Wilkes University Curriculum Committee

PROPOSAL SUBMITTAL FORM

Directions:
- Use this set of forms for all proposals sent to the Curriculum Committee.
- Pages 1-3 of this document are required. Any unnecessary forms should be deleted from the packet before submissions. If multiple forms are needed (course addition, course deletion, etc), simply copy and paste additional forms into this packet.
- Note that all new programs (majors and minors), program eliminations, significant program revisions and all general education core revisions must be reviewed and approved by the Provost and Academic Planning Committee (APC) prior to submission to the Curriculum Committee. The Provost will make the decision if a program revision requires APC review.
- Completed and signed forms are due no later than the second Tuesday of every month. Submit one signed original hard copy and a scanned electronic copy with all signatures to the Chair of the Curriculum Committee.

1. Originator: Edward T. Bednarz III, Ph.D.
   Associate Professor
   Department of Mechanical Engineering and Engineering Management
   (570)408-7913 / Edward.Bednarz@Wilkes.edu

2. Proposal Title: Change EGM Undergraduate Topic Courses to Permanent Courses

3. Check only one type of proposal: (double click on the appropriate check box and change default value to “checked”).
   - [ ] New Program. (Major or Minor Degree Programs). This requires prior review and approval by the Provost and APC.
   - [ ] Elimination of Program. (Major or Minor Degree Programs). This requires prior review and approval by the Provost and APC.
   - [ ] Program Revision. Significant revisions to a program require review and approval by the Provost. The Provost determines if review and approval by APC is necessary.
   - [ ] General Education Revision. Submissions only accepted from the General Education Committee (GEC). Must be reviewed and approved by the Provost.
   - [ ] Creation of new departments, elimination of existing department. This requires prior review and approval by the Provost and APC.
   - [X] Course additions or deletions not affecting programs (such as elective courses, transition of “topics” courses to permanent courses).
   - [ ] Change in course credit or classroom hours.
   - [ ] Incidental Changes. Includes changes in course/program title, course descriptions, and course prerequisites. (Although these changes do require approval by the Curriculum Committee, they do not go before the full faculty for approval).
   - [ ] Other (Specify)
4. Indicate the number of course modification forms that apply to this proposal:

___ 4  Course Addition Form (plus syllabi)
       Course Deletion Form
       Course Change Form

5. Executive Summary of Proposal.

Briefly summarize this proposal. The breadth and depth of this executive summary should reflect the complexity and significance of the proposal. Include an overview of the proposal, background and reasoning behind the proposal and a description of how the proposal relates to the mission and strategic long-range plan of the unit and/or university. For incidental changes a one or two sentence explanation is adequate.

Four topic courses will be changed to permanent courses. These four courses: EGM 310, EGM 315, EGM 322 and EGM 325, are summarized in the paragraphs below, and are intended to serve as technical electives for undergraduate engineering students. The courses have run successfully three times under EGM 398 Special Topics and are planned to transition to permanent course numbers listed above. It is envisioned that the courses will be used as technical electives for students with engineering management majors as well as students in various engineering disciplines selecting engineering management as a minor.

6. Other specific information. (Not applicable for incidental changes.)

What other programs, if any, will be affected by this proposal? Describe what resources are available for this proposal. Are they adequate? What would be the effect on the curriculum of all potentially affected programs if this proposal were adopted? Include any potential effects to the curriculum of current programs, departments and courses.

The proposed courses would be taken by engineering juniors and seniors as advanced technical electives. The courses have successfully run three times with enrollments up to 20 students. Both the Engineering Management major and minor curricula require technical electives, and these courses described below provide depth to the subject matter for undergraduate engineers.

EGM 310, Engineering Project Decision Processes, would be taken by engineering juniors and seniors as an advanced technical elective. This course provides depth to the subject of project decisions based on economic guidelines for engineers, including in-depth time-value-money processes especially those interested in economic decisions for projects within their educational discipline. Typically this will be a fall semester course.

EGM 315, Quality Processes for Design and Production, would be taken by engineering juniors and seniors as an advanced technical elective. This course provides students with critical topics relating to Quality Assurance systems and processes directly related to engineering functions. Topics range from voice of the customer to the history and application of TQM. This typically will be a spring and/or summer course.

EGM 322, Operations Analysis and Resource Allocation, would be taken by engineering juniors and seniors as an advanced technical elective. This course provides depth to the subject of the role of engineering design and analysis in manufacturing and service operations and resource
allocation. This course will prepare a design engineer to better support both manufacturing and service sector operations in subjects such as forecasting, line-balancing and queueing theory applications in manufacturing and service sectors. This is typically a fall semester course.

