Springfield Technical Community College
School of Engineering Technologies
Department of Electrical Engineering Technology
Course Syllabus
Course Title: PCs, Programming and Robots **Course Number:** EET-101/L
Course Credits: Lecture 2 cr./Lab 1 cr. Instructor: Barry Mason

Meeting Days/Times: Spring 2019 Tuesday Lecture 5:30PM-7:10PM
Lab 7:15 PM – 9:45 PM

Catalog Description:
This course will provide the student with the basic knowledge about modern PC operation and upgrades as well as introduce them to the world of programming and Robots. The first few weeks of the course will introduce the basic components of a PC with emphasis on upgrade ability. The rest of the course will have students build, pro - gram and test their own BoEBot from Parallax. The interaction with the BoEBot will demonstrate how the PC is used as a control and communication portal, how hardware is controlled by software, and how, through the use of various sensors, robots can be designed to be autonomous.

Course Description:
The first several weeks of this course will introduce the student to the basic components and operation of a typical personal computer. Students will learn the basic functions of major hardware components and how to remove/install them, basics of current operating systems and the purpose of device drivers. The remainder of the course will focus on the construction, programming and debugging of the Parallax BoeBot. This will introduce the student to the basics of robot operation, programming fundamentals and using the PC as an interface between systems. Students will put theory into practice during the 3 hour lab session.

Pre-requisites: None.
Corequisite(s): EET-101L

Student Learning Outcomes (SLO's)
Upon successful completion of this course, students will be able to:
- identify basic hardware components of a PC.
- install and remove common PC hardware components.
- understand the relationship among operating systems, applications and device drivers.
- perform basic construction skills and electronic component identification.
- understand fundamental programming concepts and hone debugging skills.
- nderstand how the modern PC can serve as an interface between modern systems.
- reinforce professional conduct in lecture and laboratory environments.
- apply "hands-on" skills necessary for technicians in the electrical and electronics industry.
- use professional written and oral communication skills.

Text & Materials: There is no specific text for the course. Much of the content will be presented using online resources, so internet access is expected.

Lab Manual & Parts: Parallax BoeBot kit, available from *www.Parallax.com*, Item #: *28832*. If you are ordering this kit on your own (not purchasing from the STCC bookstore) you may be able to find it at reduced prices from online retailers. *Please make sure you order the correct kit with ALL components.* The lecture content will be supplemented with handouts, web-links, pdfs, simulations and other relevant information. Most of this material will be posted on the Forums at cset.stcc.edu/forums/. Within the first two weeks of classes you will create an account and be required to use the Forums throughout the semester. Students should regularly check the Forums at cset.stcc.edu/forums/ for current materials for EET-101. You are also expected to be able to use your STCC e-mail account.

Office Hours:
Bldg. 20 Rm. M119. TSupportEngineer@verizon.net
Other hours by appointment.

Grading Policy
* Attendance: Attendance is mandatory. Students absent from more than 3 classes may be removed from the class at the professor's discretion. It is the student's responsibility to make arrangements to make up any missed work. Missed work may only be made up if the professor allows. The schedule for any make up work will be at the instructor's discretion. If the student knows in advance he or she may not be in lecture it is the student's responsibility to notify the professor in advance. Attendance will be taken at each lecture & lab session. Be sure to sign in or follow the lab instructor's guidelines to properly record your attendance.

*Professionalism: The "Professionalism" portion of the grade may be reduced due to being late to the class, "fooling around", inappropriate language or conduct in or out of class and lab, being a disruption to the educational process, having non-course related conversations during lecture/lab, or similar violations of the course rules & policies. During exams and quizzes we do not allow the use of cell phones or any device with wireless, infrared or similar communications capability.

* Policy on course disruptions: Students are expected to act in a respectful and mature manner. Course disrup -
tions, loud or disruptive behavior, intimidation, violation of the policies and procedures set down in the STCC
Student Handbook, or similar problems will result in the student being removed from the lab or lecture.
Be sure to turn off all cell phones or other electronic devices before entering the lecture or lab. In many cases
the professors allow cell phones during lab but not while lectures are in process.
Talking, texting or causing dis -

ruptions while lecture is in process is also considered disruptive. At the professor's discretion he or she may attempt to correct the student's behavior or remove the student from the class.

