Content outline:

Portions of the following:

- The birth of lean production system
- Lean manufacturing and the Toyota production system
- Inventory and variation
- Stability
- The significance of lead time
- Standardized work
- Just-in-time
- Jidoka
- Involvement
- Planning and goals
- Strategies to becoming lean
- How to implement lean
- The culture of lean production
- Cellular manufacturing

### 3.4 Student expectations and requirements:

- Attendance
- Quizzes
- Discussions
- Exams
- Final exam

### 3.5 Tentative texts and course materials: Dennis, P. (2002) Lean Production Simplified, Productivity Press, New York, ISBN 1-56327-262-8

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 394-M3
- 1.2 Course title: Lean Manufacturing Module 3
- 1.3 Abbreviated course title: Lean Manufacturing Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 394-M2
- 1.7 Course description: Introduction to the production system and the role of inventory, market characterization, aggregate planning, lean manufacturing and the just-in-time philosophy.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

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- Investigate origins and underlying principles of the lean production system
- Develop plant wise lean strategies
- Originate the goals of lean production for specific areas
- Design lean facilities, layout, fixtures for production system
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- Implement cellular manufacturing in industries

### 3.3 Content outline:

Portions of the following:

- The birth of lean production system
- Lean manufacturing and the Toyota production system
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- Involvement
- Planning and goals
- Strategies to becoming lean
- How to implement lean
- The culture of lean production
- Cellular manufacturing

### 3.4 Student expectations and requirements:

- Attendance
- Quizzes
- Discussions
- Exams
- Final exam

### 3.5 Tentative texts and course materials: Dennis, P. (2002) Lean Production Simplified, Productivity Press, New York, ISBN 1-56327-262-8

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

## 6. Proposed term for implementation: Fall 2014

## 7. Dates of prior committee approvals:

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 396-M1
- 1.2 Course title: Introduction to Supply Chain Management Module 1
- 1.3 Abbreviated course title: Intro Supply Chain Mgt Mod 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: None
- 1.7 Course description: Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Build an understanding of the operations and supply chain strategy.
- Develop a knowledge base for communicating with operations and logistics personnel.
- Demonstrate both quantitative and qualitative analysis skills, especially those needed for managing supply chains systems.
- Build value stream maps, assess supply chain models and evaluate various operational activities



- Set-up and solve working problems from manufacturing and service supply chain systems

3.3 Content outline:

Portions of the following:

- Fundamentals of operations
- Supply chain management practice
- Systematic design, direction, and control of
- The internal production and external supply chain processes
- Methods and techniques for analysis, forecasting, inventory control, scheduling, and facilities planning

3.4 Student expectations and requirements:

- Assigned readings
- Discussion
- Value stream maps
- Assigned problems
- Quizzes
- Exams

3.1 Tentative texts and course materials: Iyer, A. V., Seshadri, S., & Vasher, R. (2009). Toyota supply chain management: A strategic approach to the principles of Toyota's renowned system. New York: McGraw-Hill. ISBN 978-007-161549-5

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

2/7/14

University Senate



Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 396-M2
- 1.2 Course title: Introduction to Supply Chain Management Module 2
- 1.3 Abbreviated course title: Intro Supply Chain Mgt Mod 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 396-M1
- 1.7 Course description: Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods

- 3.2 Learning Outcomes:

Portions of the following:

- Build an understanding of the operations and supply chain strategy.
- Develop a knowledge base for communicating with operations and logistics personnel.
- Demonstrate both quantitative and qualitative analysis skills, especially those needed for managing supply chains systems.
- Build value stream maps, assess supply chain models and evaluate various operational activities.

3.3 Set-up and solve working problems from manufacturing and service supply chain systems

3.4 Content outline:

Portions of the following:

- Fundamentals of operations
- Supply chain management practice
- Systematic design, direction, and control of
- The internal production and external supply chain processes
- Methods and techniques for analysis, forecasting, inventory control, scheduling, and facilities planning

3.5 Student expectations and requirements:

- Assigned readings
- Discussion
- Value stream maps
- Assigned problems
- Quizzes
- Exams

3.6 Tentative texts and course materials: Iyer, A. V., Seshadri, S., & Vasher, R. (2009). Toyota supply chain management: A strategic approach to the principles of Toyota's renowned system. New York: McGraw-Hill. ISBN 978-007-161549-5

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

2/7/14

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 396-M3
- 1.2 Course title: Introduction to Supply Chain Management Module 3
- 1.3 Abbreviated course title: Intro Supply Chain Mgt Mod 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 396-M2
- 1.7 Course description: Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:

Portions of the following:

- Build an understanding of the operations and supply chain strategy.
- Develop a knowledge base for communicating with operations and logistics personnel.
- Demonstrate both quantitative and qualitative analysis skills, especially those needed for managing supply chains systems.
- Build value stream maps, assess supply chain models and evaluate various operational activities.
- Set-up and solve working problems from manufacturing and service supply chain systems

3.3 Content outline:

Portions of the following:

- Fundamentals of operations
- Supply chain management practice
- Systematic design, direction, and control of
- The internal production and external supply chain processes
- Methods and techniques for analysis, forecasting, inventory control, scheduling, and facilities planning

3.4 Student expectations and requirements:

- Assigned readings
- Discussion
- Value stream maps
- Assigned problems
- Quizzes
- Exams

3.5 Tentative texts and course materials: Iyer, A. V., Seshadri, S., & Vasher, R. (2009). Toyota supply chain management: A strategic approach to the principles of Toyota's renowned system. New York: McGraw-Hill. ISBN 978-007-161549-5

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

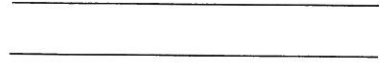
Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

2/7/14

University Senate





Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 430-M1
- 1.2 Course title: Technology Management/Team Building Module 1
- 1.3 Abbreviated course title: Tech Mgt/Team Building Mod 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: Junior standing
- 1.7 Course description: This course will provide an introduction to the fundamentals of industrial supervision. Students will develop the skills, knowledge, and philosophies required to function in a highly technical, industrial environment in a supervisory capacity. Content includes a study of leadership, management, management-labor relations, supervisory intuition, and various legal issues.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Develop individual leadership abilities for the supervisor
  - Develop communication skills for the supervisor
  - Develop motivational skills for the supervisor
  - Develop management skills in planning, organization, and controlling

- Explore typical problems faced by supervisor, such as performance appraisals, worker complaints, and discipline

### 3.3 Content outline:

Portions of the following:

- Using a team building model of your choosing (from assigned texts or otherwise), explain and apply the selected model in the context of a past personal team development experience
- In your opinion, identify the greatest obstacle to team success. Clearly explain and defend your selection using appropriate supporting research and personal experience. Please offer at least one well-supported suggestion for overcoming the selected obstacle.
- Identify one movie you believe well represents a case for the importance of team building. Provide a summary of the movie selected and then support your selection with research, class texts, discussion, and personal application.
- Identify a team building model separate from those covered in the assigned texts. Share and explain the model, then present your analysis of the strengths or weaknesses of the model.
- Identify one example of the importance or application of team building in scripture. Provide the example and a well-researched discussion of how team building applies in the given context. You may use the bible version of your choosing.
- Identify a current event you believe well represents a case for the importance of team building. Research and explain the event, then defend your selection using application of the team development models discussed in class or in the texts.