EGM 325, Project Analysis and Resource Allocation, would be taken by engineering juniors and seniors as an advanced technical elective. The course has successfully run three times with enrollments up to 15 students. This course provides depth to the subject of project management for engineers, especially those interested in project management within their educational discipline. Typically this is a spring semester course.

7. Program Outline. (Not applicable for incidental changes).
   A semester-by-semester program outline as it would appear in the bulletin for a new program or any modified program with all changes clearly indicated.

Not applicable
Signatures and Recommendations. (please date)

- Signatures of involved Department chair(s) and Dean(s) indicate agreement with the proposal and that adequate resources (library, faculty, technology) are available to support proposal.
- If a potential signatory disagrees with a proposal he/she should write “I disagree with this proposal” and a signed statement should be attached to this submission.

Henry J. Castejon  Sep. 19, 2018
Print Name/Title  Signature  Date
Department chair(s) of all potentially affected programs – Dr. Henry Castejon, Mechanical Engineering and Engineering Management

Prahlad Murthy  9/20/18
Interim Dean, CSE
Print Name/Title  Signature  Date
Dean (s) of any potentially affected College/School – Dr. Prahlad Murthy, CSE

Susan Hritzak  9/21/18
Print Name  Signature  Date
Registrar – Susan Hritzak
SYLLABUS
EGM-310 Project Decision Process
Division of Engineering & Physics
SLC 270 - Monday - 6:00 PM to 8:45 PM

Instructor: Staff

Copyright year: 2012

Course Description:
Engineering Project Decision Processes: 3 credits
Concepts of engineering economy are reviewed briefly with respect to estimated value, projected cash flow, and risk associated with engineering projects. Various phases (proposal, mobilization, mid-project, and close-out) will be considered for the potential to increase or reduce uncertainty and risk. Analyses for comparison of the impact of estimating errors, scope changes, and schedule shifts on project value. Topics include a review of depreciation strategies, make/purchase/rent choices, break-even, and benefit/cost assessments. Emphasis will be placed on the time dependant values of estimated present worth and risk as project progress continues. Decision trees will include risk factors and imperfect information as project completion strategies acclimate to current project status.

Course Requirements:
Prerequisites: EGM 320

Course Goals:
1. Learn to assess the dynamic changes in a project’s present value and projected cash flows as influenced by deviations from planned progress.
2. Introduce students to uncertainty analysis and decisions trees for risk reduction.
3. Acquaint students project decision analysis techniques predicated upon uncertainty and risk.
Course Objectives:

1. Students will demonstrate ability to conduct present value and cash-flow analyses of selected engineering projects such as new product development, capital equipment acquisition, make vs. buy, and maintain vs. replace decisions.
2. Students will learn how to estimate project uncertainties and apply risk factors into project decision making,
3. Students will demonstrate abilities to participate in and lead project teams.
4. Students will demonstrate the ability to communicate a project scope, identify uncertainties and concerns, articulate a project plan, and discuss the project completion as it relates to original project planning.

Grading Policy:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Assignments</td>
<td>30% (10% each)</td>
</tr>
<tr>
<td>Team Assignment</td>
<td>15%</td>
</tr>
<tr>
<td>Project Assessment Paper</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The final course grade will be determined as follows:

- $\geq 90\% = 4.0$
- $85 - 89.9\% = 3.5$
- $80 - 84.9\% = 3.0$
- $75 - 79.9\% = 2.5$
- $70 - 74.9\% = 2.0$
- $< 69.9\% = 0$
Wilkes University Curriculum Committee
COURSE ADDITION FORM – page 1

1. Course Title: Fundamentals of Engineering Decision Processes

2. Course Number: EGM 310

3. Course Credit Hours:
   Classroom Hours ___3___  Lab Hours _______  Other ______ 

4. Course Prerequisites: EGM 320

5. Course Description (as proposed for the Bulletin): Course descriptions provide an overview of the topics covered. If the course is offered on a scheduled basis, i.e. every other year, or only during a set semester, note this in the description. Course descriptions should be no more than two to three sentences in length.

Economic Decisions processes and techniques relating to technical processes and projects is a necessary skill for all engineers considering a career in functional engineering or project management. This course will show how to properly define economic decision parameters and make project decisions based on economic guidelines. This course is planned for fall semesters.

6. Required Documentation:
   Proposed Syllabus  Attach proposed syllabus immediately after this document. In some situations the official syllabus may contain information which is beyond the review needs of the Curriculum Committee (such as extensive rubrics, etc). It is permissible to attach an abbreviated syllabus. In general, syllabi (whether full or abbreviated) should contain the following information: Course Title, Course Number, Credit hours, Faculty Information (name contact information, office hours), Course Description, Course Outcomes or Objectives, Assessment (grading) information, required texts (or other things such as tools, software, etc), pertinent policies and a proposed schedule of topics.
COURSE ADDITION FORM – page 2

1. Course Title: Quality Practices for Design & Operations

2. Course Number: EGM 315

3. Course Credit Hours:
   Classroom Hours ___3___   Lab Hours _____   Other _____

4. Course Prerequisites: EGM 320

5. Course Description (as proposed for the Bulletin):
   Course descriptions provide an overview of the topics covered. If the course is offered on a scheduled basis, i.e. every other year, or only during a set semester, note this in the description. Course descriptions should be no more than two to three sentences in length.

