



Department of Mechanical Engineering

ME 100L - Introduction to Mechanical and Aerospace Engineering Laboratory

Spring 2012

Laboratory Teaching Assistants (TAs)

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Purpose

To reinforce the engineering design process and other concepts discussed in the ME 100 lecture through hands-on activities that will culminate in the creation of an autonomous robot which will compete in a competition against the robots created by other members of this course.

Grading

The final grade for this course will be comprised of:

- Attendance 10%
- Weekly Design Journal/Log Entries 20%
- In-Class Assignments/Lab Reports 30%
- Design Project Assignments 40%

Grading scale for the course:

| | | | | |
|--------------|--------------|--------------|--------------|------------|
| | B+ 87% - 89% | C+ 77% - 79% | D+ 67% - 69% | |
| A 93% - 100% | B 83% - 86% | C 73% - 76% | D 63% - 66% | F 0% - 59% |
| A- 90% - 92% | B- 80% - 82% | C- 70% - 72% | D- 60% - 62% | |

Schedule**Tuesday - Section 1****Thursday - Section 2****Friday - Section 3**

| Week | Dates (week) | Lab Topics | Lab Assignment/Reports | Project Assignment (Details in Handout) |
|------|--------------|---|---|--|
| 1 | 1/18 | NO LAB FIRST WEEK OF THE SEMESTER | | |
| 2 | 1/23 | <ul style="list-style-type: none"> Lab Introduction Team Formation Introduction to Lego Digital Designer | Lego Digital Designer Exercise (See Handout) Due: Week 3 | Problem Definition Due: Week 3 |
| 3 | 1/30 | <ul style="list-style-type: none"> LEGO Mindstorms NXT Kit Check-Out LEGO Mindstorms NXT Introduction | TriBot Propulsion Exercise Due: Week 4 | Literature & Patent Search Due: Week 5 |
| 4 | 2/06 | <ul style="list-style-type: none"> Understanding the Light Sensor Using the Wait, Loop, and Switch Blocks Performing Sensor Calibration | Line Following Exercise Due: Week 5 | |
| 5 | 2/13 | <ul style="list-style-type: none"> Understanding the Ultra Sonic Sensor Using the Sensor Blocks | Obstacle Avoidance Exercise Due: Week 6 | Constraints & Design Criteria Due: Week 6 |
| 6 | 2/22 | <ul style="list-style-type: none"> Introduction to MathCAD Understanding the Touch Sensor | Object Detection Exercise Due: Week 7 | Alternative Solutions Due: Week 7 |
| 7 | 2/27 | <ul style="list-style-type: none"> Introduction to Boolean Logic and Comparison Using Blocks from the Data Palette | Comparison/Variable Exercise Due: Week 8 | Decision Due: Week 8 |
| 8 | 3/05 | <ul style="list-style-type: none"> Understanding Gear Ratios Creating My Blocks Begin Sumo Robot Construction | Status of robot build Due: Week 10 | |
| 9 | 3/12 | | | |
| 10 | 3/19 | <ul style="list-style-type: none"> How to Create/Execute Parallel Lines of Code Continue Sumo Robot Construction Begin Sumo Robot Programming | Status of robot build Due: Week 12 | Design Project Report Due: Week 15 |
| 11 | 3/26 | NO CLASS FRIDAY - VETERANS DAY RECESS TUESDAY & THURSDAY LAB SECTIONS WILL MEET, BUT ATTENDANCE WILL NOT BE TAKEN. | | |
| 12 | 4/09 | <ul style="list-style-type: none"> Test/Debug Sumo Robot Hardware & Software Work on Final Report Work on Final Presentation | Status of robot build Due: Week 14 | Design Project Presentation Due: Week 15 |
| 13 | 4/16 | | | |
| 14 | 4/23 | <ul style="list-style-type: none"> Test/Debug Sumo Robot Hardware & Software Work on Final Report Work on Final Presentation | | |
| 15 | 4/30 | SUMO ROBOT COMPETITION TBE "A" Building - Great Hall 12:30 PM to 3:00 PM <ul style="list-style-type: none"> Design Project Presentations Submission of Final Design Project Reports Check-In Lego Mindstorms NXT Kits | | |
| 16 | | FINALS WEEK – NO LAB | | |

⚠ **DISCLAIMER:** This schedule may change as the semester progresses. Please check postings on the ME 100 web site: <http://www.me.unlv.edu/Undergraduate/coursenotes/egg102/egg102.htm>

