



the TRADES

Is one right for you?

Let's overhaul an engine!

When you think of creative careers, which ones come to mind — sculpture, film directing, dancing? Are mechanics and carpentry on the list? If not, it's probably because you've been taught that jobs and careers are either manual *or* mental, but not both.

Matthew B. Crawford, author of *Shop Class as Soulcraft*, is out to smash that misconception. Crawford has a Ph.D. in political philosophy from the University of Chicago, but he prefers to be known as the owner of a motorcycle repair shop because he finds working with his hands to be much more mentally engaging.

The “mental” in manual work

Here's what Crawford has to say about the creativity he throws down in motorcycle repair: “The repairman has to begin each job by getting outside his own head and noticing things. He has to look carefully and listen to an ailing machine. Piston slap may indeed sound like loose tappets, so to be a good mechanic you constantly have to be attentive to the possibility that your first assessment of the problem may be incorrect. The very best mechanics are always open to different possibilities and explanations, beyond their original perceptions of what the problem may be.”

To Crawford, a good “manual worker” understands a lot more than most people think: “The carpenter learns different species of wood, their fitness for load-bearing and water-holding, their dimensional stability with changes in weather, and their varying resistance to rot and insects.”

And Crawford's not alone. MIT economist Frank Levy defines creativity in the trades as knowing what to do when the rules run out. “It's what a good mechanic does after his computerized test equipment says a car's transmission is fine, but the transmission continues to shift at the wrong engine speed.” Knowing what kind of problem you're dealing with means knowing what factors can and cannot be ignored. This kind of judgment cannot be made by following rules.”

This kind of judgment elevates manual work to an art, which is why some people now refer to the trades as the “useful arts.” Crawford's work involves an active process in which he looks at a maze of patterns and root causes. Applying his knowledge and perceptions, he becomes deeply involved in what he works on. This, he states, is the main ethic of a good tradesperson — manual work *is* mental work when one cares personally about the thing on which he or she is working.

The “social currency” of manual work

“The repairman or maintenance expert is called in when the smooth operation of one's home or world has been disrupted,” Crawford observes. As our society produces more and more knowledge workers — accountants, lawyers, and business people, for example — fewer and fewer of us know how to take care of our own stuff, whether it's our lawn mowers or the roofs of our houses. As a result, there's a growing demand for the skills of a tradesperson. Plus, while a lot of jobs have gone overseas, the manual trades have not. If you need a deck built or your horse shod, the factory worker overseas isn't going to be helpful.

Princeton economist Alan Binder predicts that wages will rise for trade workers, who provide face-to-face contact and personal service — like a plumber who can fix the problem that's caused two inches of water in someone's basement. “Practical know-how is always tied to experience. It cannot be downloaded. Basically, you can't fix leaky pipes over the Internet,” Binder observes. Who ya gonna call? Not someone in India.

What's in a name?

► Match the following tradespeople with their “useful arts.”

1. Practitioners of the Bates method ...
2. Farriers ...
3. Luthiers ...
4. Equissage physiotherapists ...
5. Doulas ...
6. Iridologists ...
7. Cartwrights ...
8. Glaziers ...
9. Diamantaires ...
10. Horologists ...
11. Questioned-document examiners ...
12. Reflexologists ...
13. Saddlers ...

- a. make large wagons and carts.
- b. look at handwriting to determine whether documents are forged or authentic.
- c. design, make, and repair clocks and watches.
- d. make bridles and saddles for horseback riders.
- e. help to correct vision through natural exercises rather than surgery.
- f. provide therapeutic massage to horses and other four-legged animals.
- g. cut and measure gems for jewelers.
- h. provide emotional support and childcare help to mothers or couples before, during, or after childbirth.
- i. shoe horses.
- j. massage parts of the feet, hands, or ears to try to improve general health or to address a particular physical ailment.
- k. make guitars.
- l. analyze the iris of the eye to locate inflammation throughout the body, and to determine body constitution and general levels of health in a person.
- m. cut, install, and replace glass in all kinds of buildings, from small homes to skyscrapers.

Training for a Trade

Trade schools offer short-term training in various occupations. Some specialize in one particular area, while others offer a variety of programs. They go by different names — technical colleges, proprietary schools, institutes — but they share one distinct feature: Compared to traditional colleges, they provide students with more concentrated study and learning opportunities in particular fields.