### 3.4 Student expectations and requirements:

- Term paper
- Online interaction
- Mid-term exam
- Final exam

Tentative texts and course materials: Quality and Performance Excellence by James R. Evans, 7th edition, 2014. South-Western Cengage Learning. ISBN-13: 9781133955931(The book is also available as an e-book through CourseSmart)

### 3.5

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty

- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 430-M2
- 1.2 Course title: Technology Management/Team Building Module 2
- 1.3 Abbreviated course title: Tech Mgt/Team Building Mod 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: Junior standing
- 1.7 Course description: This course will provide an introduction to the fundamentals of industrial supervision. Students will develop the skills, knowledge, and philosophies required to function in a highly technical, industrial environment in a supervisory capacity. Content includes a study of leadership, management, management-labor relations, supervisory intuition, and various legal issues.

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**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:  
Portions of the following:
  - Develop individual leadership abilities for the supervisor
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- Identify one movie you believe well represents a case for the importance of team building. Provide a summary of the movie selected and then support your selection with research, class texts, discussion, and personal application.
- Identify a team building model separate from those covered in the assigned texts. Share and explain the model, then present your analysis of the strengths or weaknesses of the model.
- Identify one example of the importance or application of team building in scripture. Provide the example and a well-researched discussion of how team building applies in the given context. You may use the bible version of your choosing.
- Identify a current event you believe well represents a case for the importance of team building. Research and explain the event, then defend your selection using application of the team development models discussed in class or in the texts.

### 3.4 Student expectations and requirements:

- Term paper
- Online interaction
- Mid-term exam
- Final exam

Tentative texts and course materials: Quality and Performance Excellence by James R. Evans, 7th edition, 2014. South-Western Cengage Learning. ISBN-13: 9781133955931(The book is also available as an e-book through CourseSmart)

### 3.5

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty

- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 430-M3
- 1.2 Course title: Technology Management/Team Building Module 3
- 1.3 Abbreviated course title: Tech Mgt/Team Building Mod 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: Junior standing
- 1.7 Course description: This course will provide an introduction to the fundamentals of industrial supervision. Students will develop the skills, knowledge, and philosophies required to function in a highly technical, industrial environment in a supervisory capacity. Content includes a study of leadership, management, management-labor relations, supervisory intuition, and various legal issues.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods

3.2 Learning Outcomes:

Portions of the following:

- Develop individual leadership abilities for the supervisor
- Develop communication skills for the supervisor
- Develop motivational skills for the supervisor
- Develop management skills in planning, organization, and controlling

- Explore typical problems faced by supervisor, such as performance appraisals, worker complaints, and discipline

### 3.3 Content outline:

Portions of the following:

- Using a team building model of your choosing (from assigned texts or otherwise), explain and apply the selected model in the context of a past personal team development experience
- In your opinion, identify the greatest obstacle to team success. Clearly explain and defend your selection using appropriate supporting research and personal experience. Please offer at least one well-supported suggestion for overcoming the selected obstacle.
- Identify one movie you believe well represents a case for the importance of team building. Provide a summary of the movie selected and then support your selection with research, class texts, discussion, and personal application.
- Identify a team building model separate from those covered in the assigned texts. Share and explain the model, then present your analysis of the strengths or weaknesses of the model.
- Identify one example of the importance or application of team building in scripture. Provide the example and a well-researched discussion of how team building applies in the given context. You may use the bible version of your choosing.
- Identify a current event you believe well represents a case for the importance of team building. Research and explain the event, then defend your selection using application of the team development models discussed in class or in the texts.

### 3.4 Student expectations and requirements:

- Term paper
- Online interaction
- Mid-term exam
- Final exam

Tentative texts and course materials: Quality and Performance Excellence by James R. Evans, 7th edition, 2014. South-Western Cengage Learning. ISBN-13: 9781133955931(The book is also available as an e-book through CourseSmart)

### 3.5

## 4. Resources:

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

## 5. Budget implications:

- 5.1 Proposed method of staffing: Current faculty



- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14  
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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 490-M1
- 1.2 Course title: Senior Research Module 1
- 1.3 Abbreviated course title: Senior Research Module 1
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: Completion of a 9/10 cr. hr. specialty area in either Architectural or Manufacturing Sciences.
- 1.7 Course description: Students work on research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for local industry or architectural/construction firms.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: L—Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Develop problem solving skills in the area of their major field of study and emphasis option.
  - Gain research and analysis skills related to cost effective systems, products, designs, or projects.
  - Demonstrate technical writing and reporting skills as related to the proposal, progress reporting, project manual, and final deliverable product.

3.3 Content outline:

Portions of the following:

- Bid proposal (qnty takeoffs, labor, equipment, costs, overhead, profit, etc.)
- Construction schedule & update
- Cost tracking (using both 16 & 49 CSI division formats)
- Writing change orders and RFI's
- Ethical questions
- Record keeping of personal hours spent on AMS490 project

3.4 Student expectations and requirements:

- Weekly reports
- Monthly report
- Exam
- Participation
- Presentation
- Final report

3.5 Tentative texts and course materials: Allen, E. & Iano, J. (2007). The Architect's Studio Companion: Rules of Thumb for Preliminary Design, (4<sup>th</sup>ed.). New York: John Wiley & Sons.

Keeler, M. & Burke, B. (2009). Fundamentals Of Integrated Design For Sustainable Building. US Green Building Council.

