

**Course title and number: Introduction to the Internet of Things**

*Instructor's name, email, and office hours will be provided by the school*

**Course format**

All activities are online

**Course prerequisites**

None

**Course overview**

First, we had the internet of computers. Then with the advent of email and social media, along with mobile technology, it became the internet of people. Today's world is increasingly becoming the internet of things. With advances in battery power, sensors, and computer chips, more and more devices are being connected to the internet. This will allow them to be monitored, controlled, and used more effectively for people and businesses. This course will examine the trends and opportunities surrounding the Internet of Things (IoT). Students will learn about the technologies, hardware, and software that underpin the Internet of Things. The course will examine a variety of end-market applications in our homes, businesses and cities. Finally, students will learn about the many career opportunities that the Internet of Things will enable.

**Course outline by module**

1. Introduction to the Internet of Things
2. The Internet and the Cloud
3. IoT at Home
4. IoT and People
5. The Industrial IoT
6. IoT in Healthcare
7. IoT and Cars
8. IoT at the Store
9. IoT and Farming
10. IoT and Cities

**Course calendar**

The course is broken down into 10 modules (plus an introduction, Module 0) and is spread out over a 20-week semester. Each module is broken into 5 sections, which generally consist of a video lecture, a reading, and either a concept check or discussion prompt. After the 5 sections is the short answer assignment and quiz to finish the module. Enough time is worked in for the completion of these tasks.

<u>Week #</u>	<u>Module #</u>	<u>Sections</u>
Week 1	Module 0	1
	Module 1	1, 2
Week 2	Module 1	3, 4, 5
Week 3	Module 2	1, 2, 3
Week 4	Module 2	4,5

	Module 3	1
Week 5	Module 3	2, 3, 4
Week 6	Module 3	5
	Module 4	1, 2
Week 7	Module 4	3, 4
Week 8	Module 4	5
	Module 5	1, 2
Week 9	Module 5	3, 4, 5
Week 10	Module 6	1, 2, 3
Week 11	Module 6	4, 5
	Module 7	1
Week 12	Module 7	2, 3, 4
Week 13	Module 7	5
	Module 8	1
Week 14	Module 8	2, 3, 4
Week 15	Module 8	5
	Module 9	1, 2
Week 16	Module 9	1, 2, 3
Week 17	Module 10	1, 2
Week 18	-	-
Week 19	Module 10	3, 4
Week 20	Module 10	5
	Review & Final Exam	

### **Course objectives**

Upon completion of this course, students will be able to:

- A. Define the Internet of Things ("IoT"), machine-to-machine and other key terms related to the IoT
- B. Describe key technologies that have contributed to the development of the IoT
- C. Describe the hardware, sensors, and software that make up the IoT
- D. Evaluate applications of IoT in various end-markets, such as the home, work, healthcare, cars, and cities
- E. Give examples of scientists and engineers that have contributed to the advancement of the IoT
- F. Discuss the pros and cons of IoT, including side effects of use and potential security and privacy risks
- G. Predict the growth of connected devices and the adoption of IoT in various use cases
- H. Determine the impact of the IoT on the economy, environment, and jobs
- I. Identify potential career opportunities within IoT

### **Materials needed:**

All of the required articles we will read in class will be available online.

### *Other Office Supplies That May Be Helpful*

- A notebook or folder to store paper copies of texts that you print out
- Pen and pencil
- Highlighter
- Printer and printer paper

### *Software*

- Basic Office suite of software (a word processor). If you do not have Microsoft Office on your computer, you can either download Open Office (a free suite of Office software) or use Google Docs.
- A web browser. Several options are free online, including Google Chrome, Firefox, or Safari.
- Access to YouTube as all video lectures and most supplemental videos are hosted on YouTube.
- A functional email address that you check every day to maintain in contact with your instructor.

