Marquette University COLLEGE OF ENGINEERING
A tradition of Excellence Since 1906

MARQUETTE ENGINEERING OUTREACH

SEPTEMBER '08 – JANUARY '09 ACADEMIES

9/27/08 10AM-3PM
"Engineering is a Family Affair" Ages 6-12 $90/pair
This program teams a parent and a child, who will work together to experience the fun, challenge, and excitement of engineering. Participants will perform hands-on problem solving activities, including the egg-car crash test, flight of the water rockets, pasta bridge contest, and LEGO Mindstorms RCX robotics challenge. Each pair will receive an electric circuits kit (value = $30) to continue experimenting at home.

10/4/08 10AM-3PM NEW!
"PHYSICS SERIES: FLUID DYNAMICS" Ages 12-18 $60
Students will learn about the properties of fluids – gases and liquids – by constructing hot air balloons, water rockets, mini-hovercraft, Cartesian divers, and more. They will also learn how fluid power technologies – pneumatics and hydraulics - are used in day-to-day applications, from cars to robots to green energy production.

10/18/08 10AM-3PM
"Engineering for Young Women" Ages 12-18 $60
Young women will work together to experience the fun, challenge, and excitement of engineering. Through hands-on activities, participants will learn how engineers work to solve the problems we face today, including the development of renewable energy resources. Engineering will be presented as a positive force in improving our quality of life, i.e., the new "helping profession," and as a great career opportunity for young women.

10/18/08 10AM-3PM
"Engineering…It's A Girls Thing" Ages 6-11 $60
Have you ever wondered how science and engineering helps protect us in a car crash? Have you ever built a bridge out of pasta, an electric circuit, or a robot? Do you ever think how we could make the world a better place for all? If so, this course is for you. We will team girls of similar age into groups that will work cooperatively to experience the fun and excitement of engineering problem-solving activities.

10/30-10/31 9AM-5PM NEW!
"PHYSICS SERIES: ENERGY"" Ages 12-18 $150
What is energy? How do roller coasters store energy for their high-speed thrills? How is energy transferred in a car crash? Why does it hurt more when a bowling ball falls on your toes, compared to a baseball? How is electric energy for our homes generated? These questions and many more will be answered as students learn about energy through hands-on experiments. Students will also build working models of renewable energy sources, such as wind generators, waterwheels and solar cells.

11/1/08 10AM-3PM
"Engineering for Young Minds" Ages 6-9 $90
Students will learn basic engineering design principles as they build pasta bridges, egg-cars for crash tests, electrical circuits, LEGO Mindstorms robots and more! Each student will receive an electric circuits kit (value = $30) to continue their investigations at home.

11/8, 11/15, 11/22/08 10AM-3PM NEW!
"PHYSICS SERIES: MECHANICS" Ages 12-18 $150
What are the dangers of not wearing your seat belt? When your car turns left why does your body seem to be thrown right? What's the effect of a roller coaster on your body? How does a rocket or airplane work? In this course students will learn more about the physical laws that govern their world as they study classical mechanics (force and motion). Using a new LEGO set, students will also build models of motorized mechanisms that will help develop their teamwork, engineering and problem-solving skills.

11/28 -11/29/08 9AM-5PM
"Robotics Engineering: RCX Ages 8-12 $150
Students will learn about the world of robots through designing, building, and programming the popular LEGO Mindstorms RCX robots. This course is for beginners or those with limited experience with the RCX.

11/28 -11/29/08 9AM-5PM NEW!
"Advanced Robotics Engineering With the Mindstorms RCX" Ages 8-14 $150
Students will learn advanced programming skills and how to use robots to collect data in real-time experiments. This course is for students who have basic skills in building and programming the LEGO Mindstorms RCX robot.

11/28 -11/29/08 9AM-5PM NEW!
"The Science of Toys" Ages 6-10 $170
Students will learn fundamental physics and chemistry concepts using toys…does that sound like fun or what? They will use scientific inquiry, and learn to think and work as scientists do…but with a few more gadgets and games to play with.

12/6, 12/13, 12/20/08 10AM-3PM
"Robotics Engineering: RCX Saturday Series" Ages 8-12 $150
Students will learn about the world of robots through designing, building, and programming the popular LEGO Mindstorms RCX robots. This course is for beginners or those with limited experience with the RCX, and is the same as "Robotics Engineering: RCX" offered 11/28-29.

