



Tohoku International School

Secondary School Course Syllabus

Course Title: Computer Science HL	Teacher: Mr. Zane Clifford Email: zclifford@tisweb.net
Level: Grade 11-12	Time Frame: Two years (2021-2023)
Brief Course Description: <p>The key concepts in Computer Science are information processing, the Internet, and programming. On completion of this course, students will have the background knowledge of computer science and the skills in designing and coding applications to have a strong foundation to undertake the official IB DP Computer Science Standard Level Examination. Students will develop their skills in problem-solving, and thinking algorithmically, while understanding how computers and the interconnectivity they allow will impact their lives.</p>	
Course Philosophy: <p>The computer revolution has completely transformed our world in recent decades. Every aspect of our lives is affected in some way, and knowledge of how computers work and programming skills will only become more important as time goes on. How do computers process information? How will the Internet affect the global stage? How can we design and code applications to help us solve our problems? By answering questions like this, this course aims to give students a solid basis and motivation to further investigate computer science at university level.</p>	
Course Objectives: <p>By the end of this course students will be able to:</p> <ul style="list-style-type: none">● Describe the components of computers including both hardware and software, and how they interact● Explain how computers store and process information● Explain how networks and the internet allow for worldwide communication● Identify the advantages and disadvantages of our increasingly connected world● Design and code their own programs to solve a real world program	
Units of Study: <ul style="list-style-type: none">● Computer Organization● Networks● Introduction to Programming with Python● Creating a GUI interface with Python● Object Orientated Programming with Java● Internal Assessment: Developing a solution● Abstract Data Structures● Resource Management● Control● Case Study	
TIS Assessments: <p><u>Projects – 50%</u> Students will be required to design and code their own programs which will then be assessed.</p> <p><u>Tests – 30%</u> At the end of each unit, there will be a 45-minute written assessment.</p> <p><u>Quizzes – 10%</u> Throughout each unit, students will be required to complete shorter written assessments (10-25 min).</p>	

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Computer Science Higher Level (HL)

Learning Skills – 10%

Attendance, organization, completion of course work and the ability to take initiative and work productively in various settings all play a role in student success and are important for achieving the course expectations. Students will be observed throughout the year in order to determine an accurate assessment of these skills, according to the TIS Learning Skills rubric.

IB Assessments:

External Assessments

- Paper 1 – 40%
- Paper 2 – 20%
- Paper 3 – 20%

Internal Assessment

- Solution – 20%

Resources

- Textbooks: Core Computer Science (Dimitriou/Hatzitaskos), Advanced Computer Science (Dimitriou/Hatzitaskos)
- Code.org
- Openbookproject.net
- Repl.it
- PyCharm
- Java Development Kit
- Java IDE – Eclipse
- Student laptops