LOWELL REGIONAL PHYSICS ALLIANCE

Thursday, February 5, at 3:00 p.m.

UMass Lowell

Teaching with Robots
A Hands On Approach

Gary Garber, Boston University Academy

Rick Dower, Roxbury Latin School

Lou Broad, Timberlane Regional H.S.

David Kurtz, Masconomet Regional H.S.

A variety of approaches to teaching using robots will be presented in a panel format. The robotics platforms to be discussed will include FIRST robotics, VEX robotics, LEGO Mindstorm, and Tetrix. In these programs students learn about problem solving, computer aided design, electronics, programming, mechanical engineering, fabrication, machining, entrepreneurship, marketing, communications, and business skills. Discussion will include what opportunities are available and some methods of introducing these programs to your students.

OVER

followed by

Shared Demonstrations

Bring a physics demonstration in the area of electricity and magnetism and enter the demonstrators' raffle. Please limit your demonstrations to no more than FIVE minutes.

ROOM:	*Olney Hall -218 (see www.uml.edu/maps/olney.htm for directions)* **University Bridge is OPEN!**	
PARKING:	*Parking permit for Riverside lot is enclosed*	
SCHEDULE:	*3:00*	*Registration and Discussion*
	3:45	*Teaching with Robots ....”*
	4:45	*Announcements and Raffle*
	5:00	*Shared Demonstrations*
	6:00	*Conclusion*
INFORMATION	*Arthur Mittler (978) 934-3775*	
& MESSAGES:	*or arthur_mittler@uml.edu*	

The Lowell Regional Physics Alliance acknowledges with appreciation support from UMass Lowell Division of Sciences and UML/Barnes & Noble Bookstore.

BioSketches

Gary Garber *is an instructor of Physics at the Boston University Academy. After obtaining his B.S. in physics and astronomy from Haverford College (1993) he taught at the Germantown Friends School for four years. After obtaining a M.A. in Physics from Boston University he moved across Commonwealth Avenue to begin teaching at Boston University Academy in 1999. In that same year, he integrated Academy students into the Boston University Robotics Teams, also know as F.I.R.S.T. Team 246. Under his direction, the students on the team regularly present workshops to teachers and students alike at Boston University and at local and national teaching conventions. In his ten years as a coach of the team, the team has won the Johnson and Johnson Good Sportsmanship Award and the Engineering Inspiration Award at the Boston Regional Competition. For his work with robotics he has also received the Mass Technology Leadership Council's Above and Beyond Award.*

Rick Dower *is the Charles T. Bauer Professor of Science at Roxbury Latin School in Boston. After obtaining his B.S. from MIT (1967) and M.A.T. from Harvard Graduate School of Education (1969), he taught physics at Milton Academy from 1969 to 1973 and worked summers as a technical writer and scientist for the Harvard College Observatory Solar Satellite Project. He then returned to MIT and worked with the x-ray astronomy group on the SAS-3 and HEAO-1 satellite projects. After completing his Ph.D. (1978) and a postdoc year at MIT, he became Science Chairman at Roxbury Latin School teaching courses in physics and physical science. Since 1999, he has been part of the QuarkNet project based at Fermilab working on new particle detectors and ways to incorporate particle physics into classroom exercises. In 2002 he helped initiate the Physics TheoryNet project (sponsored by NSF) in which physics theorists are paired with high school teachers for classroom visits.*

Lou Broad *has been teaching chemistry and physics for fifteen years at Timberlane Regional High School, Plaistow, N.H. where he has implemented several innovative and cross disciplinary programs, including a course that team-teaches English and Science called Humanity and the Cosmos, a coordinated approach to Algebra II and Physics and this year a year-long block format comprehensive Physics/Chemistry course. He is the winner of several prestigious awards and grants including: Toyota Tapestry, Verizon Growth Initiative For Teachers (GIFT) and the Best Buy Children's Foundation Award. Lou is the 2008 New Hampshire winner of the presidential Award for Excellence in Mathematics and Science Teaching. Lou Broad received his B.A. in Chemistry and Physics Teaching from the University of New Hampshire in 1993.*

David Kurtz *is a physics teacher at Masconomet Regional High School. He offers a course Science and Technology as an alternative to physics. It is directed towards those students who have had difficulty in their previous science classes. The class includes a 10-week robotics unit based on the VEX system. The robotics unit allows students to learn through inquiry as they seek their own solutions to problems. Students learn about the design process, problem solving, and simple programming. David is also the coach of Masconomet's Robotics club, competing in the First Tech Challenge for the first time this year. David received his B.S. from Union College (1996) and his M.A.T. from Boston University (2002).*