### **Technical skills required:**

- Download and upload files
- Download and install software
- Use email with attachments
- Create, save, and submit files in commonly used word processing program formats
- Copy and Paste
- Work in multiple browser windows and tabs simultaneously

### **Course requirements**

#### **Grading:**

- Syllabus Quiz: 5%
- Class participation activities: 20%
- Discussion: 20%
- Module Quizzes: 20%
- Short answer assignments: 20%
- Final exam: 15%
- Total: 100%

Letter grades will be assigned according to the following:

- 89.5%–100%    A
- 79.5%–89.4%    B
- 69.5%–79.4%    C
- 59.5%–69.4%    D
- Below 59.5%    F

### **Syllabus Quiz – 2.5%**

Before beginning Module 1, there is an orientation called Module 0. In there you will find a preview of the course, an orientation video, and a couple of videos on evaluating sources and plagiarism. Finally,

there is a quiz on the information covered in this Syllabus. This is a quiz you can re-take as many times as needed. So this is an opportunity to have a great start to this course with 2.5% in the bag!

### **Class Participation Activities – 30%**

Students are expected to participate in the class by watching the video lectures, completing the readings, and completing the concept checks provided throughout the modules. Participation and completion of these activities will be verified through your learning management system. There will be 3% of your grade allocated to each of the 10 modules, which totals 30% contribution of participation to your final grade.

### **Discussion – 30%**

Discussions are an important part of the learning process for students to “participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.” (Common Core CCR Standard SL.CCR.1)

Students are expected to prepare for and participate in online class discussions in the forum. Students are required to participate in at least one discussion each for each of the 10 modules. Each module’s discussions will count towards 3% of the total grade (for a total of 30%). For each module, you should contribute one initial post and reply to a minimum of 2 posts from other students.

Multiple prompts will appear in each module, generally as “reflections,” so you will not need to have an initial post for every prompt, but at least one per module. Students should contribute and check the forum at least two to three times per week. Grading for discussions will be assessed on the following qualities:

Criteria	Grading Scale			
<b>Initial Post</b> Student’s initial post clearly addresses the original prompt. They demonstrate a good understanding of the topic and include details from the materials covered.	<b>10</b> Excellent. Initial post is of excellent quality. Student references very specific details as evidence and may offer new ideas that have not been mentioned previously.	<b>8</b> Good. Initial Post is very good. Student demonstrates a good understanding of the topic and includes some evidence.	<b>6</b> Satisfactory. Student’s initial post demonstrates a fair understanding of the topic.	<b>0</b> No initial post is made.
<b>Replies (2 minimum)</b> Student responds to at least two other student’s	<b>10</b> Excellent. Student responds to at least two other students. Responses take	<b>8</b> Good. Student replies to at least two other students. The	<b>6</b> Poor. Student replies to one or two other students but replies lack depth.	<b>0</b> No replies made.

ideas in the discussion.	the discussion deeper by asking questions, challenging ideas, or addressing new topics.	reply adds depth to the discussion.		
<b>Total Points per Module: 20pts (2% of grade)</b>				

For class discussions to be meaningful, posts must be made in a timely manner according to the class schedule. Therefore, no credit will be given for that module's discussion after a deadline passes (which is when the next module begins). The Discussion deadlines are as follows:

Module 1: September 10, 2018

Module 2: September 21, 2018

Module 3: October 3, 2018

Module 4: October 17, 2018

Module 5: October 29, 2018

Module 6: November 9, 2018

Module 7: November 21, 2018

Module 8: December 5, 2018

Module 9: December 17, 2018

Module 10: January 9, 2018

### **Quizzes – 10%**

At the end of every module, students are required to take a quiz that will assess them on the learning objectives and vocabulary for that module. Each quiz will be worth 1% of your grade, so with 10 quizzes, this will total 10% of your final grade.

### **Assignments – 20%**

Every module will have a short answer assignment and a project, which is designed to get you thinking, and more importantly, writing about and experiencing the topics discussed in that module. Each paper is only two-paged double spaced (with 12-point Arial or Times New Roman font with no more than 1-inch margins on the header, footer, left, and right margins), so be concise and make sure to address all questions. Each module's assignments will be worth 2% of your grade, so with 10 graded submissions, this will total 20% of your final grade.