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

2/7/14

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 490-M2
- 1.2 Course title: Senior Research Module 2
- 1.3 Abbreviated course title: Senior Research Module 2
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 490-M1
- 1.7 Course description: Students work on research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for local industry or architectural/construction firms.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: B—Lab: Experimental study in a setting equipped for testing and analysis.
- 3.2 Learning Outcomes:
  - Demonstrate successful project management skills from the development of the scope of work to the final deliverable product and all associated project documentation.
  - Demonstrate the ability to make effective presentations of solutions to selected problems and projects
- 3.3 Content outline:  
Portions of the following:
  - Bid proposal (qty takeoffs, labor, equipment, costs, overhead, profit, etc.)

- Construction schedule & update
- Cost tracking (using both 16 & 49 CSI division formats)
- Writing change orders and RFI's
- Ethical questions
- Record keeping of personal hours spent on AMS490 project

3.4 Student expectations and requirements:

- Weekly reports
- Monthly report
- Exam
- Participation
- Presentation
- Final report

3.5 Tentative texts and course materials: Allen, E. & Iano, J. (2007). *The Architect's Studio Companion: Rules of Thumb for Preliminary Design*, (4<sup>th</sup>ed.). New York: John Wiley & Sons.

Keeler, M. & Burke, B. (2009). *Fundamentals Of Integrated Design For Sustainable Building*. US Green Building Council.

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: Expendables covered by lab fees for course

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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Proposal Date: January 28, 2014

**Ogden College of Science and Engineering  
Architecture and Manufacturing Sciences  
Proposal to Create a New Course  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of proposed course:**

- 1.1 Course prefix (subject area) and number: AMS 490-M3
- 1.2 Course title: Senior Research Module 3
- 1.3 Abbreviated course title: Senior Research Module 3
- 1.4 Credit hours: 1 Variable credit: No
- 1.5 Grade type: Standard letter grade
- 1.6 Prerequisites: AMS 490-M2
- 1.7 Course description: Students work on research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for local industry or architectural/construction firms.

**2. Rationale:**

- 2.1 Reason for developing the proposed course: Supports the Kentucky Council on Postsecondary Education Commonwealth College's goal to enable a state-wide transfer program in the manufacturing field for site based individuals.
- 2.2 Projected enrollment in the proposed course: 15/20 per semester, based upon the projections/estimates from the council of postsecondary education
- 2.3 Relationship of the proposed course to courses now offered by the department: The existing 3-hour course, AMS 120, is being divided into three separate 1-hour modules, developed only for the Commonwealth College program. This modularization will not affect enrollment in courses currently offered.
- 2.4 Relationship of the proposed course to courses offered in other departments: None
- 2.5 Relationship of the proposed course to courses offered in other institutions: WKU will be the only college in Kentucky using 1-hour modular courses to offer the Advanced Manufacturing degree through the Commonwealth College.

**3. Discussion of proposed course:**

- 3.1 Schedule type: Lecture: Formal presentation of a subject; may include a variety of delivery methods
- 3.2 Learning Outcomes:
  - Apply manufacturing or technology management concepts and principles to real world situations from knowledge acquired through core and concentration courses of the program.
- 3.3 Content outline:  
Portions of the following:

- Bid proposal (qnty takeoffs, labor, equipment, costs, overhead, profit, etc.)
- Construction schedule & update
- Cost tracking (using both 16 & 49 CSI division formats)
- Writing change orders and RFI's
- Ethical questions
- Record keeping of personal hours spent on AMS490 project

3.4 Student expectations and requirements:

- Weekly reports
- Monthly report
- Exam
- Participation
- Presentation
- Final report

3.5 Tentative texts and course materials: Allen, E. & Iano, J. (2007). *The Architect's Studio Companion: Rules of Thumb for Preliminary Design*, (4<sup>th</sup>ed.). New York: John Wiley & Sons.

Keeler, M. & Burke, B. (2009). *Fundamentals Of Integrated Design For Sustainable Building*. US Green Building Council.

**4. Resources:**

- 4.1 Library resources: This course is already offered in a 3-credit hour format, so existing library resources are adequate.
- 4.2 Computer resources: This will be an online class. Computer resources will be the responsibility of individual enrolled.

**5. Budget implications:**

- 5.1 Proposed method of staffing: Current faculty
- 5.2 Special equipment needed: None
- 5.3 Expendable materials needed: None
- 5.4 Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Department: Architecture & Manufacturing Sciences

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

2/7/14



Proposal Date: February 6, 2014

**Ogden College of Science and Engineering  
Department of Architectural and Manufacturing Sciences  
Proposal to Create a New Certificate Program  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of program:**

- 1.1 Program title: Automation Certificate
- 1.2 Required hours in program: 12
- 1.3 Special information: This certificate program is intended for current and potential employees in manufacturing and/or industrial operations.
- 1.4 Catalog description: This certificate program provides an understanding of the skills of direction, definition, design, development/application, deployment, documentation and support of systems, software and equipment used in control systems, manufacturing information systems, systems integration and operational consulting as they apply to automation professionals. This 12-hour program consists of three required courses - AMS 328, 343, and 370 - and one elective course chosen from AMS 301, 342, 352, 356, 394, or 396. (Each course, except AMS 328 and AMS 301, is also offered on line as a sequence of three 1-hour modules.)
- 1.5 Classification of Instructional Program Code (CIP): 15.0613

**2. Objectives of the proposed certificate program:**

**Employers:** Manufacturers in South Central Kentucky will find the workers they need to prosper, grow, and remain competitive in the global marketplace.

**Individuals:** Workers in the region will gain the knowledge and skills required to be productive in the manufacturing jobs of today, but also the critical thinking and innovation skills to advance in the manufacturing careers of tomorrow.

**Systems/Accountability:** Education and workforce systems will align with employer requirements and make both efficient and effective use of resources to achieve improved outcomes for both manufacturers and workers.

**Communications:** Enhanced communication efforts will raise awareness of the value of manufacturing in the region and promote its high-wage career opportunities to potential workers.

**3. Rationale:**

- 3.1 Reason for developing the proposed certificate program: To support the Chamber of Commerce's Urgent Call to Action to Support Manufacturing by developing a collaborative action plan, driven by regional manufacturers, with strategies that align education and training provider outputs with employer needs.
- 3.2 Relationship of the proposed certificate program to other programs now offered by the department: The courses in this program represent a portion of the courses taken for a degree option concentrating in the automation area. The emphasis of this certificate program is very different from that of any of the other three proposed certificate programs.

