Semiconductor Investment = Economic Advancement

Workforce education, social mobility, and community enrichment

HILLSBORO
SCHOOL DISTRICT

Questions for Policy Makers

Why should we invest in attracting semiconductor industry to Oregon?

How does the community benefit as a result of investment in the semiconductor industry?

The logic of sector-specific workforce investment

Wealth gaps and barriers to social mobility exist in our communities.

Wealth (personal and community) can be generated if people have sector-specific education and training.

Hillsboro partners are collaborating and aligning systems in the advanced manufacturing and semiconductor sectors right now.

Dēmos

IASP

The Racial Wealth Gap

Why Policy Matters

The Racial Wealth Gap: Why Policy Matters

Racial Wealth Audit.org

Figure 1. Wealth Accumulation and Size of the Racial Wealth Gap, 2011

Latino families (any race): $102,798
Black families: $104,033
White families

Median Wealth
Size of the Wealth Gap with White Families

Source: Survey of Income and Program Participation (SIPP), 2008 Panel Wave 10, 2011

Factors

For Wealth Disparity

1. Home Ownership
2. Education
3. Income

How can **workforce education** reduce **income inequality**?

Center on Budget and Policy Priorities (2022)

- Employment programs + in-demand jobs = $4,500 more per year
- Registered apprenticeship = $7,000 more per year ($300K over a lifetime)
- Recommendation to invest in **work supports**, including **transportation**, affordable **child care**, and access to **health services**

How can **workforce education** reduce **income inequality**?

National Conference of State Legislatures (2021)

- One-year training program for underserved youth = $7,000 more per year
- "Sector training" in e.g. IT, finance, business, and software

Also: MIT News (2022)

WORKFORCE EDUCATION
A NEW ROADMAP

WILLIAM B. BONVILLIAN
SANJAY E. SARMA
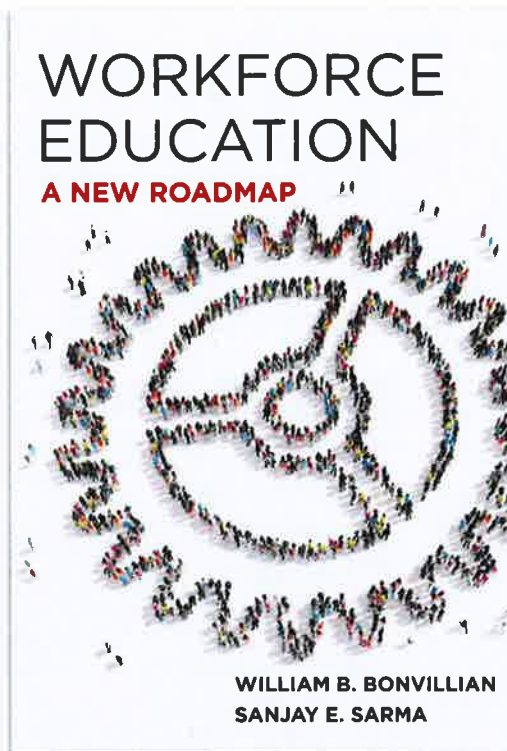
Recommendations for US States

- Use community colleges along with high schools and area employers to create **youth apprentices** that begin in high school.
- Create **short technical training programs**...and create credits for these that can lead to degrees and broader certifications.
- Work to unify state labor, education, and economic development programs to support **complementary program delivery**.
- Create **statewide plans** and efforts to bring education in advanced technologies to the workforce.

Bonvillian, W.B. and Sanjay E. Sarma. *Workforce Education: A new roadmap.* 2021. p. 247

SEIZING OPPORTUNITY

Initial Report and Subcommittee Findings

Oregon Semiconductor Competitiveness
Task Force

August 2022

Semiconductor Task Force Findings

...nearly 50% of positions require no more than **high school or community college training** (p.4)

...more than $1.5 billion in **state and local tax revenues**. (p.7)

Semiconductor Task Force Findings

Nearly 44% of the semiconductor workforce holds only **high school or two-year post-secondary degrees**.... Intel alone has hired 1,900 workers this year, many of whom needed no more than a high school degree to **earn well-above average paychecks**....

...opportunity to create many thousands of **middle-class pathways** for Oregonians, particularly those experiencing long term **systemic economic disparities**. (p.7)

Semiconductor Task Force Findings

Sustaining that advantage in talent and innovation requires additional investment in our talent and workforce development systems to build the nation's best pipeline of semiconductor talent from technicians to PhDs. It also requires more **collaboration and alignment** with our **K-12, community college**, local **government** and **community-based organizations** to recruit, train and retain a **diverse, reliable workforce and increase economic mobility for our communities**. (p.8)

KEY EMPLOYERS

1:4 of Hillsboro jobs are in manufacturing

4.5% 12-month job growth in manufacturing

88% of Hillsboro's manufacturing jobs are in high tech manufacturing

43% of Oregon's high tech jobs are in Hillsboro

Workforce Collaborative

HILLSBORO HIGH SCHOOL
COMPUTER SCIENCE

INSTRUCTOR:
TERRY ALEXANDER
alexandt@hsd.k12.or.us

For students interested in:

- Programming
- Web design
- Computer game design
- Engineering
- Robotics
- Electronics
- Computer science

SEQUENCE OF COURSES
Please refer to HSD course catalog for more information.

