EDTECH 597 – Special Topics
Autonomous Robotics for Teaching and Learning

3 Credit Online Course

Instructor Information
Name: Youngkyun Baek
Contact Information: 426-1023
Office Hours: Mon, Wed, Thu 10:00 – 14:00
Availability: Anytime by appointment, open to email or Skype etc.
Website: http://edtech.boisestate.edu/

Course Description
This course introduces methods for integrating robotics technologies into K-12 classroom settings. Participants build and program an educational robot. Basic concepts about robotics will be introduced. Participants discuss about ways of using robotics to learn different subjects such as math, physics, science, and computer programming. This course provides hands-on experience by assembling robot models and by programming robots. Video production skill is needed. A web site for keeping learning journal throughout the course is required.

Course Outcomes
Students read course related articles and the textbook in order to get a basic understanding of robotics in view of teaching and learning. They search for different articles and scholarly journals in relation to the robotics that are used in current education systems. They watch clips that are related to robotic assembling and programming. They discuss and present the completed robotic model and different ways of utilizing the robotics in teaching and learning.

Course Location and Login Information
This is an online course delivered in Moodle (http://edtech.mrooms.org/). The Moodle login page explains how to login to Moodle. Contact Moodle Support at moodlesupport@boisestate.edu if you have problems accessing Moodle. If you have forgotten your password, click the link below the login box, "lost password?" and you will be able to reset it.

Course Materials
Books: (1) Lego NXT Education Manual, (2) Invent To Learn: Making, Tinkering, and Engineering in the Classroom (2013) by Sylvia Libow Martinez and Gary S. Stager, (3) Robotics: Discover the Science and Technology of the with 20 Projects (Build It Yourself) Paperback – August 1, 2012, (4) Robots in K-12 Education: A New Technology for Learning (Premier Reference Source) Feb 29, 2012 by Bradley S. Barker and Gwen Nugent

Software: Lego NXT 2.0 or other software for student's selected robot, Camtasia or equivalents

Hardware: Computer, Lego Mindstorms NXT 2.0 (Preferred), Lego Mindstorms EV3, or Robots permitted by the Instructor. These hardware is required to keep throughout the course. You may rent a kit.

Internet Connectivity
You need an up-to-date computer with an Internet connection in this course.

Course Assignments
Detailed information about each assignment is posted in Moodle. Check Moodle and your Boise State email regularly each week; announcements and course updates can be posted at any time.

	Assignments	Points
1	Reading and summarizing papers in educational robotics	50
2	Controlling robot (move, turn, use sensors etc.)	150
3	Programming robot	150
4	Discussion and reflection on assembling	150
5	Applying an assembled robot with your student (s)	200
6	Developing a robotics project for K-12 classrooms	300
	Total	1000

AECT Standards
Course assignments are aligned to the Association for Educational Communications and Technology (AECT) Standards, 2012 version.

Assignments are listed by number (based on the assignments list above) in the following table under the standard they are aligned to.

	Standard 1 Content Knowledge	Standard 2 Content Pedagogy	Standard 3 Learning Environments	Standard 4 Professional Knowledge & Skills	Standard 5 Research
Creating	1	4			
Using				6	
Assessing/Evaluating					

Managing		3	6	2	
Ethics					
Diversity of Learners					
Collaborative Practice					5
Leadership					
Reflection on Practice	4				
Theoretical Foundations	1				
Method					5

Grade Scale

Final grades are based on the following scale.

Grade	Points Required
A+	97% ~ 100% (970 ~)
A	93% ~ 96% (930 ~ 969)
A-	90% ~ 92% (900 ~ 929)
B+	87% ~ 89% (870 ~ 899)
B	83% ~ 86% (830 ~ 869)
B-	80% ~ 82% (800 ~ 829)
C+	77% ~ 79% (770 ~ 799)
C	73% ~ 76% (730 ~ 769)
C-	70% ~72% (700 ~ 729)
D+	67% ~ 66% (670 ~ 699)
D	63% ~ 66% (630 ~ 669)
D-	60% ~ 62% (600 ~ 629)
F	599 and below

Grading Cycle
For each assignment, a rubric will be provided. Based on the rubric, the feedback will be given by the week after each assignment's due date.

Additional Information about Assignments
Major assignments will be posted at least one week in advance of the assignment due date. The assignments are mostly asynchronous delivery and will be completed and submitted in digital multi-media forms.

Late Work Policy

All assignments should be submitted at the designated time, unless pre-arranged with the instructor. The instructor is not responsible for any text or software that is not obtained in enough time to complete the assignments.

Technical Difficulties

On occasion, you may experience problems accessing Moodle or class files located within Moodle, Internet service connection problems, and/or other computer related problems. Make the instructor aware if a technical problem prevents you from completing coursework. If a problem occurs on our end, such as Moodle or EDTECH2 server failure, then an automatic due date extension is granted.