- 3.3 Relationship of the proposed certificate program to certificate programs offered in other departments: There are no other certificate programs in any other departments dealing with the manufacturing field.
- 3.4 Projected enrollment in the proposed certificate program: 12-15 a semester, based upon the projections/estimates from the Bowling Green Chamber of Commerce
- 3.5 Similar certificate programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions): None
- 3.6 Relationship of the proposed certificate program to the university mission and objectives: The certificate program is consistent with WKU mission and objectives by creating new programs and strengthening its curriculum to improve the quality of life and economic well-being of the citizens of Kentucky.

**4. Curriculum:**

The following courses are required (9 hours):

AMS 328	Robotics and Machine Vision	3 hrs
AMS 343 OR (AMS 343-M1, AMS 343-M2, and AMS 343-M3)	Automated Systems	3 hrs
AMS 370 OR (AMS 370-M1, AMS 370-M2, and AMS 370-M3)	Computer Numeric Control	3 hrs

Select 3 hours from following list:

AMS 301	Intro to Food Science and Technology	3 hrs
AMS 342 OR (AMS 342-M1, AMS 342-M2, and AMS 343-M3)	Manufacturing Operations	3 hrs
AMS 352 OR (AMS 352-M1, AMS 352-M2, and AMS 352-M3)	Food Processing: Unit Operations	3 hrs
AMS 356 OR (AMS 356-M1, AMS 356-M2, and AMS 356-M3)	Systems Design and Operation	3 hrs
AMS 394 OR (AMS 394-M1, AMS 394-M2 and AMS 394-M3)	Lean Manufacturing	3 hrs
AMS 396 OR (AMS 396-M1, AMS 396-M2, and AMS 396-M3)	Intro to Supply Chain Management	3 hrs

**5. Budget implications:**

Proposed method of staffing: Current faculty

Special equipment needed: None

Expendable materials needed: None

Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Architectural and Manufacturing Sciences:

2/7/14

OCSE Curriculum Committee

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Contact with Office of Academic Affairs

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Professional Education Council (if applicable)

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Undergraduate Curriculum Committee

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University Senate

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Board of Regents

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Proposal Date: February 6, 2014

**Ogden College of Science and Engineering  
Department of Architectural and Manufacturing Sciences  
Proposal to Create a New Certificate Program  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of program:**

- 1.1 Program title: Manufacturing and Logistics Certificate
- 1.2 Required hours in program: 12
- 1.3 Special information: This certificate program is intended for current and potential employees in manufacturing and/or industrial operations.
- 1.4 Catalog description: This certificate program provides an understanding of the relationships between the process and product requirements of a manufacturing activity in order to analyze design and develop the concepts needed to assemble integrated systems. The focus is on distribution, warehousing and material handling. This 12-hour program consists of three required courses - AMS 356 394, and 396 - and one elective course chosen from AMS 163/205, 301, 310, 342, 352, 371, 390, or 430. (Each course, except AMS 163 and AMS 301, is also offered on line as a sequence of three 1-hour modules.)
- 1.5 Classification of Instructional Program Code (CIP): 15.0613

**2. Objectives of the proposed certificate program:**

**Employers:** Manufacturers in South Central Kentucky will find the workers they need to prosper, grow, and remain competitive in the global marketplace.

**Individuals:** Workers in the region will gain the knowledge and skills required to be productive in the manufacturing jobs of today, but also the critical thinking and innovation skills to advance in the manufacturing careers of tomorrow.

**Systems/Accountability:** Education and workforce systems will align with employer requirements and make both efficient and effective use of resources to achieve improved outcomes for both manufacturers and workers.

**Communications:** Enhanced communication efforts will raise awareness of the value of manufacturing in the region and promote its high-wage career opportunities to potential workers.

**3. Rationale:**

- 3.1 Reason for developing the proposed certificate program: To support the Chamber of Commerce's Urgent Call to Action to Support Manufacturing by developing a collaborative action plan, driven by regional manufacturers, with strategies that align education and training provider outputs with employer needs.
- 3.2 Relationship of the proposed certificate program to other programs now offered by the department: The courses in this program represent a portion of the courses taken for a degree option concentrating in the manufacturing and logistics area. The emphasis of this certificate program is very different from that of any of the other three proposed certificate programs.

- 3.3 Relationship of the proposed certificate program to certificate programs offered in other departments: There are no other certificate programs in any other departments dealing with the manufacturing field.
- 3.4 Projected enrollment in the proposed certificate program: 12-15 a semester, based upon the projections/estimates from the Bowling Green Chamber of Commerce
- 3.5 Similar certificate programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions): None
- 3.6 Relationship of the proposed certificate program to the university mission and objectives: The certificate program is consistent with WKU mission and objectives by creating new programs and strengthening its curriculum to improve the quality of life and economic well-being of the citizens of Kentucky.

**4. Curriculum:**

The following courses are required (9 hours):

AMS 356 OR (AMS 356-M1, AMS 356-M2, and AMS 356-M3)	Systems Design and Operation	3 hrs
AMS 394 OR (AMS 394-M1, AMS 394-M2, and AMS 394-M3)	Lean Manufacturing	3 hrs
AMS 396 OR (AMS 396-M1, AMS 396-M2, and AMS 396-M3)	Intro to Supply Chain Management	3 hrs

Select 3 hours from following list:

AMS 163/205 OR (AMS 205-M1, AMS 205-M2, and AMS 205-M3)	Architectural Drafting/CADD Manufact	3 hrs
AMS 301	Intro to Food science and Technology	3hrs
AMS 310 OR (AMS 310-M1, AMS 310-M2, and AMS 310-M3)	Work Design/Ergonomics	3 hrs
AMS 342 OR (AMS 342-M1, AMS 342-M2, and AMS 342-M3)	Manufacturing Operations	3 hrs
AMS 352 OR (AMS 352-M1, AMS 352-M2, and AMS 352-M3)	Food Processing: Unit Operations	3 hrs
AMS 371 OR (AMS 371-M1, AMS 371-M2, and AMS 371-M3)	Quality Assurance	3 hrs
AMS 390 OR (AMS 390-M1, AMS 390-M2, and AMS 390-M3)	Project Management	3 hrs
AMS 430 OR (AMS 430-M1, AMS 430-M2, and AMS 430-M3)	Technology Mgt/Sup/Team Bldg	3 hrs

**5. Budget implications:**

Proposed method of staffing: Current faculty  
 Special equipment needed: None  
 Expendable materials needed: None  
 Laboratory materials needed: None

6. **Proposed term for implementation: Fall 2014**

7. **Dates of prior committee approvals:**

Architectural and Manufacturing Sciences:

2/7/14

OCSE Curriculum Committee

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Contact with Office of Academic Affairs

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Professional Education Council (if applicable)