PATHWAY TEACHES STUDENTS TO:

- Create computer games through the use of a game engine, such as Game Maker or Unity
- Use basic computer coding and computational thinking
- Build and program robots that are sensors to accomplish tasks
- Solve complex problems both individually and as a team
- Create and maintain web pages using HTML, CSS and other web authoring tools
- Use Photoshop Creative Suite to create web graphics
- Learn to use industry standard software development tools and project management skills

CAREER POSSIBILITIES & SALARY RANGES

Computer and Info Systems Manager	$92,185- $158,774
Computer Software Engineer	$80,517- $125,008
Web Developer	$51,000- $76,000
Database Administrator	$64,522- $105,477
Network Administrator	$54,784- $62,053
Software App developer	$76,378- $122,990
Computer Programmer	$60,736- $95,618
Computer Systems Analyst	$69,575- $122,990

SOME LOCAL COLLEGES & MAJORS

- PCC– Associate of Applied Science: Website Development and Design, Network Administration or Computer Info Systems, One-year Certificate: Website Development and Design, Career Pathway certificate: Web Assistant
- OSU– Bachelors of Science: Computer Science
- PSU– Bachelors of Science: Computer Science or Computer Engineering
- U of O– Bachelors of Science: Computer and Information Science

POTENTIAL LOCAL EMPLOYERS

- Intel
- Qorvo
- Fujitsu Computer Products of America
- Oracle America
- Axiom Electronics
- Enli Health Intelligence
- Aero Drone Corporation
- Cabot Microelectronics Corporation
- McAfee Lab
- Nvidia Corporation
- Synopsys

To learn more about career and college opportunities, make an appointment with your counselor 503-844-1988

CENTURY HIGH SCHOOL
INDUSTRIAL & ENGINEERING SYSTEMS

INSTRUCTOR:
MATT LOUN
lounm@hsd.k12.or.us

For students interested in:

- Design
- Layout
- Production
- Manufacturing

SEQUENCE OF COURSES
Please refer to HSD course catalog for more information.

PATHWAY TEACHES STUDENTS TO:

- Create accurate 2D and 3D drawings using CAD software
- Make structural drawing sets to industry standards
- Be effective as a team member to research data and create drawings
- Make mechanical drawing sets including detail and assembly drawings of parts
- Program industry level machines such as 3D printers and scanners, CNC vinyl cutters, CNC routers, CNC plasma cutter, a CNC mill, laser cutter/engraver.

CAREER POSSIBILITIES & SALARY RANGES

Aerospace Technician	$38,000 - $93,000
Manufacturing Technician	$30,368 - $42,193
Engineer	$72,250 - $120,000
Structural Designer	$60,500 - $110,000
Production Manager	$84,306 - $120,000
Machinist	$31,720 - $80,000
Materials Planner	$47,013 - $90,000

SOME LOCAL COLLEGES & MAJORS

- PCC– One Year Certificate: Computer Aided Design and Drafting
- U of O– Bachelors of Science: Product Design
- Chemeketa Community College– Associate of Science: Computer Assisted Drafting (CAD)
- Clackamas Community College- Associate of Applied Science: Computer-Aided Manufacturing
- OSU– Bachelors of Science: Manufacturing Engineering or Mechanical Engineering

POTENTIAL LOCAL EMPLOYERS

- Applied Materials
- Jireh Semiconductor
- CoorsTek
- Acumed
- Tososh Quartz
- Davis Tool
- Epson
- Qorvo
- MetaFab
- Phoseon
- ASM
- Axiom
- Intel
- RD Plastics

To learn more about career and college opportunities, make an appointment with your counselor 503-844-1814

Hillsboro launches Oregon's first advanced manufacturing apprenticeship for high school students

By Kate Davidson / 24
Aug 31, 2022 5 a.m.

The program provides a pathway to jobs in the semiconductor industry. But it's starting small.

A group of high school students visits Jireh Semiconductor in 2019. Jireh is part of an apprenticeship program at Hillsboro's Century High School aimed at building the next generation of cleanroom technicians.
Courtesy of Jireh Semiconductor

High schoolers don't usually help manufacture semiconductors.

But in tech-heavy Hillsboro, where companies have about 800 job openings in advanced manufacturing, that's about to change — at least for six students at Century High School.

New apprenticeship program a pipeline from Hillsboro schools

Troy Shinn   August 30 2022

Students train for two years for entry-level jobs in Hillsboro's growing semiconductor industry.

Hillsboro's growing demand for entry-level manufacturing government, business lea school appro pipeline for h

The upcomi Appren

Manufacturing

Hundreds of manufacturing jobs are unfilled. This apprenticeship program aims to fix that

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Century High School students toured Jireh Semiconductor and Tekom Quartz as part of their consideration to apply for the new Hillsboro Advanced Manufacturing Apprenticeship program.
HILLSBORO SCHOOL DISTRICT

By Malia Spencer – Portland Inno, Portland Business Journal
Aug 29, 2022

IN THIS ARTICLE   The Hillsboro Advancement Manufacturing Apprenticeship program will be a model for programs across the state.

Education
Industry

RECOMME
Longtime staple
Hill closes

Oscar's, DBC83
new life to close
downtown resta

For more information....

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