Course Description	
COURSE NUMBER and NAME	TECH 300 Internet of Things (IoT)
UNITS	3
LENGTH OF CLASS	8 Weeks
COURSE DESCRIPTION	This course provides students with the technology foundations supporting and enabling IoT applications in business, including an introduction to the necessary technologies, skill components, enablers, and constraints for using IoT in a business. Students not only learn how IoT technologies work but also how they can be used to achieve strategic advantage. Students learn from examples where IoT is transforming customer experience, operations, and business models. Real-world case studies, current literature, and practical assignments guide students as they construct a business roadmap to gain strategic advantage from IoT.
REQUIRED TEXT	None. Materials will be provided as appropriate during the course.
INSTRUCTIONAL METHOD	Online / On-Campus

Summary of Graded Work and Assessments

Graded work and assessments offer students the opportunity to show the degree of mastery for each CLO. The following table shows how assessments and CLOs align (link).

Assignments	Totals	Weight	CLOs
Engagement and Professionalism (Rubric): Live Class Activities	160	16%	1, 2, 3, 4, 5, 6, 7, 8
Week 1 Assignment	100	10%	1
Week 2 Discussion	75	7.5%	2
Week 3 Assignment	100	10%	3
Week 4 Discussion	75	7.5%	4
Week 5 Assignment	100	10%	5
Week 6 Assignment	100	10%	6

Assignments	Totals	Weight	CLOs
Week 7 Summative Assessment	150	15%	1, 2, 3, 4, 5, 6, 7
Week 8 Summative Assessment Presentation	140	14%	1, 2, 3, 4, 5, 6, 7, 8
Total Points/Percentage	**1000 Points**	**100%**	

Course Policies

For Westcliff's course policies, please see the Course Policies document.

Discussion Requirements

For all discussions, the primary response is due by Wednesday at 11:59 p.m. Pacific Time. The primary response must be at least 200 words in length and fully address the topic, demonstrating critical thinking and understanding. Each student must then also post a minimum of two responses to other students in the discussion by Saturday night at 11:59 p.m. Pacific Time. Each peer response must be at least 50 words in length and substantively engage with the other student's original post, continuing the discussion in a professional manner. If at any time information or material is brought in from an outside source or website, it must be properly cited following APA 7th edition guidelines, and a full reference must be provided.

Assignment Requirements

Each assignment deliverable is specifically defined in the assignment instructions, such as page length, citations and references, audio or video, presentations, tables, etc. For all written assignments, the required page length does not include the cover or references pages. Refer to the specific requirements as stated in each assignment, and reach out to your instructor for additional information as needed. All graded submissions are due by Sunday at 11:59 p.m. Pacific Time.

All written work must adhere to APA 7th edition academic formatting requirements including core components such as the cover page, page numbers, headings, citations, 1" margins, paragraph indentations, left alignment, double spacing throughout, and the final references using hanging indents.

Course Learning Outcomes (CLOs)

Learning outcomes are statements that describe significant and essential scholarship that students have achieved and can reliably demonstrate at the end of the course. Learning outcomes identify what the learner will know and be able to do by the end of a course – the essential and enduring knowledge, abilities (skills), and attitudes (values, dispositions) that constitute the integrated learning needed for successful completion of this course. The learning outcomes for this course summarize what students can expect to learn, and how this course is tied directly to the educational outcomes of the degree.

Course Learning Outcomes (CLOs)	PLOs
1. Describe IoT technologies including hardware and software.	2
2. Analyze critically and collaboratively how IoT can be strategically used in business applications.	3
3. Describe specific technical and business-related skills required to work in the IoT industry.	3
4. Discuss how IoT, in conjunction with other emerging technologies, can be used to transform the customer experience and how enablers and constraints for businesses can be used to develop an IoT solution.	1, 2
5. Describe how IoT can positively impact business operations.	2
6. Discuss IoT business models and determine which is most appropriate for a particular business or industry.	1
7. Build an IoT business case, including justification, research, solution criteria, and implementation roadmap.	1, 2, 4
8. Present an appropriate IoT solution for a particular business.	1, 2, 4

The following outline provides important assignment details for this course, unit by unit. Students are responsible for all of the assignments given. Please refer to the Detailed Description of Each Grading Criteria in the syllabus for specific information about each assignment.

Week 1
Assignments to complete this week:
- Reading:
  - Articles:
    - [What is the Internet of Things (IoT)?](#)
    - [A look at the top 5 IoT device types](#)
    - [85 Top IoT Devices](#)
    - [30 Internet of Things Examples you should Know](#)
- Videos:
  - [How to Become an IoT Software Developer](#)
  - [Learn IoT in 4 hours](#)

Week 1 Live Class Activity

Break into small groups depending on class size and research the current types of IoT devices in use, as well as create a brief list of devices that use IoT functionality familiar to your team. Discuss your lists with the live class. How can these devices be used to help businesses?

Week 1 Assignment ([Rubric](#))

Research current technologies used to create and support IoT devices and functionality, including hardware and software requirements. Outline what IoT really is and how it can be used to support business in 2 to 3 pages. Ensure APA formatting and include citations as needed.