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Undergraduate Curriculum Committee

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University Senate

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Board of Regents

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Proposal Date: February 6, 2014

**Ogden College of Science and Engineering  
Department of Architectural and Manufacturing Sciences  
Proposal to Create a New Certificate Program  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of program:**

- 1.1 Program title: Manufacturing Processing and Technology Certificate
- 1.2 Required hours in program: 12
- 1.3 Special information: This certificate program is intended for current and potential employees in manufacturing and/or industrial operations.
- 1.4 Catalog description: This certificate program prepares individuals to apply manufacturing processing and technology skills in support of industrial operations. It focuses on the requirements and selection criteria for the integration of technology into simple and complex industrial activities. The 12-hour program consists of three required courses - AMS 342, 371, and 396 - and one elective course chosen from AMS 217, 227, 271, 301, 343, 352, 356, 370, or AGMC 371 & 372. (Each course, except AMS 271, AMS 301 and AGMC 371 & 372 is also offered on line as a sequence of three 1-hour modules.)
- 1.5 Classification of Instructional Program Code (CIP): 15.0613

**2. Objectives of the proposed certificate program:**

**Employers:** Manufacturers in South Central Kentucky will find the workers they need to prosper, grow, and remain competitive in the global marketplace.

**Individuals:** Workers in the region will gain the knowledge and skills required to be productive in the manufacturing jobs of today, but also the critical thinking and innovation skills to advance in the manufacturing careers of tomorrow.

**Systems/Accountability:** Education and workforce systems will align with employer requirements and make both efficient and effective use of resources to achieve improved outcomes for both manufacturers and workers.

**Communications:** Enhanced communication efforts will raise awareness of the value of manufacturing in the region and promote its high-wage career opportunities to potential workers.

**3. Rationale:**

- 3.1 Reason for developing the proposed certificate program: To support the Chamber of Commerce's Urgent Call to Action to Support Manufacturing by developing a collaborative action plan, driven by regional manufacturers, with strategies that align education and training provider outputs with employer needs.
- 3.2 Relationship of the proposed certificate program to other programs now offered by the department: The courses in this program represent a portion of the courses taken for a degree option concentrating in the manufacturing processing and technology area. The emphasis of this certificate program is very different from that of any of the other three proposed certificate programs.
- 3.3 Relationship of the proposed certificate program to certificate programs offered in other departments: There are no other certificate programs in any other departments dealing with the manufacturing field.

- 3.4 Projected enrollment in the proposed certificate program: 12-15 a semester, based upon the projections/estimates from the Bowling Green Chamber of Commerce
- 3.5 Similar certificate programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions): None
- 3.6 Relationship of the proposed certificate program to the university mission and objectives: The certificate program is consistent with WKU mission and objectives by creating new programs and strengthening its curriculum to improve the quality of life and economic well-being of the citizens of Kentucky.

**4. Curriculum:**

The following courses are required (9 hours):

AMS 342 OR (AMS 342-M1, AMS 342-M2, and AMS 342-M3)	Manufacturing Operations	3 hrs
AMS 371 OR (AMS 371-M1, AMS 371-M2, and AMS 371-M3)	Quality Assurance	3 hrs
AMS 396 OR (AMS 396-M1, AMS 396-M2, and AMS 396-M3)	Intro to Supply Chain Management	3 hrs

Select 3 hours from following list:

AMS 217 OR (AMS 217-M1, AMS 217-M2, and AMS 217-M3)	Industrial Materials	3 hrs
AMS 227 OR (AMS 227-M1, AMS 227-M2, and AMS 227-M3)	Manufacturing Methods	3 hrs
AMS 271	Industrial Statistics	3 hrs
AMS 301	Intro to Food Science and Technology	3 hrs
AMS 343 OR (AMS 343-M1, AMS 343-M2, and AMS 343-M3)	Automated Systems	3 hrs
AMS 352 OR (AMS 352-M1, AMS 352-M2, and AMS 352-M3)	Food Processing: Unit Operations	3 hrs
AMS 356 OR (AMS 356-M1, AMS 356-M2, and AMS 356-M3)	Systems Design and Operation	3 hrs
AMS 370 OR (AMS 370-M1, AMS 370-M2, and AMS 370-M3)	Computer Numeric Control	3 hrs
AGMC 371/372	Agricultural Mechanics/ Lab	2/1hr

**5. Budget implications:**

Proposed method of staffing: Current faculty

Special equipment needed: None

Expendable materials needed: None

Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**



Architectural and Manufacturing Sciences:

2/7/14

OCSE Curriculum Committee

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Contact with Office of Academic Affairs

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Professional Education Council (if applicable)

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Undergraduate Curriculum Committee

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University Senate

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Board of Regents

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Proposal Date: February 6, 2014

**Ogden College of Science and Engineering  
Department of Architectural and Manufacturing Sciences  
Proposal to Create a New Certificate Program  
(Action Item)**

Contact Person: Bryan Reaka [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu) 270-745-7032

**1. Identification of program:**

- 1.1 Program title: Six Sigma and Quality Certificate
- 1.2 Required hours in program: 12
- 1.3 Special information: This certificate program is intended for current and potential employees in manufacturing and/or industrial operations.
- 1.4 Catalog description: Six sigma lean principles for quality assurance have been applied successfully in business, engineering, health services, sciences, education and media. Industry offers substantial compensation to six sigma certificate holders. This 12-hour program consists of three required courses – AMS 271, 371, and 394, and one elective course chosen from AMS 227, 310, 342, 352, 356, 390, 396, and 430. (Each course, except AMS 271 is also offered online as a sequence of 3-hour modules.)
- 1.5 Classification of Instructional Program Code (CIP): 15.0613

**2. Objectives of the proposed certificate program:**

**Employers:** Manufacturers in South Central Kentucky will find the workers they need to prosper, grow, and remain competitive in the global marketplace.

**Individuals:** Workers in the region will gain the knowledge and skills required to be productive in the manufacturing jobs of today, but also the critical thinking and innovation skills to advance in the manufacturing careers of tomorrow.

**Systems/Accountability:** Education and workforce systems will align with employer requirements and make both efficient and effective use of resources to achieve improved outcomes for both manufacturers and workers.

**Communications:** Enhanced communication efforts will raise awareness of the value of manufacturing in the region and promote its high-wage career opportunities to potential workers.

