

MET 5263 Autonomous Robotics for Education 1, CRN: 2208

Sep 15, 2009 - Dec 17, 2009

[Independent study](#), 50% asynchronous online, 18 mandatory contact hours on campus, 4.5 individual contact hours

Instructors: Maurice Tedder maurice_tedder@hotmail.com, CJ Chung chung@LTU.edu

Course Description

Introduces concepts involved in autonomous robotics and how to use robotics technology to teach mathematics, physics, science, and computer programming. Provides hands-on experience in designing and constructing robots using kits such as Lego® NXT™. Icon-based visual programming languages are introduced to program the autonomous robots with various sensors and actuators. Discusses issues, guidelines, and methodologies of introducing robotics in grade school classes.

Grading

| Items | Grader | Deliverables | % |
|--------------------------------------|--------------|----------------------|-----|
| NXT-G (written) quiz | Tedder | Written exam | 25% |
| One General project 1 * | Chung/Tedder | YouTube video & demo | 25% |
| One Math/Science related project 2 * | Chung | YouTube video & demo | 25% |
| 8 challenges to demo | Tedder | demo | 25% |

(*) candidate projects will be suggested by the instructor)

Very Important Dates, Common & Mandatory Meetings

| Day, Date | Time | Tasks | Lead Ins. |
|----------------|-----------------------|--|------------------|
| Friday, Sep 24 | | 100% refund deadline | |
| ~ Sep. 25 | | Purchase an NXT kit and construct the basic driving model | |
| Sat. Sep. 26 | 10am-2pm | Intro to NXTG (working lunch); 4 challenge assignments | Tedder |
| ~ Oct. 9 | | Asynchronous online class using Bb | Tedder |
| Sat Oct. 10 | 10am-1pm | Grading of Challenges; Introduction to NXTG 2; New 4 challenge assignments | Tedder |
| | 1-2pm | Project 1 planning | Chung |
| ~ Oct. 23 | | Asynchronous online class using Bb | Tedder |
| Sat Oct. 24 | 10am-1pm | Introduction to NXTG3; Grading of challenges; | Tedder |
| | 1-2pm | Project 1 requirements/design due; project 2 planning | Chung |
| ~ Nov 18 | Up to 2 hour meetings | Individual meetings <i>by appointments</i> ; Progress report meeting synchronous online, emails, or phone | Tedder, Chung |
| Thu Nov 19 | 6-8:30pm | 4 th annual thanksgiving parade (required to attend if parade project) | Chung, Tedder |
| Sat Nov 21 | 10-11am | NXTG Review & Advanced topics | Tedder |
| | 11-noon | Project preview demo, prepare videos | Chung |
| Nov 25~ 28 | | Thanksgiving Break | |
| Sat Dec 5 | 10-11am | NXTG Review, Advanced topics; practice quiz | Tedder |
| | 11-noon | Project preview demo, video due | Chung |
| Mon Dec. 7 | | Last day to Withdraw | |
| Sat Dec. 12 | 10am-noon | Quiz | Tedder |
| | | Official project demos; video update if needed | Chung |

LEGO NXT kits and software required to purchase

- Software: NXTG version 2.
- NXT Kit
 - Lego Education version: (software sold separately, rechargeable battery pack)
 - Retail version: (software included, no rechargeable battery pack)