Santa Clara University, School of Engineering
Summer Engineering Seminar

Santa Clara University	SUNDAY 8/5	MONDAY 8/6	TUESDAY 8/7	WEDNESDAY 8/8	THURSDAY 8/9
7:30 - 8:30 a.m.		*Breakfast* *Benson Cafeteria*	*Breakfast* *Benson Cafeteria*	*Breakfast* *Benson Cafeteria*	*Breakfast* *Graham 400*
9:00-9:50 a.m.		E-1 Intro to Engr EC 326 Terry Shoup	R-1 Robotics Workshop EC 326 Mike Rasay	D-3 Design EC 326 Terry Shoup	Design Contest Engineering EC QUAD Terry Shoup
10:00 – 10:50 a.m.		Westpoint Bridge Designer EC 602 Steve Chiesa		Computing & Computer Lab EC 602 Rani Mikkilineni	
11:00 – 11:50 a.m.			Sustainability Housing Kennedy Commons		*Closing BBQ* *Williman Room*
12:00 - 1:00 p.m.		*Lunch* *8/6 Benson Parlors*	*Lunch* *Benson Cafeteria*	*Lunch* *Benson Cafeteria*	Check-out Residence Hall
1:00 - 1:50 p.m.		D-1 Design EC 326 Terry Shoup	D-2 Design EC 325 Terry Shoup	G-1 University Life EC 325 Steve Chiesa	*(Schedule subject to change)*
2:00 - 4:00 p.m.		Elective Course Group 1	Elective Course Group 2	Elective Course Group 3	
4:00 - 5:00 p.m.	Register	Recreational Activities Dorm Counselors	Recreational Activities Dorm Counselors	Recreational Activities Dorm Counselors	
5:00 - 6:00 p.m.	*Dinner* Bronco				
6:00 - 7:00 p.m.	Campus Tour	*Dinner - Mondo*	*Dinner – Alumni Park*	*Dinner - Stuft Pizza*	
7:00-8:00 p.m.	Ice Breakers in Residence Hall	Admissions Presentation EC 325	Design Project Preparations EC 325	Design Project Preparations EC325	
8:00-10:00 p.m.	*Duct-Tape Olympics*	*Bottle Bowling*	*Junk Pile Wars*	*Social Night*	

ELECTIVE COURSES

Group 1 – Monday August 6

"Sustainable Engineering" Dr. Chiesa

This session will provide students with an understanding of how engineered solutions to societal problems must address long-term consequences. In particular, applied technologies should limit their use of non-renewable resources so that future generations will not be adversely impacted. After a brief background discussion, student groups will research, design and then fabricate prototype solar ovens to assess the potential for using solar energy in less-developed areas around the world. Ovens will be evaluated by their ability to maintain elevated (cooking) temperatures.
(Room E.C. 105) Limited to 16 students

"Vibration Sound and Music" Dr. Shoup

In this session students will explore the relationship between vibration, sound, and music. The session will include demonstrations using laboratory equipment for the analysis and quantification of sound and mechanical vibration. This session will include a discussion of sound filtering and a discussion of the mathematical basis for the traditional chromatic scale. After a brief discussion of digital music, we will spend some time investigating jazz, a significant, creative American art form which combines elements of improvisation, meter, tone colors, and syncopated rhythms.
(Room E.C. 326) Limited to 20 students

"C Programming" Neena Kaushik

This elective course will introduce the students to C programming in a linux environment. I will start with fundamentals such as variable declaration, program input-output, followed by sorting algorithms, and then proceed to advanced topics like pointers and linked lists. If time permits, I will cover the implementation of a stack and a queue from a linked list. I will also cover basic linux commands for writing, compiling, and running a C program.
(Room E.C. 618) Limited to 15 students

Group 2 – Tuesday August 7

"Solar Power" Dr. Gonzalez

In this session there will be a discussion of a sustainability community, followed by testing of solar powered mini cars.
(Room E.C. 326) Limited to 20 students

"How your CD Player Works"

In this session, we will explore how music is digitized and transmitted. We will simulate a digitization and compression set-up. Given time, we'll scratch some CD's and find out if they play correctly and what's going on.
(Room E.C. 325) Limited to 20 students

"Advanced Robotics" Mike Rasay

In this session, students will be introduced to fundamental techniques used in automating robotic systems. This introduction will explore various hardware components and their abilities to sense the operational environment. Students will also implement a solution for robot automation. Students must have some experience with robotics to sign up for this course.
(Room E.C. 304) Limited to 20 students

Group 3 – Wednesday August 8

"Introduction to Bioengineering" Dr. Shoup

Dr. Shoup will discuss some important topics in the field of biomechanics. The students will have the opportunity to participate in some activities that demonstrate ongoing research and practice in the field of medical devices as they relate to the replacement of human limbs. This session will end with a discussion of the mathematical modeling of human growth.

(Room E.C. 326) Limited to 20 students

"Introduction to Environmental Engineering" Dr. Chiesa

Dr. Chiesa will first provide a short overview of environmental engineering and related water resources issues in California. You will then visit the environmental laboratory and test several water samples for the impurities that contribute to water hardness.

(Room E.C. 105) Limited to 15 students

"Image Processing" Dr. Wood

In this workshop you will learn how a digital color image is stored and how you can change the image to see colors differently or to detect motion. You will use a graphical editor to apply functions and logical operations to make interesting changes to stored images and images from a PC camera. You will learn how "blue screen" special effects are created to put a person in front of a weather map or an exotic background, and you will make your own special effects.

(Room E.C. 318) Limited to 15 students