**3. Rationale:**

- 3.1 Reason for developing the proposed certificate program: To support the Chamber of Commerce's Urgent Call to Action to Support Manufacturing by developing a collaborative action plan, driven by regional manufacturers, with strategies that align education and training provider outputs with employer needs.
- 3.2 Relationship of the proposed certificate program to other programs now offered by the department: The courses in the program represent a portion of the courses you would take for a degree option concentrating in the six sigma and quality area. The emphasis of this certificate program is very different from that of any of the other three proposed certificate programs.

- 3.3 Relationship of the proposed certificate program to certificate programs offered in other departments: There are no other certificate programs in any other departments dealing with the manufacturing field.
- 3.4 Projected enrollment in the proposed certificate program: 12-15 a semester, based upon the projections/estimates from the Bowling Green Chamber of Commerce
- 3.5 Similar certificate programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions): None
- 3.6 Relationship of the proposed certificate program to the university mission and objectives: The certificate program is consistent with WKU mission and objectives by creating new programs and strengthening its curriculum to improve the quality of life and economic well-being of the citizens of Kentucky.

**4. Curriculum:**

The following courses are required (9 hours):

AMS 271	Industrial Statistics	3 hrs
AMS 371OR (AMS 371-M1, AMS 371-M2, and AMS 371-M3)	Quality Assurance	3 hrs
AMS 394 OR (AMS 394-M1, AMS 394-M2, and AMS 394-M3)	Lean Manufacturing	3 hrs

Select 3 hours from following list:

AMS 227 OR (AMS 227-M1, AMS 227-M2, and AMS 227-M3)	Manufacturing Methods	3 hrs
AMS 310 OR (AMS 310-M1, AMS 310-M2, and AMS 310-M3)	Work Design/Ergonomics	3 hrs
AMS 342 OR (AMS 342-M1, AMS 342-M2, and AMS 342-M3)	Manufacturing Operations	3 hrs
AMS 352 OR (AMS 352-M1, AMS 352-M2, and AMS 352-M3)	Food Processing: Unit Operations	3 hrs
AMS 356 OR (AMS 356-M1, AMS 356-M2, and AMS 356-M3)	Systems Design and Operation	3 hrs
AMS 390 OR (AMS 390-M1, AMS 390-M2, and AMS 390-M3)	Project Management	3 hrs
AMS 396 OR (AMS 396-M1, AMS 396-M2, and AMS 396-M3)	Intro to Supply Chain Management	3 hrs
AMS 430OR (AMS 430-M1, AMS 430-M2, and AMS 430-M3)	Technology Mgt/Sup/Team Bldg	3 hrs

**5. Budget implications:**

Proposed method of staffing: Current faculty

Special equipment needed: None

Expendable materials needed: None

Laboratory materials needed: None

**6. Proposed term for implementation: Fall 2014**

**7. Dates of prior committee approvals:**

Architectural and Manufacturing Sciences:

2/7/14

OCSE Curriculum Committee

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Contact with Office of Academic Affairs

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Professional Education Council (if applicable)

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Undergraduate Curriculum Committee

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University Senate

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Board of Regents

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Proposal Date:02/21/2014

**Ogden College  
AMS Department  
Proposal to Revise a Program  
(Action Item)**

Contact Person: Neal Downing; [neal.downing@wku.edu](mailto:neal.downing@wku.edu); 745-6302

**1. Identification of program:**

- 1.1 Current program reference number: 518
- 1.2 Current program title: Architectural Sciences
- 1.3 Credit hours: 120

**2. Identification of the proposed program changes:**

Remove AMS 463: Architectural Documentation III and add AMS 351: Building Information Modeling as a required course; AMS 463 will become an advisor approved elective.

**3. Detailed program description:**

Please see attached

**(Side-by-side table is required for most program changes showing revised program on the right and identifying deletions by strike-through and additions in boldface.)**

**4. Rationale for the proposed program change:**

Evolution of the design and delineation process of Buildings for construction as well as input from Industry indicates the necessity for students to become aware and understand the applications of the Building Information Modeling (BIM) system.

**5. Proposed term for implementation and special provisions (if applicable):**

201430

**6. Dates of prior committee approvals:**

AMS Department

02/21/2014

Ogden College Curriculum Committee

2/7/14

Professional Education Council (if applicable)

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Undergraduate Curriculum Committee

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University Senate

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**ARCHITECTURAL SCIENCE: CURRENT 75 hrs**

Major Courses		
AMS 140	Intro to Occupational Safety	1 hr
AMS 151	Architectural Graphics	3 hrs
AMS 163	Architectural Drafting	3 hrs
AMS 251	3D Modeling & Imaging	3 hrs
AMS 261	Construction Methods & Materials	3 hrs
AMS 262	Construction Methods & Materials Lab	1 hr
AMS 263	Architecture Documentation I	3 hrs
AMS 273	Architectural Detailing	3 hrs
AMS 282	Architectural Structures	3 hrs
AMS 305	Building Codes	3 hrs
AMS 325	Survey of Building Systems	3 hrs
AMS 363	Architecture Documentation II	3 hrs
AMS 369	Architectural Design Studio I	4 hrs
AMS 371	Quality Assurance	3 hrs
AMS 390	Project Management	3 hrs
AMS 398	Internship I	1 hr
AMS 430	Tech Mgmt/Supervision/Team Building	3 hrs
<del>AMS 463</del>	<del>Architecture Documentation III</del>	<del>3 hrs</del>
AMS 469	Architectural Design Studio II	4 hrs
AMS 488	Comprehensive Design	3 hrs
AMS 490	Senior Research	3 hrs
CE 303	Construction Management	3 hrs
CE 304	Construction Management Lab	1 hr
ENG 306 or ENG 307	Business Writing or Technical Writing	3 hrs
	Management Elective Advisor Approved	3 hrs
	Architectural Science Electives Advisor Approved	6 hrs

**ARCHITECTURAL SCIENCE: PROPOSED 75 hrs**

Major Courses		
AMS 140	Intro to Occupational Safety	1 hr
AMS 151	Architectural Graphics	3 hrs
AMS 163	Architectural Drafting	3 hrs
AMS 251	3D Modeling & Imaging	3 hrs
AMS 261	Construction Methods & Materials	3 hrs
AMS 262	Construction Methods & Materials Lab	1 hr
AMS 263	Architecture Documentation I	3 hrs
AMS 273	Architectural Detailing	3 hrs
AMS 282	Architectural Structures	3 hrs
AMS 305	Building Codes	3 hrs
AMS 325	Survey of Building Systems	3 hrs
AMS 351	<b>Building Information Modeling</b>	<b>3 hrs</b>
AMS 363	Architecture Documentation II	3 hrs
AMS 369	Architectural Design Studio I	4 hrs
AMS 371	Quality Assurance	3 hrs
AMS 390	Project Management	3 hrs
AMS 398	Internship I	1 hr
AMS 430	Tech Mgmt/Supervision/Team Building	3 hrs
AMS 469	Architectural Design Studio II	4 hrs
AMS 488	Comprehensive Design	3 hrs
AMS 490	Senior Research	3 hrs
CE 303	Construction Management	3 hrs
CE 304	Construction Management Lab	1 hr
ENG 306 or ENG 307	Business Writing or Technical Writing	3 hrs
	Management Elective Advisor Approved	3 hrs
	Architectural Science Electives Advisor Approved	6 hrs

