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*

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: recursion, linked lists, stacks, queues, trees, maps, sets, graphs, heaps*

Semester Electives - Eleventh & Twelfth

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*

Senior Research Labs

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.*