   Economic Decisions processes and techniques relating to technical processes and projects is a necessary skill for all engineers considering a career in functional engineering or project management. This course will show how to properly define economic decision parameters and make project decisions based on economic guidelines. This course is planned for fall semesters.

6. Required Documentation:
   Proposed Syllabus   Attach proposed syllabus immediately after this document. In some situations the official syllabus may contain information which is beyond the review needs of the Curriculum Committee (such as extensive rubrics, etc). It is permissible to attach an abbreviated syllabus. In general, syllabi (whether full or abbreviated) should contain the following information: Course Title, Course Number, Credit hours, Faculty Information (name contact information, office hours), Course Description, Course Outcomes or Objectives, Assessment (grading) information, required texts (or other things such as tools, software, etc), pertinent policies and a proposed schedule of topics.
Mechanical Engineering & Engineering Management Department
Course Syllabus
EGM 315 – Design & Operations – Quality Practices (3 credits)
Saturday 9:00am to 11:30am - SLC 223

Instructor: Staff
Email:
Office Phone:
Class Location:
Office Hours: 1/2 Hour before class and after class as needed

Textbook & Supplemental Readings:

Course Description:
Students will be introduced to Quality Management System Principles and Frameworks. Course dynamics are twofold: 1) Provide an overview of quality management system concepts, methods and performance indicators proven to drive business excellence through TQM culture setting, and 2) Establish how an effective Quality Management System can help a business grow its competitive advantage, stimulate organizational development and strengthen core competencies, align business strategies with customer focus and ensure “100% compliance, 100% of the time”. Discussion will focus on how quality management has progressed from an emphasis on the management of quality to a focus on the quality of managing, operating, and integrating key business processes and functions into a unified value chain. Cornerstone features include coverage of topics essential to any industry; customer focus creation, value creation, leadership, process improvement and management, strategic planning, measures of performance, supply chain management, human resources management, knowledge and information management, project management and business process management. Using a QMS framework, this course introduces philosophies and methodologies for synchronizing customer focus with a business strategy through the fostering of a Total Quality Management culture. Application of the tools and methodologies introduced shall be reinforced through in-class exercises, dialogue, assignments, case studies and practical applications. Three hours lecture per week.

Course Goals:
The objectives of this course are to

1) Familiarize students with Quality Management Systems and their role in sustaining organizational effectiveness
2) Emphasize the need for establishing a robust customer focus and managing the supplychain to maximize customer satisfaction and business excellence.
3) Familiarize students with the concepts, techniques, methodologies, practices and tools used to gage quality management system adequacy, relevancy and effectiveness.
4) Integration of QMS principles and methodologies into business continuity planning, continuous Quality and productivity improvement initiatives.
5) Establish the interrelationship between Quality System requirements and key business processes to ensure compliance at all levels of the organization in driving business excellence.

Course Objectives:
1) Students will develop skills and abilities for integrating a QMS into a business’ framework.
2) Students will understand the role an effective Quality Management System plays in sustaining business longevity and reputation.
3) Students will learn the importance of a TQM philosophy in driving continuous improvement
4) Students will identify and propose remedies for the critical leadership, financial, and value management obstacles and impacts associated with successful QMS deployment.
5) Students will demonstrate the comprehension of the philosophies and methodologies available for sustaining a relevant, adequate and effective QMS within a business framework using TQM.

Topics will include but are not limited to......
1) Setting a successful Quality culture in an organization
2) Implementing Total Quality Management (TQM) philosophies
3) Customer Satisfaction, Focus, Retention and “Value” creation
4) Quality Management System Certifications
5) Strategic Quality Management – Planning and Execution for Competitive Advantage
6) Employee Engagement and Empowerment
7) Process improvement and management
8) Product Realization Process
9) Quality and Manufacturing Planning, Product Realization & the Synchronization Process
10) Supply chain Management
11) Apollo Root Cause Analysis and 8D
12) Continuous Improvement Initiatives
13) Quality Function Deployment
14) Key Quality Indicators and Performance Management–Measuring CoQ and Effectiveness
15) Internal/External Auditing Initiatives & Compliance
16) Quality Policy, Quality Manuals, Goals and Objectives
17) Human Resource Management – Training, Competency and Awareness Programs

Prerequisite: EGM 320

Reading Assignments: Reading assignments will be assigned on a weekly basis. All students are expected to have read the relevant text or outside reading assignment prior to the class lecture.

