1. Proposing College / School: Samuel Ginn College of Engineering
   Department: Industrial and Systems

2. Course Prefix and Number: INSY 3600  3. Effective Term: 201030

4. Course Title: Engineering Economy
   Abbreviated Title (30 characters or less): Engineering Economy

5. Requested Action:
   - [ ] Renumber a Course
   - [ ] Add a Course
   - [ ] Revise a Course

6. Course Credit:
   Contact/Group Hours  Scheduled Type (e.g.: Lab, Lecture, Practicum, Directed Study)  Weekly or Per Term?  Credit Hours  Anticipated Enrollment
   | Maximum Hours (Repeatability): 3 |
   | 3 | Lecture | Weekly | 3 | 300 |

   Total Credit Hours: 3

7. Grading Type:
   - [ ] Regular (ABCDF)
   - [ ] Satisfactory/Unsatisfactory (S/U)
   - [ ] Audit

8. Prerequisites/Corequisites:
   P: ENGR 1110; jr. or sr. standing.

9. Restrictions: List specific restriction in space above.
   - [ ] College
   - [ ] Major
   - [ ] Standing
   - [ ] Degree

10. Course Description:
    (20 Words or Less; exactly as it should appear in the Bulletin)
    Principles required in engineering economic studies.

11. May Count Either
    (Indicate if this particular course cannot be counted for credit in addition to another)

12. Affected Program(s):
    (Respond "N/A" if not included in any program; attach memorandum if more space is required)

    | Program Type | Program Title | Requirement or Elective? |
    |--------------|---------------|--------------------------|
    | degree       | BISE          | required                 |

13. Overlapping or Duplication of Other Units' Offerings:
    (If course is included in any other degree program, is used as an elective frequently by other unit(s), or is in an area similar to that covered by another college/school, attach correspondence with relevant unit)
   - [ ] Applicable
   - [ ] Not Applicable
14. Justification: Course was revised several years ago to not require the old pre-reg of MATH 2630 to give students more flexibility as to when to take the course.

(Include a concise, yet adequate rationale for the addition/revision of the course, citing accreditation, assessments (faculty, graduate, and/or external) where applicable)

15. Resources: Not Applicable

(Indicate whether existing resources such as library materials, classroom/laboratory space, and faculty appointments are adequate to support the proposed addition/revision; if additional resources are required, indicate how such needs will be met, referencing the appropriate level of authorization -- i.e.: Dean -- where necessary; if no additional resources or shifting of resources will be necessary, respond "Not Applicable")

16. Student Learning Outcomes: No change

(State in measurable terms (reflective of course level) what students should be able to do when they have completed this course)

17. Course Content Outline: No change

(Provide a comprehensive, week-by-week breakdown of course content, including assignment due dates)

18. Assignments / Projects: No change

(List all quizzes, projects, reports, activities and other components of the course grade -- including a brief description of each assignment that clarifies its contribution to the course's learning objectives)

19. Rubric and Grading Scale: No change

(List all components of the course grade -- including attendance and/or participation if relevant -- with point totals for each; indicate point totals and ranges or percentages for grading scale; for S/U grading, detail performance expectations for a passing grade)

20. Justification for Graduate Credit: Not Applicable

(Include a brief statement explaining how the course meets graduate educational standards (i.e.: rigorous standards for evaluation, development of critical thinking and analytical skills, etc.))

(Included below are standard statements regarding course policies. If necessary, a statement may be altered to reflect the academic policies of individual faculty members and/or the academic unit or department, provided that there is no conflict with the Tiger Cub, Faculty Handbook, or any existing university policy.)

POLICY STATEMENTS

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student's immediate family, the death of a member of the student's immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request, and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please see the Tiger Cub for more information on excused absences.

Make-Up Policy: Arrangement to make up a missed major examination (e.g.: hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week of the end of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up exam will take place within two weeks of the date that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.

Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need special accommodations in class, as provided for by the Americans With Disabilities Act, should arrange for a confidential meeting with the instructor during office hours in the first week of classes (or as soon as possible if accommodations are needed immediately). The student must bring a copy of their Accommodation Letter and an Instructor Verification Form to the meeting. If the student does not have these forms, they should make an appointment with the Program for Students with Disabilities, 128B Haley Center, 844-2086 (V/TT).
INSY 3600 - Engineering Economic Analysis

Spring (2010 or Typical)
T / R, 9:30 – 10:45 AM, Broun Hall, Room 238
Administrative Outline – Policies and Syllabus

Bulletin Description: Pr. ENGR 1110. Junior or Senior standing. Principles required in engineering economic studies.