Students who attend trade school may not have to take general courses such as English composition, history, or psychology; and by focusing on technical courses within a particular field of interest, students often can complete a program within a matter of months or a couple of years, rather than four or five years.

The trade-offs

Trade schools are great places to get specialized career training in a comparatively short time. Keep in mind the following when looking at different types of opportunities:

- Credits at some trade schools across the country are not transferable. This means that if you later want to go to college, you may have to begin at the beginning once you arrive on campus. The Vermont Technical College is one exception. This school has transfer arrangements with all of the other Vermont state colleges, if the courses you took at VTC are required by the program at the Vermont state school to which you want to transfer.
- Trade schools across the country may be expensive, as some of them are run as profit-making businesses. However, if they're eligible for federal financial aid, their financial aid packages may be generous. This may cancel out much of the difference you have to pay out of your own pocket.

Want to learn more? Go old-school and look for the following titles in your school or local library:



Vermont
Technical
College makes **TOP 10!**

Vermont Technical College has once again been named among the **top 10** best public colleges in the Northeast by *U.S. News & World Report*.

Its job placement rate for graduates: **98%**

CHECK IT @ www.vtc.edu

Going to the dogs

You may not be interested in veterinary school (it's harder than medical school to get in to), but that doesn't mean you can't work with animals. Why not become a veterinary technologist or veterinary technician? In addition to working in veterinarian offices, vet technologists and vet technicians work at:

- boarding kennels
- animal shelters
- stables
- grooming salons
- zoos
- educational institutions
- various local, state, and federal agencies

Learn about annual pay and education requirements at www.bls.gov/ooh/occupation-finder.htm, and learn the differences between veterinary technologists and veterinary technicians in terms of the work they do and the training required.

Vermonter goes for the gold

Jeff Zayas is a certified gemologist and estate jewelry expert who grew up in Bellows Falls. He began his career in high school while working for Harty's Jewelers in his hometown. From Bellows Falls, he enrolled in the graduate jeweler program at the Gemological Institute of America in California and then moved to New York City, where he worked at a jewelry firm on Fifth Avenue. Now a Woodstock resident and a graduate gemologist, Zayas travels around the country on behalf of his own business. Check his bling at <http://zayasjewelers.com>.



**a too
cool
school**

The Williamson Free School of Mechanical Trades outside of Philadelphia, Pennsylvania, is the only **free** boarding school of its kind in the nation. In a three-year program, young men (sorry gals — the school is still “men only”) can earn associate's degrees either in construction technology (with an emphasis on carpentry, masonry, horticulture, landscaping, or turf management) or in machine tool, power plant, or structural coatings technology. Students can also earn craftsman diplomas in carpentry, machine trades, and power-plant organization.

Williamson provides all students with **full scholarships** that cover tuition, room, board, and textbooks; in exchange, students agree to abide by the school's dress code and rules. Student responsibilities include help with the food service and maintenance of the buildings and grounds, which provides hands-on learning experience.

Founded by some Quaker dude back in 1888, the school's been operating since then.

CHECK IT @ www.williamson.edu

Is a regional tech center for you?

Interested in getting a taste of the “useful arts” while you’re still in high school? If so, you may want to look into one of Vermont’s 15 regional career and technical centers, and two comprehensive high schools. These schools provide an early introduction to technical careers, along with basic training to get you started.

For the location of a technical center near you, and courses at each location, visit <http://education.vermont.gov/sites/aoe/files/documents/edu-cte-directory-2017-2018.pdf>. Here are some of the courses available:

Agricultural mechanics	Emergency & fire management
Animation & Web design	Engineering
Architecture	Forestry & natural resources
Auto body repair	Health careers
Automotive technology	Heating, ventilation & air conditioning
Aviation technology	Heavy equipment
Business/marketing	Horticulture
Carpentry	Industrial design & fabrication
Communications technology	Industrial maintenance
Computer network management	Industrial mechanics
Computer programming	Information technology
Construction site management	Law enforcement
Cosmetology	Legal services
Culinary arts	Medical records
Dental assisting	Precision machining technology
Design — visual communication	Printing
Diesel/truck mechanics	Salon management
Diversified agriculture	Video production
Drafting & design	Web/multimedia management
Electrical engineering technology	Welding/metal fabrication
Electricity/electronics occupations	Woodworking