Homework: Assignments shall be completed in Microsoft Word or equivalent. Alternate format for special assignments will be given by the instructor. Assignments are to be done and submitted on-time at the beginning of the class period unless otherwise specified by the instructor. Late assignments will not be accepted for full credit.
Statement on Intellectual Responsibility and Plagiarism: All students are expected to do their own work. Copying the work of others as the students' own without appropriate reference and credit is unacceptable and will result in failing the assignment and may be grounds for failing the course. The following is directly from the Wilkes University Student Handbook.

"At Wilkes the faculty and the entire University community share a deep commitment to academic honesty and integrity. The following are considered to be serious violations and will not be tolerated:

1. Plagiarism: the use of another’s ideas, programs, or words without proper acknowledgment
2. Collusion: improper collaboration with another in preparing assignments, computer programs, or in taking examinations
3. Cheating: giving improper aid to another, or receiving such aid from another, or from some other source.

For more detailed information on the subject, including specific definitions relating to plagiarism, the student should reference the Graduate Student Handbook.

Examinations: EGM 315 will have two (2) examinations: a mid-semester and a final exam. Final examination is NOT cumulative but may touch on key concepts from first half of semester. Examination #2 will cover material from classes 9 thru 15 and supplemental reading Apollo Root Cause Analysis. Examination material shall be extracted direct from the textbook chapters, PowerPoint slides and class dialogue.

Reading Assignments: EGM315 is a reading intensive class. Students are expected to read the assignments prior to the start of the next scheduled session. Students are expected to read and comprehend ALL material presented in the chapter unless taken exception to by the instructor. Highlights from each chapter shall be discussed in class either through open dialogue, supplemental resources and PowerPoint presentations and may not necessarily be covered on the day the reading assignment was scheduled.

Written Assignments: There will be (4) written assignments comprising questions from textbook chapters. Assignments shall be completed in Microsoft Word or equivalent, submitted electronically on D2L in the designated Drop Box and comprise the following format: (1) Name, Date, Class, Chapters on a cover page; (2) Question shall be typed out; (3) Answer to question shall be written in paragraph format below the typed out question. Refer to schedule for assignment due dates. Assignments will serve as preparation for the examinations.

Research Paper/Case Study: There are no research/case study papers due for EGM315.

Projects: There may be a group aligned project due for EGM315.

Lectures: Students are expected to attend all scheduled classes. If the student must be absent, the instructor is to be so informed prior to the absence through email or voicemail.

Class Schedule: For planning purposes, planned class dates and content is shown below and subject to change.
<table>
<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Student Activity Event</th>
<th>Reading Assignment</th>
<th>Topics of Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20-Jan</td>
<td></td>
<td>Chapters 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27-Jan</td>
<td></td>
<td>Chapter 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Feb</td>
<td></td>
<td>Chapter 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-Feb</td>
<td></td>
<td>Chapters 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-Feb</td>
<td>Assignment #1 Due Chapter Questions</td>
<td>Chapters 9</td>
<td>Session #1 Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 14</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>24-Feb</td>
<td></td>
<td>Chapter 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Mar</td>
<td></td>
<td>Chapter 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-Mar</td>
<td></td>
<td>Chapter 15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-Mar</td>
<td>Assignment #2 Due Chapter Questions</td>
<td>Chapter 16</td>
<td>Session #2 Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 19</td>
<td>Examination #1</td>
</tr>
<tr>
<td>3</td>
<td>24-Mar</td>
<td></td>
<td>Chapter 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31-Mar</td>
<td></td>
<td>Chapter 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7-Apr</td>
<td></td>
<td>Chapter 17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14-Apr</td>
<td>Assignment #3 Due Chapter Questions</td>
<td>Chapter 18</td>
<td>Session #3 Review</td>
</tr>
<tr>
<td>4</td>
<td>21-Apr</td>
<td></td>
<td>Chapter 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>28-Apr</td>
<td></td>
<td>Chapter 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-May</td>
<td>Assignment #4 Due Chapter Questions</td>
<td>Chapter 20</td>
<td>Session #4 Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 22</td>
<td>Examination #2</td>
</tr>
</tbody>
</table>

**Chapter Description:**

Chapter 1: Total Quality Approach to Quality Management  
Chapter 6: Setting a TQM Culture  
Chapter 14: ISO 9000 Standard & Accreditation  
Chapter 2: Quality & Global Competitiveness  
Chapter 3: Strategic and Tactical Management  
Chapter 9: Leadership and Change Management  