<u>**Week 2**</u>

Assignments to complete this week:
- Reading:
  - Articles:
    - [What is AIoT (Artificial Intelligence of Things)?](#)
    - [AI and IoT Convergence Could Herald a New Era of Technological Change](#)
    - [Top 10 Ways IoT is Transforming the Businesses Today](#)
- Videos:
  - [Developing an IoT Strategy: What, Why, and How](#)

Week 2 Live Class Activity

Review this week's video. Discuss the topics and recommendations made during the panel presentation regarding the development of a strategic approach to IoT in business.

Week 2 Discussion ([Rubric](#))

Review this week's article readings. Research ways IoT can be used strategically in business. Select and address 2 of the methods you researched. Engage with others regarding the strategies they researched in the discussion.

Week 3

Assignments to complete this week:

- Reading:
  - Articles:
    - [What is an IoT Operating System?](#)
    - [Top 7 Must-Have IoT Skills to Boost your Career](#)
    - [Top 10 Applications of IoT in 2022](#)

Week 3 Live Class Activity

So far in this course, you have been introduced to IoT and discussed many different uses in business strategy. For this activity, break into small groups and research the specific supporting technologies that make IoT work. Is it just software and programming? Or, is there specific hardware (electronic components) that make IoT function? Return and discuss your findings with the class.

Week 3 Assignment ([Rubric](#))

Research current jobs available in IoT. Summarize what the key technical and managerial skills are that these jobs require. If you were to pursue a career in IoT, where do you need to focus your education and training? Write your summary in 2 to 3 pages. Ensure APA formatting and include citations as needed.

<u>**Week 4**</u>

Assignments to complete this week:
- Reading:
  - Articles:
    - Internet of Things and Big Data as enablers for business digitalization strategies
    - Prepare your organization for these 3 IoT challenges

Week 4 Live Class Activity

In small groups depending on class size, research how IoT is being used with other technologies, such as big data, industry 4.0, blockchain, AR/VR, etc. Select 1 of these conjoining technologies and create a 3-4 slide presentation to address how IoT can be used to transform the customer experience. Share your team's presentation with the class.

Week 4 Discussion (Rubric)

What may be some of the enablers and constraints for businesses to develop or implement IoT use? Are there certain industries that may be more suitable for IoT implementation than others? Research and support your response.

Week 5

Assignments to complete this week:
- Reading:
  - Article:
    - [IoT: The Essence of Business Operations](#)

Week 5 Live Class Activity

Review this week's article. In small groups depending on class size, review the various additional articles available at the bottom of the article web page. Select the article that the group finds most relevant. Review the chosen article and discuss how IoT can help to enhance business operations based on what you have read with the class.

Week 5 Assignment ([Rubric](#))

Adding to the research you performed for the Week 4 Discussion, select a specific business and research how IoT can be used as an enabler to support and enhance business operations. Build a business case to implement an IoT solution. Include an introduction and background to the business, the industry they operate in, and what they do. Rationalize why a strategic implementation of IoT may make sense for the business. Write your business case in 2 to 3 pages. Ensure APA formatting and include citations as needed.

You will continue to use this case in the Week 6 and Week 7 assignments.

Week 6

Assignments to complete this week:
- Reading:
  - Article:
    - [Top 9 IoT business models for 2022](#)
    - [7 IoT Business Models That Are Transforming Industries](#)

Week 6 Live Class Activity

Review this week's article. In small groups depending on class size, research 2 of the business models identified. Create a 3-4 slide PowerPoint presentation to deliver during the live class about each of the IoT business models you have selected. Answer how the model works, as well as pro's and con's to the model that a business should consider.

Week 6 Assignment ([Rubric](#))

Building on your case from Week 5, research and determine the most appropriate IoT business model and technology for your selected business. Determine your decision criteria and how the solution will address the business need presented in your business case from Week 5. Write 2 to 3 pages. Ensure APA formatting and include citations as needed.

<u>**Week 7**</u>
Assignments to complete this week:
- Reading:
  - Article:
    - [How to Build an IoT Product Roadmap](#)

Week 7 Live Class Activity

Review this week's article. Then, build your IoT product roadmap for the case you have been working on. This will be used in your Week 7 Summative Assessment.

Week 7 Summative Assessment ([Rubric](#))

Using the case you have been working on for the past few weeks, apply the IoT roadmap to plan out the implementation of your proposed solution. Combine your Week 5 and Week 6 Assignments together with this implementation plan and roadmap as a final IoT solution to be presented to business leaders for a total of 8 to 10 pages. Ensure APA formatting and include citations as needed.

You will present this case in Week 8.

Week 8

Assignments to complete this week:

Week 8 Summative Assessment Presentation (Rubric)

Present your IoT case from the Week 7 Summative Assessment. Your presentation should be 10-12 slides and last approximately 12-15 minutes, depending on class size and time available. Present your proposed IoT solution in a formal manner, as though you were presenting the concept to business leaders for their approval.