In its **Best Careers** series, *U.S. News* recommended some of the following skilled trades:

cosmetologist/hairstylist

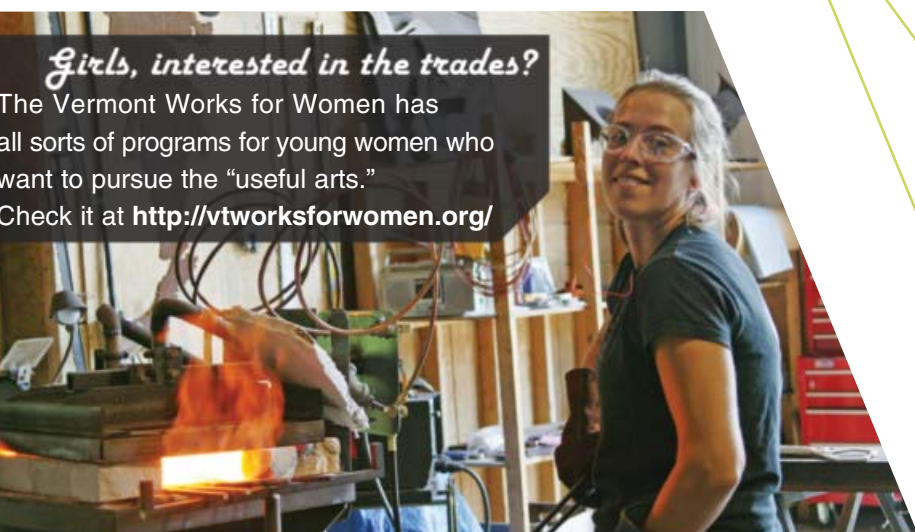
firefighter

machinist

electrician/electronics technician

Girls, interested in the trades?

The Vermont Works for Women has all sorts of programs for young women who want to pursue the “useful arts.” Check it at <http://vtworksforwomen.org/>



Vermont Works for Women, Winooski

What to know if you go ...

If you enroll in one of Vermont’s regional tech centers, you’ll usually spend the full school day at the center while continuing to be enrolled at your “sending high school,” where you may take additional academic classes if you wish. This may be necessary if after high school you’re planning to apply to a technical college or traditional college that requires certain classes such as Algebra II or chemistry.

If the idea of a regional tech center appeals to you, start by doing some up-front research because, as is true with any academic plan, if you’re interested in continuing your education after high school you’ll have to make sure you can graduate with all the credits and classes you need in order to be accepted at the school you’re aiming for.

If you attend a career or technical center in Vermont, dual enrollment opportunities exist for you. Dual enrollment means you can graduate from high school with college credits under your belt! Learn more at <http://fastforward.vsc.edu>.

study cosmetology @

Central Vermont Technical Center, **Barre**
Essex Center for Technology, **Essex Junction**
Hartford Career & Tech. Center, **White River Junction**
North Country Career Center, **Newport**
Northwest Technical Center, **St. Albans**
River Bend Career & Tech Center, **Bradford**
Stafford Technical Center, **Rutland**
Southwest VT Career Dev. Center, **Bennington**

study fire services @

River Bend Career & Tech Center, **Bradford**
Windham Regional Career Center, **Brattleboro**
Northwest Technical Center, **St. Albans**

study emergency services @

Central Vermont Technical Center, **Barre**
River Bend Career & Tech Center, **Bradford**
Windham Regional Career Center, **Brattleboro**

study industrial mechanics/maintenance @

Hartford Career & Tech. Center, **White River Junction**
Patricia Hannaford Career Center, **Middlebury**
River Valley Technical Center, **Springfield**

study precision machining @

Lyndon Institute Technical Center **Lyndon Center**

study electricity/electronics/electrical engineering @

Central Vermont Technical Center, **Barre**
Green Mtn Tech. & Career Center, **Hyde Park**
St. Johnsbury Academy, **St. Johnsbury**
Stafford Technical Center, **Rutland**
Windham Regional Career Center, **Brattleboro**