Each short answer assignment will be graded according to the following rubric:

Contributions	Description	Points Assigned
Provocative	Answer goes beyond simply responding to the questions; goes deep and provides greater insight	20
Substantial	Answer provides most of the content required, but does not require further analysis of the subject	15
Superficial	Answer provides obvious information without further analysis of the concept; lacks depth of knowledge or reasoning	10
Incorrect	Answer does not accurately address the questions; rambling and/or without consistency	5

None	No response provided to the questions within the required timeframe	0
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### **Final Exam – 7.5%**

A final exam, which will cover all the materials in the course, will be available at the end of the course and will count towards 7.5% of your final grade.

### **Late work or retakes**

Late work or re-takes of quizzes must be discussed and arranged directly with your instructor.

### **Getting help**

It is important to seek help if you have trouble understanding course materials or encounter technical problems. Depending on the situation, questions can be addressed to your instructor or your school's help desk. For Learning Management System-specific questions, find the support email or phone number on your Learning Management System's website. For course-specific questions or issues, please email [support@pointfuleducation.com](mailto:support@pointfuleducation.com)

### **Netiquette**

- Never write anything in the course that you wouldn't be comfortable printing in your local newspaper to be read by all your friends and family.
- Use appropriate emoticons (emotion icons) to help convey meaning. Use "smiley's" or punctuation such as :-) to convey emotions.
- Avoid sarcasm. People who don't know you may misinterpret its meaning.
- If you get upset by a message, take a little break. Don't respond when you're angry. Take a little while to think about it first!
- Keep posts to the point. Keep messages concise—about one screen, as a rule of thumb.
- Use appropriate language:
  - Avoid coarse, rough, or rude language.
  - Observe good grammar and spelling.
- Use appropriate intensifiers to help convey meaning.
  - Avoid sentences typed in all caps.
  - Use asterisks surrounding words to indicate italics used for emphasis (\*at last\*).
  - Use words in brackets, such as (grin), to show a state of mind.
  - Use common acronyms (e.g., LOL for "laugh out loud").
- Always be polite. Remember, you're dealing with real people, not just words on a screen.

(Sources: <https://www.education.com/reference/article/netiquette-rules-behavior-internet/> and Kipp, K., & Patrick, S. (2013). *Teaching on the education frontier: instructional strategies for online and blended classrooms: grades 5-12*. San Francisco, CA: Jossey-Bass.)

### **Plagiarism**

Be careful to avoid plagiarism. All plagiarized assignments will receive a zero and could have further disciplinary actions. When in doubt, cite the source or don't use it. Ask your instructor if you need assistance on citing sources or paraphrasing.

### **Companies mentioned in the Course**

While many companies, schools and projects are mentioned throughout the course, Pointful Education does not promote, endorse, or work with any company. All company names and products mentioned in the course are trademarks of those respective companies.

### **Privacy Policy**

Pointful Education does not record or retain student information or data. All data is maintained and controlled by the student's institution and its respective Learning Management System. Please contact your school or your Learning Management System provider for their specific privacy policies. Additional information on Pointful Education's privacy policy can be found at:

<https://www.pointfuleducation.com/privacy-policy>

### **Accessibility**

Pointful Education is committed to making our courses accessible to all. We have a national user base and are dedicated to continuously improving accessibility of our products with a focus on both the U.S. accessibility guidelines of [Section 508 of the Rehabilitation Act of 1973](#) (Revised in 2000), and the international [WCAG 2.0 guidelines](#) (Level AA) of the World Wide Web Consortium Web Accessibility Initiative of 2008. In addition, products are evaluated both manually and programmatically for conformance to Section 508 and WCAG 2.0 Level AA guidelines.

OCLC recognizes that creating accessible products is a continuous process that can only be improved by input from our users. Whether you have enjoyed or had difficulty using one of our products, or would like to make general comments, please contact us by emailing us at [support@pointfuleducation.com](mailto:support@pointfuleducation.com).