12/6, 12/13, 12/20/08 **10AM-3PM** **NEW!**

"Advanced Robotics Engineering With the Mindstorms RCX: Saturday Series" **Ages 8-14** **$150**

Students will learn advanced programming skills and how to use robots to collect data in real-time experiments. This course is for students who have basic skills in building and programming the LEGO Mindstorms RCX robot, and is the same as "Advanced Robotics Engineering With the Mindstorms RCX" offered 11/28-29.

12/29-12/30/08 **9AM-5PM**

"Robotics Engineering with the NXT" **Ages 12-18** **$150**

Students will learn about the world of robotics through designing, building, and programming the LEGO Mindstorms NXT robot. This course is designed for all robotics lovers, regardless of experience!

12/29-12/30/08 **9AM-5PM** **NEW!**

"Advanced Robotics Engineering with the Mindstorms NXT" **Ages 12-18** **$150**

Students will learn advanced programming skills and how to use robots to collect data in real-time experiments. This course is for students who have basic skills in building and programming the LEGO Mindstorms NXT robot.

12/29-12/30/08 **9AM-5PM** **NEW!**

"Shrinking, Stretching, Oozing and Bouncing– the World of Polymers" **Ages 8-12** **$170**

They shrink! They ooze! They bounce! They are polymers! As a junior plastics engineer, find these macromolecular treasures even in your recycle bin. Construct them, explore them, and understand them.

1/10, 1/17, 1/24/09 **10am-3pm** **NEW!**

"Engineering With The Grandchildren" **Ages 8-13** **$180/pair**

This course is similar to "Engineering is a Family Affair," except it teams a grandparent and grandchild who will work together to experience the fun, challenge, and excitement of engineering. Participants will perform hands-on problem solving activities, including the egg-car crash test, pasta bridge contest, and LEGO Mindstorms RCX robotics challenge. Each pair will receive an electric circuits kit (value = $30) to continue experimenting at home.

The mission of the Engineering Outreach Program at Marquette University is to enhance the S.T.E.M (science, technology, engineering, math) skills of the children and adults in the M7 region, and better prepare our citizenry for the challenges of competing in a global economy driven by innovation.

Outreach Team:	Dr. Jon Jensen, Associate Dean for Enrollment Management	414/288-6720
	Mr. Jack Samuelson, M.S., Coordinator of Engineering Outreach	engineering@marquette.com
	Ms. Lori Stempski, Administrative Assistant	

ENROLLMENT FORM

NAME:_____ AGE:_____ GENDER _____ PHONE:_____

PARENT OR GRANDPARENT: _____

ADDRESS: _____

EMAIL: _____

COURSE TITLE: _____DATE(S):_____ COST:_____

ONE FORM PER PERSON FOR EACH COURSE. PLEASE WRITE A CHECK FOR THE TOTAL AMOUNT TO "MARQUETTE UNIVERSITY COLLEGE OF ENGINEERING," AND MAIL WITH THIS FORM TO:

MARQUETTE UNIVERSITY
COLLEGE OF ENGINEERING, ROOM 210
PO BOX 1881, MILWAUKEE, WI 53201

"I AGREE TO ALLOW MY CHILD TO PARTICIPATE IN THE ENGINEERING OUTREACH PROGRAM AT MARQUETTE UNIVERSITY. I ASSUME RESPONSIBILITY FOR THE ACTIONS OF MY CHILD. I WILL TALK TO MY CHILD ABOUT THE IMPORTANCE OF GOOD, SAFE, AND COOPERATIVE BEHAVIOR, AS WELL AS THE VIRTUES OF BEING A GOOD TEAM PLAYER. STUDENTS WHO BEHAVE IN AN UNSAFE OR UNCOOPERATIVE MANNER MAY BE REMOVED FROM THE COURSE WITHOUT REFUND OF FEES. NO REFUNDS FOR MISSED CLASSES. STUDENTS ARE ENROLLED ON A FIRST-COME, FIRST-SERVED BASIS; ONCE AN ACADEMY IS FULL, APPLICANTS WILL BE PLACED ON A WAITING LIST. AT TIMES THE MEDIA, INSTRUCTORS, OR ASSOCIATES OF MARQUETTE UNIVERSITY MAY CHOOSE TO REPORT ON COURSE ACTIVITIES. AS PART OF THESE REPORTS I WILL ALLOW MY SON/DAUGHTER TO BE INTERVIEWED AND/OR PHOTOGRAPHED DURING SUPERVISED COURSE ACTIVITIES."

SIGNATURE OF PARENT/GUARDIAN: _____ DATE: _____