Lab Reports

- Each student is responsible for submitting a lab report in his/her own words
- Reports must be submitted to the TA at the start of class on the scheduled due date. If class is not held as the result of a holiday then submit your report at the start of the next class meeting after the holiday.
- Late lab reports are accepted at a penalty of 10% per day (excluding Saturday & Sunday). It is your responsibility to make arrangement with the TA to turn in late lab reports. Reports will not be accepted more than one week late.
- All reports are to be word processed with 1" margins, 1.5 line spacing, and 10 or 12 point font size.
- All reports must contain the following sections:
 - Cover page – See example at the end of this syllabus)
 - Introduction – Provide background information regarding the experiment/exercise.
 - Body – Provide detailed information about the experiment/exercise and the steps performed to reach the desired goal of the experiment/exercise.
 - Conclusion – Describe the results of the experiment/exercise. Was the desired goal achieved? Explain. What would you change?
- Please proof read and spell check before submitting.

Policies

- Mechanical Engineering (ME) Faculty Mentor - All ME students must meet their faculty mentors at least once in each semester to avoid any hold in their registration. Please contact the ME department office at (702) 895-1331 for the name of your faculty mentor. If your faculty mentor is not available due to scheduling conflicts, contact the ME department office for advice.
- Religious Holidays - Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor no later than the last day at late registration of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the test or examination at an alternate time would impose an undue hardship on the instructor or the university which could not be avoided.

For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=4&navoid=164>.

- Academic Misconduct - Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution.

An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. For additional information see the Student Academic Misconduct Policy (approved December 9, 2005) located at: <http://studentconduct.unlv.edu/misconduct/policy.html>.

- **Copyright** – The University requires all members of the University Community to familiarize themselves and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies.

For additional information, please visit: <http://www.unlv.edu/committees/copyright>.

Academic Resources

- **Disability Resource Center (DRC)** - The DRC determines accommodations that are “reasonable” in promoting the equal access of a student reporting a disability to the general UNLV learning experience. In so doing, the DRC also balances instructor and departmental interests in maintaining curricular standards so as to best achieve a fair evaluation standard amongst students being assisted. In order for the DRC to be effective it must be considered in the dialog between the faculty and the student who is requesting accommodations. For this reason faculty should only provide students course adjustment after having received this “Academic Accommodation Plan.” If faculty members have any questions regarding the DRC, they should call a DRC counselor.

UNLV complies with the provisions set forth in Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. The DRC is located in the Student Services Complex (SSC-A), Room 143, phone (702) 895-0866, fax (702) 895-0651. For additional information, please visit: <http://drc.unlv.edu/>.

- **Tutoring** - The Academic Success Center (ASC) provides tutoring and academic assistance for all UNLV students taking UNLV courses. Students are encouraged to stop by the ASC to learn more about subjects offered, tutoring times and other academic resources. The ASC building is located across from the Reynolds Student Services Complex, #22 on the current UNLV map (<http://maps.unlv.edu/asc.html>).

Students may learn more about tutoring services by calling (702) 895-3177 or visiting the tutoring web site at: <http://academicsuccess.unlv.edu/>.

- **UNLV Writing Center** - One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance.

Appointments may be made in person or by calling 895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>

- **Rebelmail** - By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's Official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu.

↓ ↓ ↓ ↓ ↓ **COVER PAGE EXAMPLE** ↓ ↓ ↓ ↓ ↓

Laboratory Report *{enter report number here}*

{enter report title here}

Prepared For:

{enter TA's name here}, ME 100L

Department of Mechanical Engineering

University of Nevada, Las Vegas

Prepared By:

{enter first student's name here}

{enter second student's name here}

{enter third student's name here}

{enter fourth student's name here}

Date:

{enter due date here}

↓ ↓ ↓ ↓ ↓ **MEMO TEMPLATE** ↓ ↓ ↓ ↓ ↓

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Box 54027
Las Vegas, NV 89154-4054

Phone: 702-895-1331
Fax: 702-895-3936

Memo

To: <Type your TA's name here>
CC: <Type your teammate's names here>
From: <Type your name here>
Date: <Type the assignment due data here>
Subject: ME100L – <Type team name here> Status Report

<Memo Body: This is where you will type your status report information.>

Memo Body Requirements:

- 1) *Must be a minimum of one page.*
- 2) *Do not exceed two pages.*
- 3) *Must be in paragraph form.*
- 4) *Do not indent paragraphs.*
- 5) *Separate paragraphs with a single blank line.*
- 6) *Acceptable line spacing; **1.5** or **Double***
- 7) *Acceptable font size; **10 pt** or **12 pt**.*
- 8) *Acceptable font; **Arial** or **Time Roman***
- 9) *Do not use first person.*