Chapter 10: Teambuilding and Self-Directed Work Teams  
Chapter 11: Effective Communication  
Chapter 19: Continuous Improvement Initiatives  
Chapter 15: Total Quality Tools  
Chapter 16: Problem Solving & Decision Making  
Chapter 17: Quality Function Deployment  
Chapter 18: Statistical Process Control  
Chapter 12: Training, Competency and Awareness Programs  
Chapter 8: Employee Engagement & Empowerment  
Chapter 4: Ethics  
Chapter 7: Customer Centric Culture  
Chapter 20: Benchmarking  
Chapter 22: Implementing & Assessing a TQM Culture

**Grading and Class Policies:** Grading for student work shall be in accordance with the following structure:
<table>
<thead>
<tr>
<th>Work Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment #1 – Chapter Questions</td>
<td>10%</td>
</tr>
<tr>
<td>Assignment #2 – Chapter Questions</td>
<td>10%</td>
</tr>
<tr>
<td>Assignment #3 – Chapter Questions</td>
<td>10%</td>
</tr>
<tr>
<td>Assignment #4 – Chapter Questions</td>
<td>10%</td>
</tr>
<tr>
<td>Attendance &amp; Class Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Examination #1 (Midterm)</td>
<td>25%</td>
</tr>
<tr>
<td>Examination #2 (Final)</td>
<td>25%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Grading:** Students are expected to take exams when they are scheduled; there will be no makeup exams. As stated above, late assignments will not be accepted for full credit.

<table>
<thead>
<tr>
<th>Fractional Grade</th>
<th>Numerical Grade</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;0.93</td>
<td>4.0</td>
<td>A</td>
</tr>
<tr>
<td>86 ≤ X ≤ 92.9</td>
<td>3.5</td>
<td>B+</td>
</tr>
<tr>
<td>80 ≤ X ≤ 85.9</td>
<td>3.0</td>
<td>B</td>
</tr>
<tr>
<td>76 ≤ X ≤ 79.9</td>
<td>2.5</td>
<td>C+</td>
</tr>
<tr>
<td>70 ≤ X ≤ 74.9</td>
<td>2.0</td>
<td>C</td>
</tr>
<tr>
<td>65 ≤ X ≤ 69.9</td>
<td>1.5</td>
<td>D+</td>
</tr>
<tr>
<td>60 ≤ X ≤ 64.9</td>
<td>1.0</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 60</td>
<td>0.0</td>
<td>F</td>
</tr>
</tbody>
</table>

**How to succeed in this course:** The student is expected to work alone on individual assignments and as a team member on team projects, as applicable. It is expected that you will spend about 2-4 hours outside for each lecture hour in class. Do all assignments on time and keep up to date with all lectures and reading assignments in the text.
1. Course Title:  *Operations Analysis & Resource Allocation*

2. Course Number:  EGM 322

3. Course Credit Hours:
   Classroom Hours 3  
   Lab Hours  
   Other

4. Course Prerequisites:  EGM 320

5. Course Description (as proposed for the Bulletin):  *Course descriptions provide an overview of the topics covered. If the course is offered on a scheduled basis, i.e. every other year, or only during a set semester, note this in the description. Course descriptions should be no more than two to three sentences in length.*

   Introduction to Operations analysis and resource allocations offers topics relating to technical processes and projects required in manufacturing and service related industrial applications. The course covers those engineering subjects from forecasting analysis methods to manufacturing line balancing, queuing and operation locations selections.

6. Required Documentation:
   Proposed Syllabus  *Attach proposed syllabus immediately after this document. In some situations the official syllabus may contain information which is beyond the review needs of the Curriculum Committee (such as extensive rubrics, etc). It is permissible to attach an abbreviated syllabus. In general, syllabi (whether full or abbreviated) should contain the following information: Course Title, Course Number, Credit hours, Faculty Information (name contact information, office hours), Course Description, Course Outcomes or Objectives, Assessment (grading) informations, required texts (or other things such as tools, software, etc), pertinent policies and a proposed schedule of topics.*
Syllabus: EGM 322 – OPERATIONS ANALYSIS & RESOURCE ALLOCATION

3 credits

Instructor: Robert Taylor (Director & Instructor, Engineering Management Programs)
Email: robert.taylor1@wilkes.edu
Office Phone: 570-408-4819
Office Location: Stark Learning Center 235
Office Hours: 1 Hour before classes; see office door for typical office hours; by appointment


Course Description:
Students will understand how Production and Operations strategically fit the modern enterprise. Students will model and assess production flows and asset utilization for purpose of reducing production bottlenecks while maintaining/increasing facility utilization. Various quantitative analysis and optimization methodologies will be covered for solving linear and nonlinear optimization problems. Simulation and graphical approaches will be utilized to assess solution performance. Three hours lecture per week. The course may be presented as a cross reference with EGM 520.

