

MVLA
New Course Proposal Form

New courses may be considered by the Board of Trustees for the following school year. Proposals must be submitted to the District Office by Wednesday, October 24, 2018. Course proposals will be considered by the Board in November. Please submit form to Anika Patterson, anika.patterson@mvla.net in Education Services.

Proposed Course Name: Advanced Data Structures, Embedded Systems and Networking (ADEN)
Department: Technology Engineering and Design
School Site: LAHS

1. What A-G and/or graduation requirements would this course satisfy? If course is eligible for A-G, has the course been approved?
G, not yet
2. What is the rationale for this course? Include specific reference to CCSS, CA-NGSS, State and College Board Frameworks, and District goals as appropriate.
We have a large population of students who take AP CS as a first year CS course at LAHS and do not have another CTE course to progress further. This class will be the CTE pathway capstone for Computer Science.
3. What student population is likely to be served by this course?
The entire school population, open to all students who can demonstrate the necessary skills. AP Computer Science is recommended, but not required as students may have acquired the necessary skills through self-study or outside courses.
4. What value will this course add to the educational experiences of our students?
In addition to exploring the implementation and performance of advanced data structures in Java and their applicability to real-world problems, students will be exposed to other languages (at least C++) and embedded system programming. They will develop software to control a robot through multiple autonomous navigation challenges. Network protocol, configuration and secure transactions will also be covered. Students will work both individually and collaboratively on projects throughout the course. using industry standard revision control solutions.
5. Is this course part of a sequence? (exs. an introductory course that leads to another, or a college prep course that prepares students for AP offerings):
This course would become the CTE Capstone for the Computer Science pathway but it is not required to be a second-year course.
6. How was it determined that there is a demand for this course?
The current Advanced Data Structures taught by Foothill College at LAHS had an enrollment of >40 in 2018-2019, and it is assumed that this proposed class would effectively replace the current Foothill offering. In addition, AP Computer Science is growing from 3 sections to 4 sections for the 2019-2020 school year, which should generate increased demand for this follow-up course. Informal surveys of students at the end of AP Computer Science revealed a strong interest in continuing to explore both advanced computer science topics and networking.
7. How many sections of the course are anticipated for the first year it is offered? How many in years 3-5?
1 section to start, but room to grow if interest meets expectations.
8. What is the possible impact of this course on other courses and/or the master schedule?
This course will be an elective, but since it is expected to replace the current section taught by Foothill, no impact on other courses or the master schedule is expected.
9. Other than section allocation, are there other budget impacts, such as for textbooks, equipment, materials, etc.?
It is expected that much of the teaching materials for this course will be teacher-generated or are available online as public domain. In addition, this course would need laptops/desktops capable of supporting the required computing tasks. Physical materials would include 15-20 robots (assumed students will share robots and to allow for breakdowns) - possibly covered through an innovation grant or a CTE grant - and 1 server + router to support the unit on networking.

10. Is there other pertinent information not addressed in the responses above that would support the approval of this course?

This is an entirely new course in Computer Science that covers the content equivalent to the first year of an Undergraduate Computer Science curriculum, and adds a hands-on exploration of the interactions between Hardware and Software. The first two years FTE for this course could come out of future CTEIG funds from the state(?). Pilot and first year courses can be paid for out of these grants(?).

Proceed to signatures on Page 2

Site recommendation and signature, to be completed by the Principal:

Does the proposed course have the support of the department to which it is associated?

Yes ___ No ___ Not applicable

Does the site Leadership Team or Coordinator Group support adopting the proposed course?

Yes ___ No ___ Not applicable

As the site leader, do you support presenting this proposed course to the Board for consideration?

Yes ___ No ___ Not applicable

Principal's signature: Wynne Satta Date: 10/24/19

District Office Use Only:

Associate Superintendent Signature/Date [Signature] 10/30/19

School Board Approval Date: _____