Course Title:

Construction: A Tour through the Trades

Course Description:

The course aims to equip students with the comprehensive skills and knowledge required for success in the construction industry. This hands-on course introduces students to the fundamental skills and knowledge needed to work in five essential building trades: plumbing, electrical, HVAC-R, masonry, and several carpentry trades. In this course for beginners, students will learn tool safety and technical skills and engage in activities to prepare for further training or entry-level work in the trades. Additionally, units will include health and safety practices, technical drawing interpretation, and sustainable energy solutions. Additionally, students will enhance their problem-solving, teamwork, and communication skills and explore entrepreneurship opportunities within the construction field.

The **Carpentry** units will provide essential skills in woodworking, framing, structural construction, and technical drawing, along with required safety skills. The **Electrical** unit will focus on wiring basics, circuitry, and safe practices for handling electrical components. In the **Plumbing** unit, students will practice pipe installation, repair, and troubleshooting along with understanding water supply and drainage systems. During the **HVAC-R** unit, students will gain a foundational understanding of heating, cooling, and ventilation systems, including refrigerant handling and system maintenance. Additionally, the **Masonry**, **Drywalling**, and **Finishing** units will teach students techniques for constructing, repairing, and finishing walls, including proper use of materials and tools.

Virtual reality (VR) simulations will be incorporated alongside hands-on projects throughout the course to enhance the student learning experience. These simulations will provide practice in tasks such as troubleshooting electrical circuits, navigating HVAC systems, and performing complex carpentry cuts, enhancing hands-on skills in a safe and controlled environment.

In addition to classroom and workshop instruction, the course includes field trips to local job sites, guest speakers from the industry and post-secondary credential-granting institutions (Peterson School, Franklin Cummings Tech, North Bennett Street), and collaboration with the Brookline Building Department so that students will understand the regional trades labor market.

DESE Career Cluster: Construction

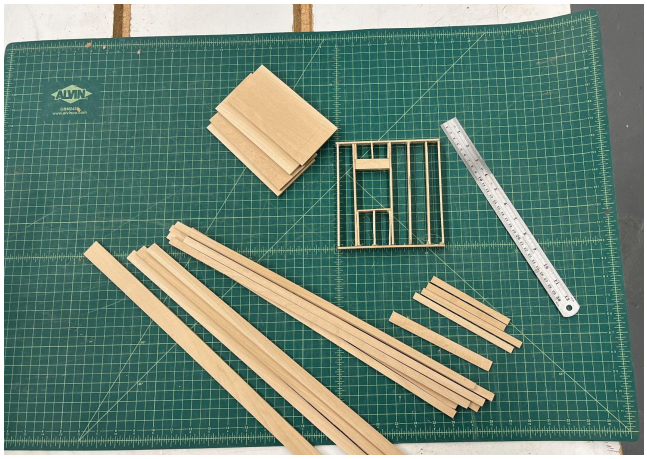
This course aligns with selected and merged DESE Career Cluster Standards from 7 of 8 strands (see links below). **Health & Safety Standards** emphasize the importance of creating safe and healthy environments through proper practices and awareness. This course incorporates **Technical and Integrated Academic Standards** by blending hands-on technical skills with foundational academic knowledge, ensuring students are prepared for real-world applications. **Employability Standards** are met by fostering critical skills such as

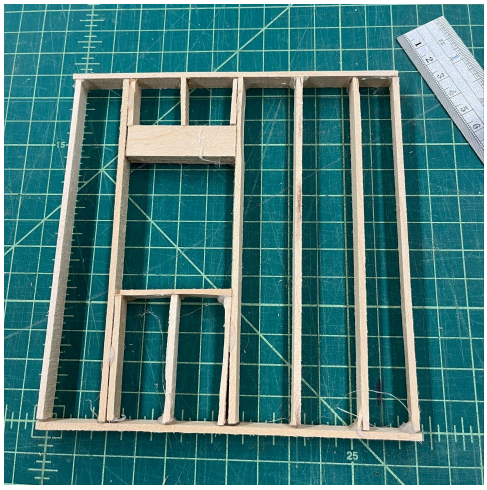
communication, teamwork, problem-solving, and professionalism, which are essential in any career. Additionally, the course integrates **Entrepreneurship Standards** by encouraging innovative thinking, business planning, and an understanding of market dynamics, empowering students to develop and pursue entrepreneurial opportunities.

