Course Description
1 Credit. Prerequisite: MET 451. A continuation of the design sequence, which includes a final technical design report and appropriate display material for the SDSM&T design Fair in April.

Textbook
No specific textbook is required. Additional reading materials will be distributed by the instructor.

Reference Textbooks (Recommended)

Instructor
Dr. Dana J. Medlin
Office: MI 104
Office Hours: 10:00am – 11:00am, M-W-F and other selected hours as posted on office door. Individual appointments may be scheduled at other times.
Office Phone: 605-394-5133
Email: dana.medlin@sdsmt.edu

Course Schedule
Class meets every Monday from 3:00pm – 3:50pm in Mineral Industries 320.

Course Objectives
Students will obtain a professional understanding of the engineering design process. Specifically, this class will address the areas of materials selection and the “team” approach associated with the project management style of engineering design.

Course Evaluation
Class attendance and participation/discussion: 15%
Homework assignments and weekly reports: 35%
Final Design Project (class presentation, Design Fair poster and final technical report): 50%

This course meets the Writing Intensive Educational Requirement of the South Dakota Board of Regents according to the following policy: http://www.sdbor.edu/policy/2-Academic_Affairs/documents/2-7.pdf pages 29-30. Student’s evaluation in reports and presentations will be based on the following:
1. The ability to effectively write in American English including correct grammar punctuation, and sentence structure.
2. Write logically.
3. Write persuasively, with a variety of rhetorical strategies (e.g. expository, descriptive).
4. Incorporate formal research and documentation in their writing, including research obtained through modern, technology-based research tools.
5. Prepare and deliver speeches for a variety of audiences and settings.
6. Demonstrate speaking competencies including supporting materials, organizational pattern, language usage and presentational aids.
7. Demonstrate listening competencies by summarizing, analyzing, and paraphrasing ideas, perspectives and other content.

**Final Grade Assignment (%)**

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<tr>
<th>Score Range</th>
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<tr>
<td>90 - 100</td>
<td>A</td>
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<td>80 - 89</td>
<td>B</td>
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<td>70 - 79</td>
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<td>60 – 69</td>
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<td>&lt;60</td>
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**Attendance**
Attendance is mandatory for all lectures due to the importance of open class discussions. Students who are ill should not attend class, however, it is necessary to contact the instructor prior to the absence via a telephone message or email to avoid penalties.

**Late Policy**
Once an assignment/project has been graded and return to the class, late work will not be accepted, unless prior arrangements have been made with the instructor.

**Cellular Telephones and Pagers**
In order to minimize distractions during lectures, please turn-off all cellular telephones and pagers or put them on a no-ring (vibrate) mode.

**Integrity Policy**
Everyone is required to do their own work, however many students can learn more efficiently by consulting with other students. Working together in study groups on homework assignments is acceptable when everyone is participating equally. Students involved with copying and plagiarism will receive no credit for that assignment. NOTE: Some examinations may be take home (out of class) exams and individual efforts will be required.

**Special Needs**
Students with special needs or requiring special accommodations should contact the instructor and the campus ADA coordinator (Jolie McCoy 394-1924) as soon as possible.

**Archiving Assignments and Examinations**
Some students may be asked to submit copies of their assignments and examinations for the department archival system for ABET evaluations. All submitted information is confidential.

**Freedom in Learning Statement**
Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. Students who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or
conduct unrelated to academic standards should contact the dean of the college which offers the class to initiate a review of the evaluation.

**Weekly Report Format:**

Each team is required to submit a weekly progress report to the instructor. A different member of the team will prepare and submit the report each week, thus requiring each member of the team to write a weekly report two or three times during the semester. THE WEEKLY REPORT IS LIMITED TO TWO PAGES. The following information and format MUST be used**:

1. Course number, Date, Team Name
2. Team Members and Author of Report
3. Project Purpose (2 – 3 sentences)
4. Goals for the week and People assigned to the goals (bullet list)
5. Project Update (description of progress of the week)
6. Goals not completed and why (include plan to resolve delay)
7. Goals for the next week and People assigned to the goals (bullet list)
8. Items needed from other Teams or the Instructor. (bullet list)

** The instructor may ask for additional information for some weekly reports.

**Final Technical Report Format:**

A final technical report must be submitted from the team by Friday, May 1, 2009. This is a formal report explaining your entire project. The following information and format MUST be used:

- **Cover Page**
  - Course Number, Date, Team Name, Team Members, 500 word Abstract

- **Project Scope**
  - Paragraph describing the purpose of the project.

- **Introduction**
  - Relevant background information needed to explain the project.

- **Project Objectives**
  - class notes

- **Project Constraints**
  - class notes

- **Project Assumptions**
  - class notes

- **Design Plan**
  - Major portion of the report explaining what was done, how it was done, time table, projected costs, actual costs, etc.

- **Major Problems**
  - Description of the MAJOR problems encountered, all the potential solutions discussed, and how you agreed to solved the problems

- **Tasks and People**
  - A table listing the specific tasks, people responsible, date started, date completed

- **Outcomes**
  - What have you learned? What would you do differently? What did you learn that you will apply to your next project? etc.
Summary

Final comments about the project.

References

Place the references at the end of the written report. There are three types of references. There are several accepted formats. The goal is to assure the reader can find the reference in the library or online.

Technical Journals

Author: Journal, year, ser., vol., pp.

Books

Author: Book, edition, vol., page, Publisher, Place, Date.

Private Communications

Name: Date, Place, Address.

Tables and Figures

Tables and figure should be included within the report near the text describing this relevant information. Each table should have a title and Table-XX should be above the table and referenced in the text. All figures should be have Figure-XX and one or two sentences describing the figure just below the figure. Tables and figures are on two separate numbering systems in the report.

Appendices

Use an appendix for any computations or lengthy discussions that is important to the knowledge base, but would detract from the main flow of ideas in the report.

Assessment:

Each written Weekly Report and the Final Report will be assessed for content, style, intended audience and topic specific guidelines. This assessment will include written discussions of technical and format points and issues that need improvement with specific indications of why improvement is necessary.