Reasonable Accommodations

Any student who feels s/he may need accommodations based on the impact of a disability should contact the instructor privately to discuss specific needs. You will also need to contact the Disability Resource Center to schedule a meeting with a specialist and coordinate reasonable accommodations for any documented disability.

The Disability Resource Center is located on the first floor of the Lincoln Parking Garage, on the corner of Lincoln Ave. and University Dr. at Boise State University. They are available Monday through Friday 8:00 a.m. to 5:00 p.m. Mountain Time.

Phone: 208.426.1583
Email: drcinfo@boisestate.edu
Website: http://drc.boisestate.edu/

Privacy Information

EDTECH courses involves online delivery and for some courses public display of assignments on websites or social media spaces. In the online course, your name, email address, and Moodle profile may be visible to others who have logged into Moodle. You are advised to familiarize yourself with privacy settings on Moodle or social media sites associated with the course. Privacy settings can sometimes be adjusted to restrict certain types of information. Please contact your instructor if you have questions or concerns.

Academic Honesty
Students are expected to create original work for each assignment. Students must follow the Boise State Student Code of Conduct as well as observe U.S. copyright laws in this course.

In the event of academic dishonesty, a complaint is filed with the Boise State Student Conduct Office with supporting documentation. This complaint remains on file and actions may be taken against the student (e.g., loss or credit, grade reduction, expulsion, etc.).

Note: Instructors may append additional course-specific policies as needed.

Policy for Incompletes

Incompletes are not guaranteed. However, when they are given incompletes adhere to Boise State University guidelines as follows:

Instructors can enter a grade of I - for incomplete - if both of the following conditions are present:

- Your work has been satisfactory up to the last three weeks of the semester.
- Extenuating circumstances make it impossible for you to complete the course before the end of the semester.

In order to receive an incomplete, you and your instructor must agree to a contract stipulating the work you must do and the time in which it must be completed for you to receive a grade in the class. The terms of this contract are viewable on my.BoiseState under Your Student Center To Do List. The contract time varies as set by the instructor but may not exceed one year. If no grade other than incomplete has been assigned one year after the original incomplete, the grade of F will automatically be assigned. The grade of F may not be changed without approval of the University Appeals Committee. You may not remove the incomplete from your transcript by re-enrolling in the class during another semester. A grade of incomplete is excluded from GPA calculations until you receive a final grade in the course.

Course Schedule
Please note that students are expected to spend 9-12 hours *each* week on *each* EDTECH course during a regular academic session. The workload is approximately doubled during the compressed summer sessions.

Week	Start Date	Due Date	Major Assignments and Activities: Check Moodle for Details
1			Summary of educational robotics papers / Reading / Journal Website creation
2			Controlling robot / Assembling (I, Education version)

3			Controlling robot / Assembling (II)
4			Controlling robot / Assembling (III)
5			Programming robot (Motion) / Discussion and reflection on assembling
6			Programming robot (Vision) / Discussion and reflection on assembling
7			Programming robot (Control) / Discussion and reflection on assembling
8			Programming robot (Time & Position) / Discussion and reflection on assembling
9			Planning competition with a robot / Competition with assembled robots
10			Planning collaboration with a robot / Collaboration with assembled robots
11			Spring Break
12			Planning activities with robot /Applying an assembled robot 1 with your student (s)
13			Planning activities with robot /Applying an assembled robot 2 with your student (s)
14			Planning activities with robot /Applying an assembled robot 3 with your student (s)
15			Developing a robotics project for K-12 classrooms
16			Reflections

Boise State University Academic Calendar

Please refer to the Boise State University Academic Calendar for University dates and deadlines: http://registrar.boisestate.edu/academic-calendar.shtml

Graduate Catalog

Graduate Catalogs for present and prior academic years can be found online at: http://graduatecatalog.boisestate.edu/

College of Education - The Professional Educator

Boise State University strives to develop knowledgeable educators who integrate complex roles and dispositions in the service of diverse communities of learners. Believing that all children, adolescents, and adults can learn, educators dedicate themselves to supporting that learning. Using effective approaches that promote high levels of student achievement, educators create environments that prepare learners to be citizens who contribute to a complex world. Educators serve learners as reflective practitioners, scholars and artists, problem solvers, and partners.

Department of Educational Technology Mission

The Department of Educational Technology is a diverse and international network of scholars, professional educators and candidates who:

- Lead research and innovations in online teaching and learning
- Model, promote, manage, and evaluate digital-age work and learning resources in educational environments
- Inspire creativity and expertise in digital media literacies
- Design and develop imaginative learning environments
- Empower learners to be evolving digital citizens who advocate cultural understanding and global responsibility
- Promote and pattern participatory culture, professional practice, and lifelong learning
- Forge connections between research, policy, and practice in educational technology