- Carpentry (2024)
- Electricity (2024)
- Plumbing (2024)
- HVAC-R (2024)
- Construction Craft Laborer
- Facilities Maintenance Mgmt
- Mason and Tile Setting
- Painting and Design Technologies

Key Topics Covered:

- Tool identification and usage across all trades
- Scale model building of residential housing. In the pictures below, a single wall with a window opening was made with a hot glue gun, and the tools in the woodshop.





- Blueprint reading and basic layout skills
- Hands-on practice with pipe installation, wiring, HVAC system maintenance, and carpentry
- Safety protocols, including personal protective equipment (PPE) and safe handling of hazardous materials
- Introduction to building codes and regulatory standards
- Basic troubleshooting techniques for plumbing, electrical, and HVAC systems
- VR simulations for skill-building in real-world scenarios

Space Requirements: Possible locations for building project walls and classroom activities

- ☐ UA Basement hallway for interior and exterior wall construction
- ☐ UA16 for walls, floors and material storage
- ☐ UA Woodworking shops for classroom activities, individual workstations, model building, and tool management
- ☐ STEM 204 for occasional video screening

- ☐ Exterior space behind UA for small masonry projects

Learning Outcomes: By the end of this course, students will:

Standard		Unit	Duration
1	**Health and Safety Proficiency**: Demonstrate comprehensive health and safety practices, including the use of PPE, adherence to OSHA and EPA regulations, and effective hazard mitigation in shop and construction environments.	1. Safety Unit	1 week
2	**Hoisting and Rigging:** Assist with hoisting and rigging tasks by identifying the center of gravity, selecting appropriate equipment, and using effective communication.		
3	**Ladders and Scaffolding:** Demonstrate safe installation, use, and maintenance of ladders and scaffolding.		
4	**Technical Drawing Interpretation:** Identify, design, and interpret technical drawings and blueprints relevant to construction projects.	2. Models Unit	2-3 weeks
5	**Carpentry and Construction Math:** Apply carpentry principles and basic construction math to identify building materials and complete layouts to specifications.		
6	**Structural Building Skills:** Demonstrate industry-standard practices for constructing and installing floors, walls, ceilings, partitions, and roof framing.		
7	**Interior and Exterior Finishing:** Utilize techniques for finishing interior and exterior systems, including siding, trim, molding, and weatherization products.	3. Framing Unit	2 weeks
8	**Fastening and Tool Operation:** Safely install various fasteners and operate power tools per industry standards.		
9	**Tool and Equipment Management:** Operate, maintain, and store hand, power, and pneumatic tools safely and efficiently.		
10	**Electrical Theory and Circuit Building:** Explain AC/DC electrical theory, measure and build circuits, and install electrical components such as raceways, conductors, and overcurrent protection. Describe and evaluate grounding systems, including the use of electrodes, bonding jumpers, and grounding methods.	4. Electricity Unit	2-3 weeks
11	**Plumbing Skills:** Demonstrate techniques for measuring, cutting, joining, and installing plumbing pipes and drainage systems according to the Massachusetts State Plumbing Code.	5. Plumbing Unit	2-3 weeks
12	**HVAC-R Skills:** Apply HVAC-R guidelines for measuring, cutting, and joining pipe and ductwork per project specifications.	6. HVAC Unit	1-2 weeks
13	**Tile Setting:** Execute tile-setting procedures, including project preparation, pattern alignment, adhesion, and grouting.	7. Finish Unit	1-2 weeks

Standard		Unit	Duration
14	**Drywall Application:** Demonstrate the application and finishing of drywall to align with project specifications.		
15	**Masonry Skills:** Perform masonry tasks, including preparation, layout of brick bonds, paver base construction, and precision in masonry work.	8. Masonry Unit	1-2 weeks
16	**Energy Efficiency and Sustainability:** Design energy-efficient systems, identify compliant insulation materials, and use sustainable resources according to IECC guidelines.	9. Big Picture Unit	1 week
17	**Professional Skills:** Exhibit critical thinking, problem-solving, professionalism, teamwork, and collaboration.		
18	**Entrepreneurship in Construction:** Describe business opportunities and evaluate the benefits of entrepreneurship in the construction field.		
19	**Demolition:** During the last week, safely deconstruct the construction projects using proper techniques and concepts of leverage.	10. Demo Unit	Last week

Technology Use: Candidates will utilize tools associated with each trade: *This tool set supports various tasks across carpentry, electrical, plumbing, HVAC-R, masonry, and safety operations in the construction environment. Most equipment is currently in BHS inventory.*