Visit <http://education.vermont.gov/sites/aoe/files/documents/edu-cte-directory-2017-2018.pdf> for a complete list of statewide centers, along with the programs they offer.

explore the trades

TRY A TRADE!

equipment manager: You work for a construction company, and one of your responsibilities is to buy new equipment. At the Web sites of manufacturers of big machines — Caterpillar (www.caterpillar.com) and John Deere (www.johndeere.com) — find pricing information for a truck, a bulldozer, and a backhoe. Compare the prices and features of similar machines. Make a chart or poster as way of reporting your findings to your supervisors.

interior designer: A magazine wants you to present a basic design for the ultimate young-adult bedroom. Draw a plan that shows where all the furniture will be placed. Write down specifics about floor coverings, wall colors, window treatments, and lighting. Use pictures from magazines or Web sites, fabric samples, and paint chips from a hardware store to illustrate your ideas.

heating, ventilation, and air conditioning technician: Space that an air conditioner is equipped to cool is measured in British thermal units (BTUs). About 30 BTUs are required to cool one square foot of space. Research four different air conditioners, find their “cool capacity,” and determine the square footage of spaces for which they would work. Where might you use each one? What type of air conditioner would be best for cooling your bedroom? Your classroom? The school cafeteria?

landscape architect: The county in which you live has just designated a piece of land on which to build a new park, and you’ve been hired to design the landscape. To get design ideas, visit local parks in your area or go online to research famous ones like Central Park in New York City and Lincoln Park in Chicago. Take notes on all aspects of the park: walkways, bike paths, shrubbery, flowers, trees, skate ramps, and facilities. Then make a detailed sketch of your park that includes basic components — parking lot, playground, garden, outdoor stage, and any other features you want to include.

plumber: You’re applying for a job at a plumbing company. As part of the application process, you must submit a simple diagram of a toilet and explain how it works. (Feel free to do some research at www.howstuffworks.com or in plumbing guides at the library.)

surveyor: You’re about to graduate from a surveying program, and your graduation challenge involves choosing a plot of land and surveying it. Pick a defined area such as the school parking lot or athletic field, and record as many details as possible — include slopes, large rock formations, the size of the land, cracks in the surface, tree growth, etc. Visit www.lsrp.com/lot.pdf for an example of a land survey.

flooring mechanic: You’ve been hired to tile a room that’s 10 feet wide and 25 feet long. The tile the customer selected is a 10-inch square. Assuming a half inch between tiles, draw a diagram to show how many tiles will be needed and how they will be laid down.

Source: Career Ideas for Teens in Architecture and Construction by Diane Lindsey Reeves.



Students at Stafford Technical Center in Rutland

got their green on, working at a Route 7 solar project that supplies power for approximately 50 homes. Students in the electrical plumbing program constructed and installed the solar panels, while students in the architecture, engineering, and design program designed the energy shed where the wiring is housed. After removing trees and redesigning the surrounding area, students in the forestry and natural resources program will construct walkways to enable the public to view the project up close and personal.

VERMONT’S “ENLIGHTENED” ELECTRICAL workers go solar!

Some years ago, the South Burlington-based union IBEW Local 300 — the Vermont branch of the International Brotherhood of Electrical Workers — invested more than \$100,000 to teach the state’s electrical workers everything they need to know about installing, maintaining, and troubleshooting the latest in PV systems (that’s “photovoltaic,” or solar energy, systems).

The training — open to everyone from new apprentices to senior electricians — involves a 32-hour, hands-on course that’s extremely popular, with demand outstripping classroom capacity. This may be due to the fact that among green energies, solar power is the least controversial in Vermont: Unlike wind energy projects involving turbine “farms,” solar arrays can simply be built onto or into existing structures, and they create no noise, visual obstruction, or negative impact on local wildlife.

In the same year, the Vermont Clean Energy Fund announced \$3.1 million in renewable energy grants, including seven projects through Housing Vermont and a grant to build a solar array atop City Market in Burlington. Peck Electric in South Burlington has “enough projects to

keep us busy a long time,” said Matt Murphy some time ago in an interview with *Seven Days*. Murphy, who oversees Peck’s solar projects, quit his job as a computer programmer to become an electrician, primarily because he was so interested in solar power. “There’s a huge demand right now,” according to Murphy.



students from Stafford Technical Center,