

I. COURSE DESCRIPTION:

The Research Report is intended to demonstrate that the student can function at the technology level. The topic may be of a design, experimental or investigative nature. Assessment will be the responsibility of the Mechanical Engineering Technology Department.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. *Research Project***Potential Elements of the Performance:**

- Create and understand the importance of an engineering project proposals
- Utilize and interpret Gantt charts while completing a major project
- Understand critical path analysis in regards to major projects and timelines
- Establish design solutions and appropriate documentation such as drawings, costing and benefit analysis
- Understand the ethical and moral obligations of an engineer and how that relates to the work that is completed
- Communicate ideas of a design solution and complete a presentation explaining the solution
- Demonstrate the ability to work within a group to complete a project in a defined timeframe

III. TOPICS:

1. Engineering Design Proposal
2. Theoretical Analysis of the Proposed Design
3. Project Management / Team Dynamics
4. Component Suppliers / Sourcing Materials
5. Manufacturing & Assembly / Prototyping
6. Testing and Recording

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

NONE

V. EVALUATION PROCESS/GRADING SYSTEM:

| Type of Grading | Mark | Topics |
|-----------------------------------|-------------|--|
| Attendance / Participation | 12% | All members of the team should contribute to the design, construction, testing and management aspects related to the project. Each week, time will be devoted for a team meeting where the status of the project can be discussed. |
| Weekly Tasks | 48% | Weekly tasks will be distributed to team members and be reported at the weekly meeting. These could include researching, vendor sourcing, component ordering, designing, calculating, manufacturing, assembling, testing, and reporting. |
| Proposal Presentation | 10% | Halfway through the project it is expected that a preliminary design will be completed for approval by the sponsor. The presentation should include the purpose of the projects, objectives, component research, preliminary drawings and project timeline. |
| Final Presentation | 10% | At the end of the term, the project team should organize a presentation with the finished product, describe the fabrication and assembly process, comment on the testing results, and provide recommendations for a future design. |
| Final Report | 20% | A final report shall be submitted to the vendor at the end of the project. It will include a complete set of detailed drawings, calculations, testing results, cost summary, conclusions and recommendations. |

The following semester grades will be assigned to students:

| Grade | Definition | <i>Grade Point Equivalent</i> |
|--------------|--|-------------------------------|
| A+ | 90 – 100% | 4.00 |
| A | 80 – 89% | |
| B | 70 - 79% | 3.00 |
| C | 60 - 69% | 2.00 |
| D | 50 – 59% | 1.00 |
| F (Fail) | 49% and below | 0.00 |
| CR (Credit) | Credit for diploma requirements has been awarded. | |
| S | Satisfactory achievement in field /clinical placement or non-graded subject area. | |
| U | Unsatisfactory achievement in field/clinical placement or non-graded subject area. | |
| X | A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. | |
| NR | Grade not reported to Registrar's office. | |
| W | Student has withdrawn from the course without academic penalty. | |

VI. SPECIAL NOTES:

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.