COURSE OUTLINE

CONS 226 – BRIDGE BUILDING

Prepared By: Robert R Blickwedehl, reviewed by J. Reilly
CONS 226 – BRIDGE BUILDING

A. **TITLE:** AISC National Student Steel Bridge Competition

B. **COURSE NUMBER:** CONS 226  
**SHORT TITLE:** Bridge Building

C. **CREDIT HOURS:** 1

D. **WRITING INTENSIVE COURSE (OPTIONAL):** N/A

E. **COURSE LENGTH:** 15 Weeks

F. **SEMESTER(S) OFFERED:** Spring

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:** The class meeting time will fluctuate to meet competition preparation demands, but will meet for a minimum of 45 hours per semester.

H. **CATALOGUE DESCRIPTION:** Students are challenged to an inter-collegiate bridge building competition that includes design, fabrication, and construction. Participating students gain practical experience in structural design, fabrication processes, construction planning, organization, and teamwork. Students will essentially design and construct a 21-foot long steel bridge that is both light and strong, and capable of supporting 2,500 pounds. The class will use their bridge design to represent SUNY Canton’s entry in the Regional competition.

I. **PRE-REQUISITES/CO-COURSES:** Enrollment in the Canino School of Engineering Technology and permission of the instructor.

J. **GOALS (STUDENT LEARNING OUTCOMES):**  
By the end of this course, the student will be able to

<table>
<thead>
<tr>
<th>Course objective</th>
<th>Institutional SLO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. work as part of an interdisciplinary team.</td>
<td>4. Inter/Intra personal skills</td>
</tr>
</tbody>
</table>

K. **TEXTS:**  
Current National Student Steel Bridge Competition Rules published by the AISC.

L. **REFERENCES:** None

M. **EQUIPMENT:** All tools and materials such as steel, welders, welding rod, bolts, wrenches, cutters, etc. will be provided by the department.

N. **GRADING METHOD:** (P/F, A-F, etc.) P/F

O. **MEASUREMENT CRITERIA/METHODS:** Students will be evaluated based on their participation in meetings, contributions to the team’s success, assistance with fabrication and submittal of original ideas,
P. DETAILED TOPICAL OUTLINE:

I. Orientation
   A. wrap up from previous year
   B. criteria review (rules & regulations)

II. Conceptual Design
   A. design ideas (roundtable discussions)
   B. sketches
   C. calculations
   D. model (prototype) building
   E. budgeting
   F. consensus building
   G. documentation

III. Final Design
   A. calculations
   B. design adjustments
   C. material take off (bill of materials)
   D. order material
   E. documentation

IV. Fabrication
   A. cut members to size
   B. weld components
   C. fasteners
   D. documentation

V. Assembly
   A. initial assembly
   B. initial loading
   C. deflection measurement
   D. practice for speed
   E. documentation

VI. Presentation
   A. outline
   B. material compilation
   C. documentation
   D. oral practice
   E. final presentation

VII. Competition
A. trip arrangements
B. host school correspondence
C. coordination with College Association
D. documentation
E. news articles
F. additional fund raising

VIII. Miscellaneous Activities

A. team selection
B. sponsor recruitment

Q. LABORATORY OUTLINE: