Course Outline for Electronic Systems Technology 62

INTERNET OF THINGS: HOME TECHNOLOGY SYSTEMS

Catalog Description:

ESYS 62 - Internet of Things: Home Technology Systems 2.00 units
The interconnections of people, process, data, and things; the four "pillars" that form the "Internet of Things (IoT)." Hands-on training in digital home networking and integration of IoT security and entertainment systems. Home network design and configuration. Testing and troubleshooting of IoT systems.
Requisites: none
Grading Option: Letter Grade

Discipline:

<table>
<thead>
<tr>
<th>Units</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week</td>
</tr>
<tr>
<td>Lecture</td>
<td>1</td>
</tr>
<tr>
<td>Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>Clinical</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Prerequisite Skills:
None

Measurable Objectives:
Upon completion of this course, the student should be able to:
1. explain the four pillars of IoT and the impact of IoT on business and home technology;
2. define the basic elements and architecture of an IoT home system;
3. explain how things that are non-IP-enabled and IP-enabled devices can be connected to a network to communicate in the Internet of Things;
4. explain security concerns that must be considered when implementing IoT solutions;
5. describe the M2M, M2P and P2P interactions of an IoT implementation model;
6. configure and troubleshoot typical home IoT systems.

Course Content:

1. Course Content, Lecture:
   A. The four pillars of the Internet of Things: People, Process, Data, and Things
   B. Connecting the unconnected
   C. Transitioning to the IoT
   D. Integrating the IoT system
   E. Home network design and configuration
   F. Testing and troubleshooting

1. Laboratory Content:
   A. Creating the core home network for the IoT
   B. Configure and test a wired-network home surveillance system
   C. Add wireless cameras to the home surveillance system
   D. Integrate the home surveillance system to the IoT
   E. Integrate home entertainment components to the IoT
   F. IoT testing and troubleshooting

Methods of Presentation
1. Lecture/Discussion
2. Laboratory
3. Online learning objects

Assignments and Methods of Evaluating Student Progress

1. Typical Assignments
   A. Describe how the four pillars of the IoT are used to model a typical home implementation of an IoT system.
   B. Troubleshoot a given structured cabling interconnect problem, correct the fault, and verify the correct operation of the system.
   C. Identify potential security issues in a home IoT system and implement mitigation measures as appropriate.

2. Methods of Evaluating Student Progress
   A. Quizzes
   B. Papers
   C. Class Participation
D. Home Work
E. Lab Activities
F. Observation and critique of laboratory exercises
G. Final Examination

3. Student Learning Outcomes

Upon the completion of this course, the student should be able to:

A. The student will configure and troubleshoot, as needed, typical home technology systems.
B. The student will describe the operation and configuration procedures for typical home technology systems.
C. The student will install, configure, troubleshoot, and operate a home theatre system and a home security and surveillance system.
D. The student will produce a configuration and operation manual for a home theater system and a home security and surveillance system.

Textbooks (Typical):

2. *Introduction to the Internet of Everything*, Cisco Networking Academy, (1.2/e).

Special Student Materials

1. Computer with Internet access

Abbreviated Class Schedule Description:

The interconnections of people, process, data, and things; the four "pillars" that form the "Internet of Things (IoT)." Hands-on training in digital home networking and integration of IoT security and entertainment systems. Home network design and configuration. Testing and troubleshooting of IoT systems.

Requisites: none