General Hand Tools

1. Hammers (claw, sledge, mallet)
2. Screwdrivers (flathead, Phillips)
3. Pliers (needle-nose, locking, cutting)
4. Wrenches (adjustable, socket, pipe)
5. Tape measures and rulers
6. Levels and squares (spirit level, carpenter's square, speed square)
7. Utility knives and blades
8. Hand saws (crosscut, hacksaw)
9. Chisels

Power Tools

10. Drills (corded and cordless)
11. Fastening power tools (impact wrenches)
12. Circular saws
13. Jigsaws and Reciprocating saws
14. Power sanders (orbital, belt)
15. Nail guns (pneumatic or battery)
16. Table saws
17. Miter saws

Masonry Tools

18. Trowels (brick, pointing, margin)
19. Mason's hammers
20. Jointers
21. Mixing tools for mortar (rental)
22. Levels and lines (for masonry work)

Plumbing Tools

23. Pipe cutters (PVC, copper)
24. Pipe wrenches
25. Pipe threaders
26. Plumber's tape and sealants
27. Tube reamers
28. Crimping tools

Electrical Tools

29. Wire strippers and cutters
30. Multimeters and Circuit analyzers
31. Fish tape
32. Conduit benders

HVAC-R Tools

33. Duct cutters and crimpers
34. Sheet metal shears
35. Thermometers

Safety Equipment

36. Personal Protective Equipment (PPE) – helmets, gloves, safety goggles, ear protection
37. Harnesses for elevation work
38. Dust masks and respirators

Measurement and Layout Tools

39. Laser levels
40. Chalk lines
41. Measuring wheels
42. Plumb bobs
43. Tape measures (various lengths)

Specialized Construction Tools

44. Ladders (extension, step)
45. Scaffolding systems (rental)
46. Tile cutters
47. Drywall lifts
48. Drywall trowels and knives
49. Joint compound applicators
50. Hydraulic jacks

Demolition Tools

51. Sledgehammer
52. Jackhammer (rental)
53. Pry Bars, crowbars, wrecking bars
54. Reciprocating saw
55. Nail pullers

Summary: This course is ideal for 11th and 12th-grade students interested in exploring a career in the skilled trades or gaining foundational knowledge in building and repair techniques for personal use. No prior experience is required.

Contemporary US Proposal

Background

- This course has historically been offered for many years at BHS. It fell off the course catalog a few years ago when the department had many more electives competing for student enrollment within our department. The only changes that have been made to this version of the course is that the previous iteration started after WWII, but this version will move students forward significantly to be able to learn a more “contemporary” history.
- We are keen to offer a history course for students in their senior year.
- The Social Studies department spent the fall pitching and voting for new courses and this course was by far the most popular choice both in terms of what the department needs to round out their offerings and what teachers are excited to present to students.

Course Description

Contemporary American History: 1980–Present is a mixed-level (Honors or Standard credit), one-semester elective that delves into the dynamic history of the United States from the late 20th century to the present. As the only history-specific offering for seniors at the high school, this course provides a unique opportunity to engage deeply with recent historical developments. Students will explore the political, social, economic, cultural, and foreign policy changes that have shaped contemporary America. By examining key events, movements, and figures, students will gain critical insights into the challenges and opportunities faced by the nation during this transformative period. Through analysis, discussion, and research, students will deepen their understanding of the country's recent history, uncovering the roots of many issues and trends that influence the world today. This course will equip students to make meaningful connections between the past and present, preparing them to be informed, thoughtful, and engaged members of a rapidly changing society.

Potential Topics: Not a definitive list, but just a sample

Domestic Politics and Policies

- Reagan Tax Cuts, Americans with Disabilities Act, Immigration Act of 1990, *Roe v Wade*, “Don’t Ask, Don’t Tell,” Welfare to Work, Marriage Equality, No Child Left Behind Act, Affordable Care Act (Obamacare), Trump Tax Reform, Budget Control Act, Economic Relief, and more.

Foreign Policy and Military Engagements

- Cold War, INF Treaty, Strategic Defense Initiative, Iran Hostage Crisis, Grenada, Iran-Contra Affair, Persian Gulf War, War on Terror, Iraq, Afghanistan, Operation Enduring Freedom, Iran Nuclear Deal, Trade Wars, and North Korea.

