Tamalpais Union High School District
Larkspur, CA
Course of Study

Honors Architectural Design

Title of Course: **Honors Architectural Design**	
Course Author(s): Tim Bingham	Schools where the course will be taught: TAM, Archie Williams, Redwood
Length of Course: 1 year	Subject Area and Discipline: **Applied Technology**
Grade Levels: **11, 12**	Is this course an integrated course? **no**
Is this course being submitted for possible UC honors designation? **yes**	Are you seeking UC approval? If so, in what area (A-G)? **Yes F**
Prerequisites (required or recommended): **Architecture 1-2, Architecture 3-4**	Co-requisites (required or recommended): **none**
Check all that apply: **X** UC A-G course ☐ Graduation Requirement ☐ Elective **X** Honors/AP ☐ ROP	

Introduction to the Course

Course Overview:
Architectural Design Honors is the capstone course in the architecture sequence where students will be creating projects that meet college and industry standards. Students will work in an office/studio environment working on self-directed projects of various architectural types and styles in more detail and depth then completed in the Architectural Design 1 – 4 courses and will complete at least one project that is presented to industry professionals as part of a competition or showcase.

In the Architectural Design Honors course, all projects that students will create several initial design concepts that will integrate empathetic and sustainable design elements, while following project program requirements, as well as city ordinances and state building codes.
This is an architecture course in which the students work as individuals, and in teams, to design and develop an original solution to proposed problems by applying a design process, critical thinking, collaboration and communication with fellow students and faculty.

During the design process students will receive industry, faculty and peer feedback during critique showcases by using sketches, hand drawings and technology (computer aided design – CAD) and physical models. As in industry, students are expected to express and communicate their design concepts and intent graphically, written and verbally using appropriate architectural vernacular and

language to emphasize the art design principles and elements. Each project will require a written description of the proposed design and will be submitted as part of the required documents. Students will create final deliverables similar to project drawings, posters, presentation slide decks, etc. that will be formally presented to peers, industry and community partners.

Over the course, students will create and maintain a physical and electronic portfolio of completed work and final documents showing quality drawings, models, and presentations for use in college applications or for career opportunities. All students are required to compete in an architectural design competition with a post-secondary institution or with an industry organization, such as the American Institute of Architects during the course.

At the completion of the course, students will be able to understand principles of 3D design (form, space, and volume), to integrate rhythm and pattern into building designs, to understand and implement correct human proportion and scale into building designs, select building materials with knowledge of their properties, integrate the principles of passive solar design and sustainable design concepts in all building designs, create documentation in 3D architectural software Revit (including drafting, modeling, and rendering), and constructing scaled architectural models by hand and by using the laser cutter, create a complete set of portfolio quality project documentation, understand building codes, zoning ordinances and ADA requirements as they relate to project outcomes and constraints, and incorporate LEED ratings where applicable.

Unit Title: ***Architecture for a Community***

Unit Summary: Students will create a mixed-use structure to support a community in need. The proposed solution will have students design a building that has a temporary housing portion, as well as a commercial or municipal community function that is required due to emergency circumstances or a climate related disaster. The created structure should be adaptable and at the completion of the immediate need of the community, the building should have proposed secondary uses.

Unit Outcomes: Students will create portfolio quality designs by hand and with computer aided design software to show required architectural views. A scaled physical model will be required as well as part of an industry style presentation to peers. The focus of the project to create structures with empathy for a community, to understand uses for all, and to design buildings that can be adaptable to a community as it recovers will be showcased in the written project proposal description and during the verbal presentation at the end of the project.

Sample Unit Assignments: Help for Haiti, Design for Sea Level Rise, Fire Recovery

Recommended Common Assessment: Students will be assessed on the use of industry standard vernacular, quality of architectural drawings and model, and overall presentation using course rubrics.

Unit Title: ***Architecture for our Community***

Unit Summary: Students will create a sustainable addition / or new campus for the high school. The design will require students to research and record the existing building's uses and current needs, and determine future requirements for students, staff and programs. The educational structure will be multi-story and will require students to learn and follow state building codes for safety and accessibility for all users. The design must include features, elements and materials that are sustainable, at a minimum to include solar orientation, passive heating and cooling, alternative energy, and water

reclamation.
Unit Outcomes: Students will create portfolio quality designs by hand and with computer aided design software to show required architectural views and renderings. A scaled physical model will be required as well as part of an architectural college style presentation to peers and community partners. Students will create post-secondary architectural program style presentation boards to present with a written and verbal project program description. The focus of the project is to create structures that meet the future high school community's program while following state and local building codes and ordinances for educational buildings. Students must highlight the sustainable aspects of their design as well as their understanding in the building science of structural engineering required to sustain their designs.
Sample Unit Assignments: Redwood STEM Hub
Recommended Common Assessment: Students will be assessed on the use of industry standard vernacular, quality of architectural drawings and model, and overall presentation using course rubrics

Unit Title: ***Architecture for a Client***
Unit Summary: Students will identify a client in need of an architectural design for a structure - this could be a family member, friend, or staff. The design will incorporate a minimum square footage and complexity that will ask the student to bring a 'full-circle' of their understanding of use of space, function and flow of areas, architectural styles, sustainability, structural systems, and adherence to local and state building codes. The project additionally will be required to be LEED certified, an industry standard for green building practices.
Unit Outcomes: Students will create portfolio quality designs by hand and with computer aided design software to show required architectural views and renderings. A scaled physical model will be required as well as part of a formal presentation to industry professionals and peers. Students will create post-secondary architectural program style presentation boards and a presentation slide deck to present with a written and verbal project program description. This project will be a capstone project requiring use of all appropriate language and graphic design learned during the architecture course pathway.
Sample Unit Assignments: Residential projects for family members
Recommended Common Assessment: Students will be assessed on the use of industry standard vernacular, quality of architectural drawings and model, and overall presentation using course rubrics.

Unit Title: ***Architecture as Inspiration***
Unit Summary: Students will create a solution to an industry or post-secondary architectural design competition. Each student will be required to enter and submit a project where they design and present their solutions to professionals in the architecture and building fields. The students will showcase their knowledge in architecture and art to create visually appealing deliverables to express their responses to the competition design prompts.
Unit Outcomes: Students will create portfolio quality designs by hand and with computer aided design software to show required architectural views and renderings. A scaled physical model will be required as well as part of a formal gala style presentation to peers, staff and local community partners. The students will also create written project descriptions to accompany their design deliverables to the industry and college faculty reviewing their competition entries.

Sample Unit Assignments: Architectural Foundation of San Francisco Annual High School Design Competition; Norwich University Architectural Design Competition

Recommended Common Assessment: Students will be assessed by industry or college level instructors on their work as part of the submission of deliverables for the industry or post-secondary design competition. Similar review and assessment will be conducted by the course instructor per project and presentation rubrics.

Recommended Texts and Resources:

Architectural Graphics / Edition 6 by Francis D. K. Ching
Autodesk Revit as the software for the class.
USGBC LEED Certification - Green Associate.
UBC Building Code