Course Goals:
1) Acquaint students with the systems approach to Operations and Resource management that applies to manufacturing and service sectors.
2) Acquaint students with forecasting theory & techniques as they relate to operations.
3) Acquaint students with simple multi-stage inventory flows and issues.
4) Develop simulation models of WIP value and delay costs as constrained by cycle times and inventory order strategies.
5) Acquaint the student with issues of performance optimality as they relate to operations, finance, safety and strategic (vs. tactical) objectives.
6) Introduce traditional linear programming/O.R. approaches to systems performance modeling. Present methods of assessing resource utilization effectiveness (equipment, space, talent, materiel)
7) Investigate the structure of complex flows of Supply Chains including flows of goods & services, data, intellectual capital, and money. Address both and intra and inter-organizational flows such as exists with New Product Development.

Course Objectives:
6) Students will develop skills for simulating supply flows and determining the cost performance of various stocking and shipping strategies.
7) Students will learn how to depict and evaluate intra-organizational flows such as occur in new product development projects.
8) Students will learn to discern the differences in supply flows as they apply to projects and processes.
9) Students will demonstrate ability for identifying and ranking sources of inventory and handling costs.
10) Students will demonstrate ability for implementing new inventory management strategies and their impact on operational costs, delays and customer satisfaction.
11) Students will demonstrate abilities to participate in project teams.
12) Students will demonstrate the ability to communicate a project scope, identify uncertainties and concern, articulate a project plan, and discuss the project completion as it relates to original project planning.

**Topics will include:**
1) Strategic Issues relating to Operational Analysis and the Enterprise
2) Forecasting of operations metrics
3) Inventory Stocking costs
4) Inventory Handling Costs
5) Identifying Flow Uncertainties
6) Flow Simulation

**Prerequisite:** EGM 320

**Skills Prerequisite:** Familiarity with probability distributions, the Calculus, and prior experience in programming is expected.

**Reading Assignments:** Reading assignments will be assigned on a weekly basis. All students are expected to have read the relevant text or outside reading assignment prior to the class lecture.

**Homework:** Most assignments will be executed in the Microsoft Office Suite, including PowerPoint, Excel and Word. Alternate format for special assignments will be given by the instructor. Assignments are to be done and submitted on-time at the beginning of the class period unless otherwise specified by the instructor. Late assignments will not be accepted for full credit.

**Statement on Intellectual Responsibility and Plagiarism:** All students are expected to do their own work. Copying the work of others as the students’ own without appropriate reference and credit is unacceptable and will result in failing the assignment and may be grounds for failing the course. The following is directly from the Wilkes University Student Handbook.

“At Wilkes the faculty and the entire University community share a deep commitment to academic honesty and integrity. The following are considered to be serious violations and will not be tolerated:

1. Plagiarism: the use of another’s ideas, programs, or words without proper acknowledgment
2. Collusion: improper collaboration with another in preparing assignments, computer programs, or in taking examinations
3. Cheating: giving improper aid to another, or receiving such aid from another, or from some other source.”

For more detailed information on the subject, including specific definitions relating to plagiarism, the student should reference the Graduate Student Handbook.

**Exams:** EGM 322 will have at least two exams: a mid-semester exam and a final exam.
Lectures: Students are expected to attend all lectures. If the student must be absent for an acceptable reason, the instructor is to be so informed prior to the absence. Otherwise the absence is unexcused; penalties for unexcused absences follow:

One time: 5 Points off final semester average
Two times: 10 Points off final semester average
Three times: Drop from the course.

Grading and Class Policies: Grading for student work will be in accordance with the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Assignments (Including Homework) &amp; Class Participation</td>
<td>15%</td>
</tr>
<tr>
<td>Team Assignments / Projects</td>
<td>35%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>25%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>25%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>

Grading: Students are expected to take exams when they are scheduled; there will be no makeup exams. As stated above, late assignments will not be accepted for full credit.

Grading Guidance for Undergraduate Courses

<table>
<thead>
<tr>
<th>Fraction-Average for Semester</th>
<th>Numerical</th>
<th>Letter</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;0.93</td>
<td>4.0</td>
<td>A</td>
<td>Outstanding Quality</td>
</tr>
<tr>
<td>0.87-0.92</td>
<td>3.5</td>
<td>B+</td>
<td>Above High Quality</td>
</tr>
<tr>
<td>0.80-0.86</td>
<td>3.0</td>
<td>B</td>
<td>High Quality</td>
</tr>
<tr>
<td>0.75-0.79</td>
<td>2.5</td>
<td>C+</td>
<td>Above Acceptable Quality for Graduation</td>
</tr>
<tr>
<td>0.70-0.75</td>
<td>2.0</td>
<td>C</td>
<td>Acceptable Quality for Graduation</td>
</tr>
<tr>
<td>0.64-0.69</td>
<td>1.5</td>
<td>D+</td>
<td>Above Minimum Quality for Graduation</td>
</tr>
<tr>
<td>0.60-0.63</td>
<td>1.0</td>
<td>D</td>
<td>Minimum Quality for Graduation</td>
</tr>
<tr>
<td>&lt; 0.60</td>
<td>0.0</td>
<td>F</td>
<td>Not acceptable for Graduation</td>
</tr>
</tbody>
</table>

How to succeed in this course: The student is expected to work alone on individual assignments and as a team member on team projects. It is expected that you will spend about 2-3 hours outside for each lecture hour in class. Do all assignments on time and keep up to date with all lectures and reading assignments in the text.

