

ALPENA COMMUNITY COLLEGE
Course Outline - Spring 2014

COURSE IDENTIFICATION

MRT250: ROV Capstone Project (3.5)
Section: 4154 T&Tr, 6:00 - 8:15pm
Location: BTC 102

INSTRUCTOR INFORMATION

Instructor: Mr. Michael Ponik
Office: BTC 102
Hours: By appointment
Phone: 354-8368 Evenings

COURSE MATERIALS

Each student is required to have standard technical drawing instruments and supplies.
BOOK: Wake Up Your Creative Genius by Kurt Hanks & Jay Parry

COURSE DESCRIPTION AND PREREQUISITES

Description: Covers problems in the design of industrial products.
The practical approach to the development of a product is utilized.

Prerequisites: CAD221 or Consent of the Instructor

COURSE INSTRUCTIONAL OBJECTIVES / CORE COMPETENCIES

COURSE OBJECTIVES: Successful students in this course will have acquired the necessary skills that will make them effective at problem solving and presentation of ideas.

CORE COMPETENCIES: This course contributes to the development of the following competencies basic to all associate degree students.

1. How to learn effectively, with an emphasis on problem solving as it relates to design of industrial products.
2. How to solve problems related to the design and manufacture of industrial products within specific guidelines.
3. How to use mathematical concepts, as they apply to the development of products, understanding of capabilities, and to assist in design.
4. How to communicate effectively, with an emphasis on drafting terminology as it applies to the development of products.
5. How to interact with the world, emphasizing standard practices of industrial design and how they apply to product development worldwide.

COURSE REQUIREMENTS AND GRADING

Each student will be required to complete assignments as shown on the attached schedule. All assignments will be explained during the lecture portion of the class, and the students will have an opportunity to ask questions at this time, and also during the lab time, generally the last portion of the class period.

If additional time is required to complete the assignments, the student may do so independently. Room 106 of the Besser Technical Center is usually open and may be used by students during times when it is not scheduled for other classes. Please check the Alpena Campus Schedule for availability of the room. The BTC computer lab in room 108A & B are also available at times specified on the schedule posted outside those rooms. If a student desires the assistance of the instructor during non-scheduled lab time, he/she may make an appointment with the instructor for this purpose.

GRADE DETERMINATION

Weekly quizzes (43%) and Assignments (57%) will constitute the student's semester grade and will be evaluated according to specific criteria as explained in class (relative to each assignment) and the following general criteria:

Originality of Design (Creativity)
Following Instructions Provided
Quality and Effort of Work

TOTAL POINTS EARNED	GRADE
333 TO 350	A
316 TO 332	A-
304 TO 315	B+
293 TO 303	B
281 TO 292	B-
269 TO 280	C+
258 TO 268	C
246 TO 257	C-
234 TO 245	D+
223 TO 233	D
211 TO 222	D-
0 TO 210	E

POLICY FOR LATE ASSIGNMENTS

A deduction of 10% of the point value for an assignment will be made if the assignment is turned in up to 1 week late.

A deduction of 20% of the point value for an assignment will be made if the assignment is turned in up to 2 weeks late.

An assignment which is over 2 weeks late will automatically receive a point value of zero.

NO ASSIGNMENTS WILL BE ACCEPTED AFTER THE FINAL DATE SHOWN ON THE ATTACHED SEMESTER SCHEDULE

ETHICS POLICY

THE FOLLOWING WILL CONSTITUTE AN AUTOMATIC FINAL GRADE OF "E":

DISRUPTIVE BEHAVIOR, as stated in the Student Handbook on Disruptive Behavior: "Student behavior that is detrimental to an environment conducive to learning or to the maintenance of a reasonable level of order on the campus or in the classroom shall be considered disruptive conduct. Students involved in disruptive conduct will be subject to disciplinary action as outlined in the handbook and which includes suspension or dismissal."

COPYING/TRACING ANOTHER'S WORK, as stated in the Student Handbook on Cheating and Plagiarism: "Dishonest scholarly practices include, but are not necessarily limited to taking, using, or copying another's work and submitting it as one's own, intentionally falsifying information, or taking another's ideas with the intention of passing ideas on class as one's own."

ATTENDANCE

Students are expected to attend their scheduled classes according to the requirements of the instructor. Records will be kept, not as a requirement, but only to contribute to an understanding of performance below the student's expectations.

If a student misses class, it is that student's responsibility to obtain information which was presented during that class period.

THIS COURSE OUTLINE IS SUBJECT TO CHANGE AT THE SOLE DISCRETION OF THE INSTRUCTOR.

**MRT250, ROV CAPSTONE PROJECT, SECTION 4154
SEMESTER SCHEDULE, SPRING 2014**

Michael Ponik, Instructor

January 14 INTRODUCTION TO THE COURSE
Establish class rules, methods, and grading procedures. Arrange seating. Discuss laboratory rules and procedures. Give instructions as to the type of drawing to be done. Show students examples of past classes.

Complete Who Am I

Complete Assessment Test

January 16 Define Scope of ROV Build

January 21 Develop Time Line read pages 1-14

January 23 Discuss Power Requirements

January 28 Power Control Box Design Due read pages 15-23

January 30 Discuss Control Requirements

February 04 Controls Box Design Due read pages 24-36

February 06 Discuss Motor Mounts

February 11 Motor Mounts Design Due read pages 37-42

February 13 Discuss Mounting of Components

February 18 Control/Power Mounts Due read pages 43-51

February 20 Motor/Camera/Light Mount Design Due

February 21 to March 03 SPRING BREAK

March 04	Discuss Manipulator	read pages 52-63
March 08	Manipulator Design Due	
March 11	Assign Final Project & discuss requirements	read pages 64-76
March 13	Order Parts	
March 18	Design Report Cover and Format	read pages 77-86
March 22	Design Tether, Frame, and Frame	
March 25	Develop Competition Mission	read pages 87-96
March 27	Finalize Pressure Canister and Connectors	
April 01	Electrical Schematics Due	read pages 97-103
April 03	General Electrical Diagrams Due	
April 08	Finalize Controls and Abstracts	read handout
April 10	Finalize Software, Flow Charts, and Set ups	
April 15	Document Manipulator, Lights, and Sensors	read pages 104-112
April 17	Finalize Ballast, Buoyancy, and Sub Systems	
April 22	Document Budget and Expenses	read pages 113-118
April 24	Future Improvements Reflections	
April 29	Challenges and Trouble Shooting	read pages 119-129
May 01	Final Project Due	
May 06	Final Exam	Presentation of Project