Course Content/Objectives

A high degree of competence in making quantitative evaluation of engineering proposals in terms of worth and cost should be achieved. The student should develop an understanding of the economic factors associated with the engineering design process and an awareness of the economic problems confronting an industrial enterprise or other organization. Relevant finance and accounting concepts are covered.

Instructor and Teaching Assistants

• Instructor: Alice E. Smith, Office: Shelby Center 3301B, 844-1400, Office Hours: 10 to noon on Mondays and 11 to noon on Thursdays: e-mail: smithae@auburn.edu : E-mail will be the fastest way to get your questions answered! You can also stop by my office not during office hours – I am likely to be there and can see you usually without an appointment.

• Teaching Assistants: The teaching assistants for this semester are listed below. You may consult any TA for help. Mr. Han is the senior TA.

Hyun Han (Lead TA)
Office: 306 Dunstan Hall
Email address: hanhyun@auburn.edu
Tue 11:00 AM - 12:30 PM, Mon 6:30 - 8:00 PM

Celia Owen
Office: 203 C Dunstan Hall
Email address: owencel@auburn.edu
Office Hours: Wed and Fri 9:15 - 10:45 AM

Hwansik Lee
Office: 305 Dunstan Hall
Email Address: leehwan@auburn.edu
Office Hours: Mon 1:00-2:30 PM, Tue 2:00-3:30 PM

Guler Ergul
Office: 306 Dunstan Hall
Email address: gze0001@auburn.edu
Office HRs: Wed and Fri 10.30 AM - 12.00 PM

John Zhang
Office: 205 B Dunstan Hall
Email address: zhangd2@auburn.edu
Office HRs: Tue 8:00 - 9:30 AM, Thursday: 10:45 AM - 12:15 PM
If you are unable to attend scheduled office hours, the TA’s are happy to make an appointment to see you. You can also send an e-mail to your TA to have your questions answered.

**Textbook and Computing Facilities**

- **Textbook:** The following textbook is available from the university bookstore. *Fundamentals of Engineering Economics, 1st edition* by Chan S. Park, Prentice Hall, 2004 (Required textbook). There is a book web site that has additional useful information. It is: http://www.eng.auburn.edu/%7Epark/fee/

- **Course Website:** INSY 3600 on Blackboard. This will be used for homework assignment postings (but not turning in homeworks).

- **Computing Facilities:** You are welcome to use any PC computing facilities on campus for your assigned homework or case studies. In obtaining your solution on computer, you can take advantage of any electronic spreadsheet such as Excel or EzCash, the integrated software accompanying your textbook, which can be downloaded from the book web site. You may find that a financial calculator is helpful for both homeworks and exams.

**Grading**

You will decide on the grading structure of the course for your grade. You may weight the exams (with exam 1 and exam 2 being 25% each and the final exam being 50%) from 50% of the total grade to 100% of the total grade. You may weight the quizzes from 0% of the total grade to 25% of the total grade and you may weight homework from 0% to 25% of the total grade. The Stock Game is a bonus opportunity for all students who choose to participate. **You must decide on your weighting scheme by Jan 30 and your decision cannot be changed, once made. If you do not turn in a grading structure choice, your structure will be 100% based on exams. On or before class on Jan 30, you need to turn the signed grading percentage form (available on Blackboard). This is irrevocable and if you do not turn it in, your structure will be 25% Exam 1, 25% Exam II and 50% Final Exam.** All grades will be normalized to a 0 to 100 scale to assign the final grade (see below).

**Components of Grade**

<table>
<thead>
<tr>
<th>Exam I</th>
<th>Exam II</th>
<th>Final Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>(10 homeworks, each of equal weight, drop lowest HW grade)</td>
<td></td>
</tr>
<tr>
<td>Quizzes</td>
<td>(6 quizzes, each of equal weight, drop lowest quiz grade)</td>
<td></td>
</tr>
<tr>
<td>Stock Market Game</td>
<td>Bonus for top ½ of participants based on final portfolio value</td>
<td></td>
</tr>
</tbody>
</table>

**Grades**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<tbody>
<tr>
<td>A</td>
<td>89-100</td>
</tr>
<tr>
<td>B</td>
<td>77-88</td>
</tr>
<tr>
<td>C</td>
<td>65-76</td>
</tr>
<tr>
<td>D</td>
<td>53-64</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 53</td>
</tr>
</tbody>
</table>
Grading Disputes

Any disputes regarding grading must be done within two weeks of the assignment’s due date (homeworks) or its event (for tests and quizzes). No grading changes will be done more than two weeks after these dates for a given assignment or quiz or exam.