Class Schedule: Classes for Fall 2018 will be Thursday, 6:00 – 8:45PM or as outlined by the instructor. Actual dates will be provided to the class in a separate email.
1. Course Title: *Project Analysis & Resource Allocation*

2. Course Number: EGM 325

3. Course Credit Hours:
   Classroom Hours 3
   Lab Hours
   Other

4. Course Prerequisites: EGM 320

5. Course Description (as proposed for the Bulletin): Course descriptions provide an overview of the topics covered. If the course is offered on a scheduled basis, i.e. every other year, or only during a set semester, note this in the description. Course descriptions should be no more than two to three sentences in length.

   Introduction to Project analysis and resource allocations offers topics relating to technical project planning, costing and critical path and other analyses relating to manufacturing, research and service related industrial applications. The course covers engineering subjects from project definition, planning methods to earned value planning and analysis.

7. Required Documentation:
   Proposed Syllabus
   
   Attach proposed syllabus immediately after this document. In some situations the official syllabus may contain information which is beyond the review needs of the Curriculum Committee (such as extensive rubrics, etc). It is permissible to attach an abbreviated syllabus. In general, syllabi (whether full or abbreviated) should contain the following information: Course Title, Course Number, Credit hours, Faculty Information (name contact information, office hours), Course Description, Course Outcomes or Objectives, Assessment (grading) information, required texts (or other things such as tools, software, etc), pertinent policies and a proposed schedule of topics.
Department of Mechanical Engineering and Engineering Management

Syllabus: EGM 325 – Fundamentals of Engineering Project
Instructor: Staff
Email: 
Cell Phone: 
Office Hours: 1 hour before and after class by appointment

Textbook:

Course objectives:
On completing this course, students will be sufficiently familiar with the theory, notation, vocabulary and hands-on experience in managing a project. They will also have a grasp of key technical and engineering issues arising in Project Management. The student will also gain significant experience in organizing and communicating key issues related to project management.

Course Description:
The course will teach a practical, achievement-focused methodology of Project Management with students practicing each technique in hands-on exercises and course project to include:

- Project initiation
- Project scheduling
- Project execution
- Project tracking in MS Project

In addition, definitions, including the mathematical rationale and derivations related to definitions, are critical to understanding and applying sound project management concepts.

Topics will include:
- **Project Goal and Scope Definition** - The student will learn the scope definition process and how it ties to the rest of the project lifecycle. The student will learn how to ask sponsors the right questions to define the project scope and determine clear business outcomes at which to aim the project.

- **Requirements Definition** - The student will learn how to gather requirements from the people who will be affected by the project and how to build a network of measurable achievements and deliverables.
• Project Plan, Charter and Deliverables - The student will learn how to concisely organize assumptions, constraints, risks and gain the authority needed to manage the project, including the concept of “set-back” scheduling. Examples of how to establish resource requirements and suggestions about handling project changes will be presented. Understanding the project deliverables will be a critical issue.

• Work Breakdown Structure, Team Assignments and Earned Value - The student will learn the basics of the work breakdown structure (WBS), how to build one in Microsoft Project software, how to use summary and sub-tasks, Earned Value management techniques and how to assign them to team members, including subcontractors.

• Risk & Opportunity Management - The student will learn definitions of Risk and Opportunities and how to successfully identify, define metrics for, measure and manage them for projects.

• Estimating Durations and Assigning People to Tasks - The student will learn the best methods for working with the team to estimate task durations. Examples of how a project manager should handle costing or estimating tasks with team members will be discussed.

• Matrix Management, Team Leadership & Managing Conflict – With the “plan” approved, the student will learn how to lead/manage the team, handling conflicts as they arise on most projects.

• Controlling the Sequence of Tasks - The student will learn step-by-step tools for controlling the sequence of tasks in Microsoft Project software and designing a schedule.

• Critical Path, Optimization & Approval Presentation - The student will learn about the critical path method and how to use it to shorten project durations. The student will see how to easily develop alternative ways of delivering the project and have an answer when the project duration must be reduced.

