Subject Description Form

<table>
<tr><td>Subject Code</td><td>EIE2113</td></tr>
<tr><td>Subject Title</td><td>Introduction to Internet of Things</td></tr>
<tr><td>Credit Value</td><td>3</td></tr>
<tr><td>Level</td><td>2</td></tr>
<tr><td>Pre-requisite/
Co-requisite/
Exclusion</td><td>The students are expected to have some basic knowledge on computer hardware and software, as well as computer networks.</td></tr>
<tr><td>Objectives</td><td>1. To provide an overview on the Internet of things (IoT) including circuits, sensors, embedded systems, communications and networking, data processing, and security;
2. To introduce basic hands-on IoT concepts including sensing, actuation, and communications through lab exercises with IoT development kits.</td></tr>
<tr><td>Intended Learning Outcomes</td><td>Upon completion of the subject, students will be able to:
<u>Category A: Professional/academic knowledge and skills</u>
1. Understand key IoT concepts on circuits, sensors, embedded systems, communications and networking, and data processing;
2. Basic hands-on skills on developing simple IoT applications.

<u>Category B: Attributes for all-roundedness</u>
3. Understand the creative process when designing solutions to a problem;
4. Take up new technology for life-long learning.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The theories and applications of IoT will be described and explained in lectures. Tutorial and lab sessions will be conducted to deliver hands-on skills on prototyping IoT products and applications based on IoT development kits. The assignments and lab exercises will help students review the knowledge taught in class.
<table>
<tr><td>Teaching/Learning Methodology</td><td colspan="4">Intended Subject Learning Outcomes</td></tr>
<tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Lecture and Tutorial</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Laboratory and Practical Sessions</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Assignments and lab exercises</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
</table></td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific Assessment Methods/Tasks</td><td rowspan="2">% Weighting</td><td colspan="4">Intended Subject Learning Outcomes to be Assessed (Please tick as appropriate)</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>1. Continuous Assessment</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>• Homework and assignments</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>• Tests</td><td>20%</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>• Laboratory exercises</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Examination</td><td>40%</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="4"></td></tr>
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	Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: Assignments, tests/quizzes, and examination let students review the taught materials, do further reading for deeper learning and apply the learnt materials to solving problems. Lab exercises require students to do further reading, search for information, keep abreast of current IoT development, and develop their own IoT prototypes.	
Student Study Effort Expected	**Class contact (time-tabled):**	
	• Lectures/Tutorial	27 Hours
	• Laboratory/Practice Classes	12 Hours
	Other student study effort:	
	• Lecture: preview/review of notes; homework/assignment; preparation for test/quizzes	36 Hours
	• Tutorial/Laboratory/Practice Classes: preview of materials, revision and/or reports writing	30 Hours
	Total student study effort:	**105 Hours**
Reading List and References	1. R. Buyya, A. V. Dastjerdi, *Internet of Things: Principles and Paradigms*, Cambridge, MA: Morgan Kaufmann, 2016. 2. J. Davies and C. Fortuna, *The internet of things : from data to insight.* Hoboken, NJ: John Wiley & Sons, Inc., 2020. 3. M. Boada i Juncá, *Battery-less NFC sensors for the internet of things, [First edition]*. Hoboken, NJ: John Wiley & Sons, Inc., 2022. 4. S. Greengard, *The Internet of Things*, Cambridge, MA: MIT Press, 2015. 5. M. A. Iqbal, S. Hussain, X. Huanlai, and M. A. Imran*, Enabling the internet of things : fundamentals, design, and applications, First edition*. Hoboken, NJ: Wiley, 2021.	
Last Updated	July 2023	
Prepared by	Dr LIN Wei	