Homework

Homework, when assigned, is due at the beginning of class on the dates on this syllabus. All due dates are on a Tuesday. Homework is graded by the TA’s and returned in the following Tuesday class. Homework will be graded on the basis of partial credit. Late homework (not accompanied by a Tiger Cub authorized excuse) will not be accepted nor graded. Staple your homework (no paperclips).

- Do not fold your homework.
- Put your name, last four digits of your social security number and the due date of the homework clearly on the top page.

All homework is to be your own work. No copying is allowed. Copied homework is cheating and will be handled as such.

Quizzes

Quizzes will be done in class and will consist of a short problem or a few multiple choice questions on a topic recently covered in the course. Make up quizzes will only be given for Tiger Cub excuses. Grading will be based on partial credit (for non multiple choice quizzes). A calculator may be used but Quizzes are closed notes.

Stock Market Game

This is an on line free game that you will participate in and it starts Jan 28. You access through the web link below and set up an individual account (please use your name as we will be accessing results by name for students). You must join the class account – we are INSY3600 and the password is WarEagle – by clicking on Join a Class on the top menu after you create a login and login. More info is posted to the Blackboard course site.

http://investsmart.coe.uga.edu/C001759/stocksquest/mystocks.htm

The stock market game will be graded as follows: the top half of the class participants (based on portfolio balance as of Dec 4) will receive a bonus of 5 points on the final grade.

Exams

- **Exams:** There will be two exams and a non-comprehensive final. Before each exam and the final a review and problem solving session will be held in early evening by one of the TAs. Each exam consists of questions and problems that are solved on paper. Writing must be legible and must clearly show work and label the answer(s). The problems will be graded using partial credit. You may also bring up to 2 8 ½ x 11 pages of notes (two sides on each page is OK to each exam) and up to 4 such pages to the final exam. All exams will be given on the dates specified in the course outline. Permission for any make-up may be granted in only situations defined in the Tiger Cub. Exams will not be curved and will be graded on an absolute scale.
Accommodations for Students with Disabilities

Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If a conflict with office hours occurs, an alternate time can be arranged. To set up this meeting, contact with the instructor can be made by e-mail. Bring a copy of the Accommodation Memo and an Instructor Verification Form to the meeting. If the student does not have a copy of the Accommodation Memo but accommodations are needed, an appointment with The Program for Students with Disabilities should be made, 1244 Haley Center, 844-2096 (V/TT).

Academic Honesty Policy

Academic Honesty: All portions of the Auburn University student academic honesty code (Title X11) found in the Tiger Cub will apply to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Violations include, but are not limited to:

Cheating on an examination. This includes such things as copying from another's paper, using unauthorized notes, calculators, etc., or giving or receiving unauthorized aid, such as trading examinations, whispering answers, passing notes, talking during the exam, or using electronic devices to transmit or receive information.

Plagiarism. This is using someone else's work without giving credit. It is, for example, using ideas, phrases, papers, laboratory reports, computer programs, data - copied directly or paraphrased - that you did not arrive at on your own. Sources include published works such as book, movies, web sites, and unpublished works such as other students' papers or material from a research service. In brief, representing someone else's work as your own is academically dishonest. The risk of plagiarism can be avoided in written work by clearly indicating, either in footnotes or in the paper itself, the source of any major or unique idea or wording that you did not arrive at on your own. Sources must be given regardless of whether the material is quoted directly or paraphrased.

Copying another student's assignment and putting your name on it is plagiarism.

Unauthorized collaboration. This is working with or receiving help from others on graded assignments without the specific approval of the instructor. If in doubt, seek permission from the instructor before working with others. Students are encouraged to learn from one another: Form study groups and discuss assignments, but each assignment must be individual work unless specifically stated and turned in as a group assignment.

You are encouraged to talk to one another about your assignments, however, all assignments must be done by the student(s) whose name is (are) on it!

Multiple submission. This means using the same work to fulfill the academic requirements in more than one course. Prior permission of the instructors is essential.