• Tracking & Status Reporting - The student will learn the process of gathering progress information from the team, entering it into MS Project and doing an analysis to spot problems and develop solutions. Major emphasis will be placed on using Earned Value & Risk/Opportunity Management as part of the tracking and reporting process. Finally, the student will develop & present an accurate status report.

Prerequisite: EGM 320

Reading Assignments:
Students are expected to read the relevant text book chapters and all handouts by the assigned class period.
Homework:
The weekly problem sets provide hands-on experience and be able to use the concepts taught in lecture and class discussions. The homework will help provide support for the course project, and students are encouraged to work in groups. This course is based on the concept of active learning: the students should try all homework assignments first. If additional help is required, then see the instructor. A good technique for many students is to try all the problems individually, then consult with fellow students to solve the problems. Participants should expect a minimum of 12 hours per week of study, homework assignments, and/or projects to be completed outside of class. You are expected to complete your homework assignments and submit them by assigned due dates and have them available in class.

Written Assignments:
All writing assignments will require a minimum number of pages and anything less will be graded at least one letter grade lower than the actual content of the paper. Papers are to be double spaced in Times New Roman or Arial font no larger than 12, with 1-inch margins. Headings, titles, author, my name, your name, do not count for minimum content.

Statement on Plagiarism:
“Students assume the responsibility for providing original work in their courses without plagiarizing.” If a student turns in work as their own, which is identified as the work of someone else, the student will receive an F with no possible opportunity to make up that particular work and possible expulsion from the class. Please see the complete “Statement on Plagiarism” at http://www.wilkes.edu/academics/colleges/arts-humanities-social-sciences/humanities/the-writing-center/nuts-bolts-of-writing/statement-on-plagiarism.aspx

Tests:
There will be at least two required exams: a mid-term and final exam. The Instructor will provide details regarding taking the exams during the progress of the course. The exams may be closed book, open book, open notes, specific notes or any combination thereof at the discretion of the instructor.

Lectures:
You are responsible for all material covered in the textbook and in lecture, including any announcements made or special handouts distributed in lecture. If you must be absent during a given lecture, check with a friend to make sure you know what was covered.

Grading and Class Policies: The distribution of points is listed below: this is up to you
Two Exams 35% (mid-term & final; 17.5% each)
Class Participation 25% (13 classes; 2% each)
Assignments 20% (4 papers & 3 MSP files; 2.86% each)
Project Paper/Presentation 20% (project paper 10%; presentation 10%)
Grading:

✓ There will be no make-up exams.
✓ If you miss an exam for a valid, verified emergency, see your instructor to make up the required work.
✓ **Letter grades will be based on the following scale:** (.5 will be assigned for top 1/3 of each range)

<table>
<thead>
<tr>
<th>Point Value</th>
<th>Letter Grade</th>
<th>Percent Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>A</td>
<td>94-100%</td>
</tr>
<tr>
<td>3.5</td>
<td>B+</td>
<td>87-93%</td>
</tr>
<tr>
<td>3.0</td>
<td>B</td>
<td>80-86%</td>
</tr>
<tr>
<td>2.5</td>
<td>C+</td>
<td>75-79%</td>
</tr>
<tr>
<td>2.0</td>
<td>C</td>
<td>70-74%</td>
</tr>
<tr>
<td>1.5</td>
<td>D+</td>
<td>65-69%</td>
</tr>
<tr>
<td>1.0</td>
<td>D</td>
<td>60-64%</td>
</tr>
<tr>
<td>0.0 = F</td>
<td>F</td>
<td>Below 60%</td>
</tr>
</tbody>
</table>

Those who do not do the work will score accordingly.

**How to succeed in this course:**
1. It is expected that a successful student will invest at least twelve hours studying and problem-solving per week outside of class.
2. Read the assigned text before coming to lecture.
3. Work as many problems as possible on a weekly basis; the ones represent the minimum recommended. Do these on your own, if possible; then work with other students to solve the problems.
4. Keep up on a regular basis; cramming doesn’t work.

**Further Explanation of Each Grade Component:**

**Class Participation:** Participants are expected to come prepared to discuss the material assigned for that date and take an active part in class activities. Detailed information is provided to focus on the individual class objectives and is necessary to complete Individual Project. Measures of class participation include quantity and quality of questions asked, ability to respond to questions, interest and contributions in class discussions, understanding facts, concepts and theories, and evidence of advanced preparation.

**Individual Microsoft Project Network:** Student will need to email the file to the facilitator prior to the due date. Participants will utilize information explained in text and discussed in class to create a Microsoft Project file detailing the tasks and plan of a project approved by the instructor. This project will offer the opportunity to make use of the information provided in this course in a practical application. A portion of this individual project includes a Work Breakdown Structure (WBS) and a Project Charter, in addition to the completed network with task and resource dependencies.

Reminder: Students **EARN** their grades; instructors do not **GIVE** grades.