Social and Cultural Shifts

- Equal Rights Amendment, Sandra Day O'Connor, Sally Ride, Los Angeles Riots, OJ Simpson Trial, Women's March, George Floyd, Alternative Rock and Hip Hop, and advancements in diversity and inclusion.

Technological and Environmental Developments

- Macintosh Computer, Hubble Space Telescope, Deepwater Horizon, SpaceX, Paris Agreement on Climate Change, Exxon Valdez Oil Spill, and Hurricane Katrina, Social Media revolution.

Major Events and Crises

- September 11 Attacks, Challenger, Oklahoma City Bombing, Great Recession, Coronavirus Pandemic, Enron Scandal, Capital Riot and government shutdowns.

Elections and Leadership Transitions

- Ronald Reagan, George H.W. Bush, Bill Clinton, Election of 2000, Bush v. Gore, Barack Obama, Donald Trump, Joe Biden, and related impeachment proceedings or controversies.

Potential Assignments/Activities

Oral History Interview: Conduct and record an interview with someone who experienced a significant historical event from the 1980s, 1990s, or early 2000s to gain a personal perspective on history.

Debate on Contemporary Issues: Participate in structured debates on topics such as immigration policy, the role of the U.S. in global conflicts, or the influence of technology on society.

Media Analysis Projects: Analyze a piece of media (e.g., a news article, film, or TV show) from a specific decade to understand its reflection of the era's social or political climate.

Policy Proposal Presentation: Research and propose solutions to a current issue rooted in developments from the 1980s onward, such as healthcare reform, climate change, or criminal justice policy.

Pop Culture and History: Explore how music, fashion, or movies from a specific decade reflect societal trends and changes, culminating in a class presentation.

Primary Source Analysis: Examine and interpret documents such as speeches, court rulings, or political cartoons from the course's time period to understand their historical significance.

Research Paper on a Major Event: Write an in-depth paper on an event like 9/11, the 2008 financial crisis, or the rise of social media, analyzing its causes, impacts, and legacy.

Community Impact Project: Identify and research a local issue tied to broader historical trends.

Brookline High School English Department
New Course Proposals for 2025-2026
~ DRAFT~

From Peter Sedlak
11th/12th Grade
Friendship in Literature and Film

Coming out of a once-in-a-generation global pandemic, many people appear more attuned than ever to the importance of friendship. This course will explore the pleasures, struggles, and complexities of friendship through a study of short stories, novels, and films that all consider the meaning of friendship and other important connections. In this course, we'll look at characters and the various ways they connect or seek out non-romantic connections. What does it mean to call someone a friend? How are friendships different from other types of relationships? What makes certain friendships last a lifetime and others fall apart? Why is the pain of losing a friend often less acknowledged than the pain of losing a partner or a family member? How are male friends different from female friends? How do race, gender, and ability impact friendships? Friendship, after all, is a capacious category; friendships can be platonic, they can be familial, they can become romantic (or walk a fine line), they can become clique-ish, they can exist in nature and extend across species, they can be intimate or professional, and, of course, they can become fraught. Besties can become rivals. Competitors can become frenemies. Sometimes friendships need to cool down, and, in some cases, a positive intensity can transform into enmity. Students will study texts such as Toni Morrison's *Sula*, Claire Keegan's *Foster*, Yasmina Reza's *Art*, and some classics like *Hamlet* and *Gilgamesh*. We will also view films like *Moonlight*, *Didi*, and *Crip Camp*, as well as read several short stories and poems.

From Rob Primmer
12th Grade
Justice in Action: Unpacking Crime, Law, and Consequence
(with Social Studies)
In this full year interdisciplinary course, students would earn 2 credits (one for English and one for Social Studies). This elective focuses specifically on the criminal justice system and would replace the current Legal Studies course. Students will learn the difference between civil and criminal law and the full criminal justice procedure including what happens post trial and sentencing. Students will do a deep dive into two major case studies: The case of OJ Simpson and the case of Charles Stuart, both highlighting and delving deeper into the issues in criminal procedure. At the same time, students will read books and watch films closely related to these same issues. During the third quarter, students will complete 4 observation hours a week to replace three days of class. During the other class periods, we will move our Citizens Police Academy to "in school hours" using the time to discuss current issues in policing including de-escalation, mental health, less lethal weapons, drugs, and domestic sex trafficking. Students will complete a final project in both English and Social Studies using the knowledge to create a major mock trial packet and a screenplay or final paper. The course is divided into two sections and taught by an English teacher and a Social Studies teacher in separate blocks which will sometimes meet together.