Computer Science at TJHSST for 2017-2018

One credit in Computer Science (a full year) is required to graduate.

Ninth		
Students with little or no programming experience.	**Foundations of Computer Science** *Java: classes & objects, loops, if, arrays, files, graphics*	
Students with one year, or more, of programming.	**Foundations of Computer Science (Accelerated)** *Python: classes & objects, algorithmic thinking, data processing, modeling and simulation in addition to* Foundations of Computer Science	

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Tenth	
Prerequisite is Foundations of Computer Science, or the TJ CS Placement Test. *Apply by June 1, 2017; test will be administered in August 2017.*	**AP Computer Science plus Data Structures** *Java: strings, recursion, linked lists, stacks, queues, trees, maps, sets, heaps, graphs*

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Semester Electives - Eleventh & Twelfth

Prerequisite		
Prerequisite is APCS+DS. Students take AI 1 in fall and then may take AI 2 in spring.	**Artificial Intelligence 1** *Python: graphs, heuristics, constraint solvers, game trees*	**Artificial Intelligence 2** *Python: genetic algorithms, learning, natural language, agents*
Prerequisite is APCS+DS. Students take CV 1 in fall and then may take CV 2 in spring.	**Computer Vision 1** *C++: image filtering, detection, segmentation, recognition*	**Computer Vision 2** *C++: convolutional neural networks, motion*
Prerequisite is APCS+DS. Students take Parallel 1 in fall and then may take Parallel 2 in spring.	**Parallel Computing 1** *C: pointers, distributed memory, MPI, Manager-Worker*	**Parallel Computing 2** *C: threads, shared memory, OpenMP, XMT, CUDA*
Prerequisite is APCS+DS. Students take either course, or both in any order, in fall or in spring.	**Mobile App Development** *Android: Java based, phone, tablet, embedded*	**Web App Development** *PHP, JavaScript, SQL CSS, HTML, the DOM*

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Senior Research Labs

Prerequisite	
Prerequisite is APCS+DS. Recommend one or more electives in AI 1, AI 2, CV 1, CV 2, Parallel 1, Parallel 2.	**Computer Systems Lab** *Senior Research Project or Mentorship*
Prerequisite is APCS+DS. Recommend one or both electives in Mobile App and Web App Development.	**Mobile and Web Application Development Lab** *Senior Research Project or Mentorship*
One of three possible tracks is the computational track. Track prerequisites are both: AP Calculus BC and AI 1&2	**Neuroscience Lab** *Senior Research Project or Mentorship*

Any exception to a prerequisite should be directed to the Science and Technology Division Manager who (if supportive) will request the final approval of the TJ administration.