The following is the STCC Code of Conduct from www.stcc.edu:

"*Springfield Technical Community College recognizes that all students, as members of the college community, enjoy the freedom of speech and assembly, freedom of association, freedom of the press, right of petition and the right of due process. These rights do not come without responsibilities and respect for others in the College community. Attendance at the College is a privilege and not a right, and enrollment carries with it obligations in regard to conduct, both in and out of class. Students are responsible for knowing and understanding the contents of this Code. Students are responsible for abiding by the laws governing the College and are expected to observe standards of conduct set by the College.*"

Grading:Lecture:

Professionalism: 20%
Lab: Professionalism: 20%
Homework: 5%
Lab Experiments: 50%
Quizzes: 25%
Reports/Projects: 30%
Exams (2): 50% (25% each)

Please note: You will receive a common grade for the lecture & lab portions calculated based upon the weights and formula given above.

Class Organization

The course is a presented in a combination lecture/lab format. Relevant questions and discussion are encouraged. Presentations may include a combination of blackboard & chalk, computer based presentations (e.g. PowerPoint) & computer simulation. Lectures and labs will include hands-on activities making use of available robotics, test & assembly equipment as well as computers and software applications. Internet research will be required for certain topics discussed in the course.

EET-101 Course Outline*
Week Topic

1 Introduction - course objectives & safety
2 PC Computer Fundamentals: Hardware, Software, Firmware.
3 Computer Processors, Motherboards, Memory & Data Storage/BoeBot Ch. 1 & 2
4 Interfaces: serial, parallel, internal, external & wireless/BoeBot Ch. 3
5 Basic networking concepts/ BoeBot Ch. 4 BoeBot Navigation.
6 BoeBot Ch. 4 BoeBot Navigation (continued)
7 *** Mid-Term Exam ***
8 BoeBot Ch. 5 Tactile Navigation with Whiskers
9 BoeBot Ch. 6 Light Sensitive Navigation with Photoresistors.
10 BoeBot Ch. 6 Light Sensitive Navigation with Photoresistors (continued).
11 BoeBot Ch. 7 Navigation with Infrared Headlights
12 BoeBot Ch. 7 Navigation with Infrared Headlights (continued)
13 BoeBot Ch. 8 Robot Control with Distance Detection.
14 Student Presentations
15 Final Exam
*Note: The instructor reserves the right to modify the course outline as necessary to best serve the educational
needs of the student.

NOTES:
It is important that you read and understand this syllabus. Copies of this syllabus will be available on the Forums at cset.stcc.edu/forums It should be understood that the time to seek help with an academic problem is at the first sign of such a problem. Problems that are allowed to grow out of proportion are much more difficult to deal with and can often be insurmountable. Please make your needs known to me at the earliest possible time and DO NOT wait until a week before a test to seek help! Office hours are as posted or by arrangement. Please note that at any time during the semester it may be necessary to alter the specified course outline. It is useful as a guide only and should not be taken as hard cold fact. Often during a semester, equipment failures and shortages of materials may hamper completion of a particular topic. We reserve the right to substitute, re -
place or delete any of the following scheduled lectures or labs.

Ethics criteria: In order to prepare students for the work place an ethical observation of each student will also be performed. Issues such as character, teamwork, appearance, language, productivity, respect, organizational skills, attitude, initiative, communication, courtesy and cooperation will be observed by the instructor. These criteria make up the *Professionalism* aspect of your grade.

Course Methodology and Philosophy

S.T.C.C. invests a considerable amount of resources into equipment for student and faculty use. As a member of the faculty, I will make use of all available teaching methods and tools. For lectures, most content will be delivered by a combination of Power Point/Computer Presentation and blackboard/whiteboard notes. Students are encouraged to actively participate by way of relevant questions and comments about the subject matter under discussion. It is my responsibility to make sure that the subject matter is presented in as clear a manner as possible. Your feedback is invaluable to my ability to accomplish this goal. You, as the student, also have your share of responsibility: Attendance: The scope of the material presented in this course is broad. Attendance is required to experience all the information as presented by the instructor. In addition, your input into the classroom discussion helps other students to better understand the material. Preparation: It is your responsibility to complete all assignments, reading and written, in a timely manner. Thorough preparation will help instill greater confidence in the subject matter and will facilitate lively classroom discussions. Proper preparation for quizzes and tests is also expected. Attitude and Behavior: It is your responsibility to make sure that your contributions to this course, and your attitude toward the people around you, are positive. Foul language and disruptive behavior will not be tolerated in this course. In addition, school property must be treated with respect at all times. This is especially true in laboratories. If you do not understand how to use a particular piece of equipment, you are encouraged to ask for assistance. You should report malfunctioning equipment immediately. Always return equipment and components to their proper locations. Leave your study or work area clean and neat for the next student.

Students with Special Needs

Any student who feels s/he may need an accommodation based on the impact of a disability should contact the instructor privately to discuss your specific needs. Before any accommodations are put in place, you should contact the Office of Disability Services at 755-4785 or stop by Building 19 Rm. 141 to coordinate reasonable accommodations for students with documented disabilities.