**BS Degree Total Hours: 120 hrs**

*See reverse for eight semester schedule layout*

Architectural Science is a bridge between design theory and construction practice. Architectural Technologists perform a variety of important functions in many areas of the architectural and building construction fields, and are widely recognized by professionals in the construction industry. Graduates find employment as drafters, designers, construction planners, estimators, inspectors, technical sales representatives, and in many other exciting areas



**Ogden College Science and Engineering  
Chemistry  
Proposal to Revise A Program  
(Action Item)**

Contact Person: Hemali Rathnayake, [Hemali.rathnayake@wku.edu](mailto:Hemali.rathnayake@wku.edu), 270-745-6238

**1. Identification of program:**

- 1.1 Current program reference number: 335
- 1.2 Current program title: Minor in Chemistry
- 1.3 Credit hours: 18/21

**2. Identification of the proposed program changes:**

- Require at least one upper division laboratory-based course in residence at the main WKU campus

**3. Detailed program description:**

<b>Current program</b>	<b>Proposed program</b>
<u>Required courses (18/21 hrs.)</u> CHEM 120/121 CHEM 222/223 CHEM 330 and courses numbered above 300 to make a total of at least 18 semester hours.  Note: At least nine semester hours must be earned in courses numbered 300 and above.	<u>Required courses (18/21 hrs.)</u> CHEM 120/121 CHEM 222/223 CHEM 330 and courses numbered above 300 to make a total of at least 18 semester hours.  Note: At least nine semester hours must be earned in courses numbered 300 and above. <b>At least one upper division laboratory-based course must be taken in residence at the main WKU campus.</b>

**4. Rationale for the proposed program change:**

- At least one upper division laboratory course experience is proposed as required, emphasizing the importance of developing hands on experience, with practical aspects of chemistry. Chemistry requires integration in laboratory skills and experience in addition to lecture-based coursework. With an increase of transfer credits at all levels, the department has determined that it is vital for the integrity of the minor to require students to take an upper division laboratory-based chemistry course at the main WKU campus.

Chemistry, at this level relies heavily on modern instrumentation, which is not routinely available at institutions offering chemistry programs that are not ACS certified.

5. **Proposed term for implementation and special provisions (if applicable):** Fall 2014

6. **Dates of prior committee approvals:**

Department of Chemistry

3/5/14

Ogden College Curriculum Committee

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Professional Education Council (if applicable)

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Undergraduate Curriculum Committee

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University Senate

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Proposal Date: 12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Make Multiple Revisions to a Course  
(Action Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

1. **Identification of course:**
  - 1.1 Current course prefix (subject area) and number: GEOG 419
  - 1.2 Course title: GIS Programming
  
2. **Revise course prerequisites:**
  - 2.1 **Current prerequisites:** CS 170 and GEOG 317
  - 2.2 **Proposed prerequisites:** CS 170, and GEOG 317 with a grade of “C” or higher; or permission of instructor.
  - 2.3 **Rationale for revision of course prerequisites:** GEOG 419 covers more advanced topics that require students to have a solid understanding of the basic GIS concepts discussed in GEOG 317. A grade of C or better ensures that students have the requisite GIS knowledge.
  - 2.4 Effect on completion of major/minor sequence: **None**
  
3. **Revise course catalog listing:**
  - 3.1 **Current course catalog listing:** Planning and implementing GIS within an organization. Designing and developing GIS applications to support spatial decision making. Course fee.
  - 3.2 **Proposed course catalog listing:** Learning the process of expanding GIS functionalities. Customizing a GIS system via computer programming.
  - 3.3 **Rationale for revision of course catalog listing:** The current GIS industry focuses more on developing customized GIS functions via computer programming. We have modified the course content to meet the new requirements of the GIS industry. The course covers a number of techniques and methods that GIS analysts use to develop customized GIS functionalities for solving real-world problems.
  
4. **Proposed term for implementation:** Fall 2014
  
5. **Dates of prior committee approvals:**

Department of Geography and Geology

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

12/13/2013

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Proposal Date: 12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Make Multiple Revisions to a Course  
(Action Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

- 1. Identification of course:**
  - 1.1 Current course prefix (subject area) and number: GEOG 423
  - 1.2 Course title: Transport, Location and GIS
  
- 2. Revise course prerequisites:**
  - 2.1 **Current prerequisites:** GEOG 350 or permission of instructor
  - 2.2 **Proposed prerequisites:** GEOG 317 with a grade of “C” or higher; or permission of instructor.
  - 2.3 **Rationale for revision of course prerequisites:** The content of GEOG 423 has changed from transportation planning practices to the applications of GIS techniques in solving selected transport and urban problems. Students must learn basic GIS skills in GEOG 317 before taking GEOG 423.
  - 2.4 Effect on completion of major/minor sequence: **None**
  
- 3. Revise course catalog listing:**
  - 3.1 **Current course catalog listing:** A critical examination of the problems of interaction, diffusion, and information transfer as they appear in a spatial context. Current research and planning needs are analyzed.
  - 3.2 **Proposed course catalog listing:** Explores selected issues related to urban applications of GIS. Develop analytical skills and knowledge in transportation, urban management, locational analysis, and business geography.
  - 3.3 **Rationale for revision of course catalog listing:** The content of GEOG 423 has changed from transportation planning practices to the applications of GIS techniques in solving selected transport and urban programs.
  