Contribution to Meeting the Professional Component (ABET)

Engineering Economic Analysis is perhaps the most needed and used engineering topic presented in undergraduate engineering. The class is designed to provide the student with an
understanding of cost accounting, time value of money, decision making alternatives, taxation, and capital budgeting. These topics allow an engineer to apply their engineering skills to practical applications. In addition, the class is also offered to give the student some insight into using economic analyses tools to personal financial topics including; investment analysis, home mortgage, and retirement savings.

Relationship to Program Outcomes (ABET)

While this course relates to several of the department’s stated ABET outcomes, the three outcomes for which assessments are taken are: e) an ability to identify, formulate, and solve engineering problems; h) the broad education necessary to understand the impact of engineering solutions in a global and societal context, and j) a knowledge of contemporary issues. In meeting these specific issues the students are challenged with a series of engineering examples using mathematical calculations and required to evaluate the economic impact (e). To introduce the global impact on engineering the students are required to understand the impact on currency market fluctuations on economic studies (h). Finally in introducing “contemporary issues” students are instructed in financial issues facing the corporate environment and are given instruction in understanding financial markets (stock, bonds, and currency) – (j). To reinforce these topics, students are required to participate in a stock investment game to provide “real world” exposure to these issues.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Chapter</th>
<th>Assignment</th>
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<tr>
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<td>Introduction</td>
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<tr>
<td>Jan 13</td>
<td>Engineering Economic Decisions</td>
<td>1</td>
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<tr>
<td>Jan 20</td>
<td>Time Value of Money</td>
<td>2</td>
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<tr>
<td>Jan 25</td>
<td>Time Value of Money</td>
<td>2</td>
<td>Stock Game Starts</td>
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<tr>
<td>Jan 27</td>
<td>Time Value of Money</td>
<td>2</td>
<td>Quiz 1</td>
</tr>
<tr>
<td>Feb 1</td>
<td>Interest</td>
<td>3</td>
<td>HWK 1 – Chaps 1, 2</td>
</tr>
<tr>
<td>Feb 3</td>
<td>Interest</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Feb 8</td>
<td>Interest</td>
<td>3</td>
<td></td>
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<tr>
<td>Feb 10</td>
<td>Present Worth Analysis</td>
<td>5</td>
<td>Quiz 2</td>
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<tr>
<td>Feb 15</td>
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<td>HWK 2 – Chap 3</td>
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<td>Feb 17</td>
<td>EXAM I</td>
<td>Chapters 1 – 3</td>
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<td>Feb 22</td>
<td>Annual Equivalent Analysis</td>
<td>6</td>
<td>HWK 3 – Chap 5</td>
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<td>Feb 24</td>
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<td>Mar 1</td>
<td>IRR</td>
<td>7</td>
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<td>Mar 3</td>
<td>IRR</td>
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<td>Quiz 3</td>
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<tr>
<td>Mar 8</td>
<td>Depreciation and Taxes</td>
<td>8</td>
<td>HWK 5 – Chap 7</td>
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<tr>
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<td>Depreciation and Taxes</td>
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<tr>
<td>Mar 22</td>
<td>Cash Flow Analysis</td>
<td>9</td>
<td>HWK 6 – Chap 8</td>
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<td>Quiz 4</td>
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<td>Mar 29</td>
<td>Sensitivity Analysis</td>
<td>10</td>
<td>HWK 7 – Chap 9</td>
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<td>Mar 31</td>
<td>EXAM II</td>
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<td>Apr 5</td>
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<td>Apr 7</td>
<td>Benefit to Cost Analysis</td>
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<td>HWK 8 – Chap 10</td>
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## SYLLABUS

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<th>Chapter</th>
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<tr>
<td>Apr 14</td>
<td>Financial Statements</td>
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<tr>
<td>Apr 19</td>
<td>Financial Statements</td>
<td>13</td>
<td>HWK 9 – Chap 12</td>
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<td>13</td>
<td>Quiz 6</td>
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<td>Financial Statements</td>
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<td>Apr 28</td>
<td>Sources of Capital</td>
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<tr>
<td>May 3</td>
<td>Sources of Capital</td>
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<td>HWK 10 – Chap 13</td>
</tr>
<tr>
<td>Final</td>
<td>Chapters 9, 10, 12, 13 and Sources of Capital</td>
<td></td>
<td>Stock Game Ends</td>
</tr>
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**Thursday, May 7, 9 to 11:30 AM**