- 4. Proposed term for implementation:** Fall 2014
  
- 5. Dates of prior committee approvals:**

Department of Geography and Geology

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

12/13/2013

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Proposal Date: 12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Make Multiple Revisions to a Course  
(Action Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

**1. Identification of course:**

- 1.1 Current course prefix (subject area) and number: GEOG 443
- 1.2 Course title: GIS Databases

**2. Revise course prerequisites:**

- 2.1 **Current prerequisites:** CS 146 and GEOG 417, or instructor permission.
- 2.2 **Proposed prerequisites:** CS 170, and GEOG 417 with a grade of "C" or higher; or permission of instructor.
- 2.3 **Rationale for revision of course prerequisites:** GEOG 443 covers more advanced topics that require students to have a solid grasp of the topics covered in GEOG 417. Students have a higher rate of success in GEOG 443 if they have a grade of "C" or better in GEOG 417.
- 2.4 Effect on completion of major/minor sequence: **None**

**3. Revise course catalog listing:**

- 3.1 **Current course catalog listing:** An introduction to the concepts and principles of GIS database planning, design, implementation, and administration. Focuses on state-of-the art GIS database software and spatial database engine software used in conjunction with relational database management systems. Course Fee.
- 3.2 **Proposed course catalog listing:** The concepts and principles of GIS database planning, design, implementation, and administration. Focuses on the development of state-of-the art GIS databases.
- 3.3 **Rationale for revision of course catalog listing:** The new description is more concise and describes better the course content.

**4. Proposed term for implementation:** Fall 2014

**5. Dates of prior committee approvals:**

Department of Geography and Geology

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

12/13/2013

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Proposal Date: 12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Make Multiple Revisions to a Course  
(Action Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

**1. Identification of course:**

- 1.1 Current course prefix (subject area) and number: GEOG 477
- 1.2 Course title: Special Topics in GIS

**2. Revise course prerequisites:**

- 2.1 **Current prerequisites:** GEOG 417 and GEOG 419
- 2.2 **Proposed prerequisites:** GEOG 417 and GEOG 443 with a grade of “C” or higher; or permission of instructor.
- 2.3 **Rationale for revision of course prerequisites:** The content of GEOG 417 and GEOG 443 has changed and become more specialized. Skills learned in GEOG 419 are not necessary any more as a prerequisite for this course. In addition, students have a higher rate of success in GEOG 477 if they have a grade of “C” or better in GEOG 417 and GEOG 443.
- 2.4 Effect on completion of major/minor sequence: **None**

**3. Revise course catalog listing:**

- 3.1 **Current course catalog listing:** Applications of Geographic Information Systems (GIS) technologies in selected fields, including urban & regional planning, environmental modeling, geology, transportation, locational analysis, criminology, public health, and internet GIS. Repeatable once for credit.
- 3.2 **Proposed course catalog listing:** Applications of GIS technologies in selected technical areas such as 3D GIS and Enterprise GIS, or directed research of a elected domain-specific problem. Repeatable once for credit.
- 3.3 **Rationale for revision of course catalog listing:** The new description describes better the course content.

**4. Proposed term for implementation: Fall 2014**

**5. Dates of prior committee approvals:**

Department of Geography and Geology

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

12/13/2013

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Proposal Date: February 25, 2014

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Make Multiple Revisions to a Course  
(Action Item)**

Contact Person: Leslie North, 5-5982, leslie.north@wku.edu

- 1. Identification of course:**
  - 1.1 Current course prefix (subject area) and number: GEOG 485
  - 1.2 Course title: Population and Resources
  
- 2. Revise course title:**
  - 2.1 Current course title: Population and Resources
  - 2.2 Proposed course title: Society, Resources, and Climate
  - 2.3 Proposed abbreviated title: Society, Resources, Climate
  - 2.4 Rationale for revision of course title: The proposed title reflects a focus on the reshaping of societies by resource and global climate change, and better fits the environmental sequence of courses in the geography major.
  
- 3. Revise course number:**
  - 3.1 Current course number: GEOG 485
  - 3.2 Proposed course number: GEOG 385
  - 3.3 Rationale for revision of course number: The change in course number is part of a department-wide initiative to sequence more effectively course content and learning expectations for juniors and seniors.
  
- 4. Revise course prerequisites:**
  - 4.1 Current prerequisites: None
  - 4.2 Proposed prerequisites: GEOG 110 and GEOG 280
  - 4.3 Rationale for revision of course prerequisites: These prerequisite courses provide the foundational content necessary for success in GEOG 385
  - 4.4 Effect on completion of major/minor sequence: None. The prerequisites are required in the major program.
  
- 5. Revise course catalog listing:**
  - 5.1 Current course catalog listing: The distribution of population and population characteristics are viewed against the background of the resources and cultures of the world.
  - 5.2 Proposed course catalog listing: Discussion of global climate change from a societal and resource perspective. A basic understanding of global climate change and how humans affect such change by studying characteristics such as population size, natural resources, policy, personal behavior, and societal choices.
  - 5.3 Rationale for revision of course catalog listing: This course listing more accurately describes the content.

6. **Proposed term for implementation: Fall 2014**

7. **Dates of prior committee approvals:**

Department of Geography and Geology  
Ogden College Curriculum Committee  
Undergraduate Curriculum Committee  
University Senate

2/28/2014

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Proposal Date: 12/13/2013

**Ogden College of Science and Engineering  
Department of Geography and Geology  
Proposal to Make Multiple Revisions to a Course  
(Action Item)**

Contact Person: Jun Yan, jun.yan@wku.edu, 270-7458952

**1. Identification of course:**

- 1.1 Current course prefix (subject area) and number: GEOG 492
- 1.2 Course title: Advanced Spatial Analysis

**2. Revise course prerequisites:**

- 2.1 **Current prerequisites:** GEOG 300, GEOG 391, and GEOG 417
- 2.2 **Proposed prerequisites:** GEOG 300, and GEOG 391 with a grade of “C” or better; or permission of instructor.
- 2.3 **Rationale for revision of course prerequisites:** GEOG 391 has a new prerequisite of GEOG 316, which prepares student with basic GIS skills for GEOG 492. In addition, students have a higher rate of success in GEOG 492 if they have a grade of “C” or better in GEOG 391.
- 2.4 Effect on completion of major/minor sequence: **None**

**3. Revise course catalog listing:**

- 3.1 **Current course catalog listing:** History and philosophy of spatial analysis. Applications of advanced spatial analytical techniques in an interactive GIS-based environment.
- 3.2 **Proposed course catalog listing:** Applying advanced spatial analytical techniques in GIS environment. Quantitative analysis in Geosciences is emphasized.
- 3.3 **Rationale for revision of course catalog listing:** The new description describes better the course content.

**4. Proposed term for implementation:** Fall 2014

**5. Dates of prior committee approvals:**

Department of Geography and Geology

OCSE Curriculum Committee

Undergraduate Curriculum Committee

University Senate

12/13/2013

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