

Work-Ready Electronics

Synchronizing Curriculum to the Rapidly Changing Workplace

Module: **Introduction to Electronics Industry**



Introduction to Electronics

The dictionary defines electronics as a branch of physics that deals with the emission, behavior, and effects of electrons and with electronic devices. Basic courses in electronics cover DC and AC circuit fundamentals. These courses teach electrical theory, current, voltage sources, Ohm's and Kirchhoff's laws, resistors, capacitors, inductors, transformers, basic circuit theory and analysis techniques.

But what will you do with this after graduation? What is a career in the electronics industry all about? Electronics has many different areas of application and some really fascinating jobs and career choices. This module explains the workings of the electronics industry.

What Technicians Need to Know

- Major segments of the electronics industry
- Composition of the electronics industry and how it works
- Major markets and employing organizations
- The relationship between the different types of companies

The Electronics Industry

The electronics industry can be divided into the following segments for discussion:

- **Components:** small, independent parts or devices used on printed circuit boards and integrated circuits
- **Computers:** different types and peripheral equipment
- **Communications:** wire and wireless types
- **Control and Monitoring:** to control effectively, systems must monitor what they control
- **Instrumentation and Measurement:** testing and analytical equipment; collecting and analyzing all types of data

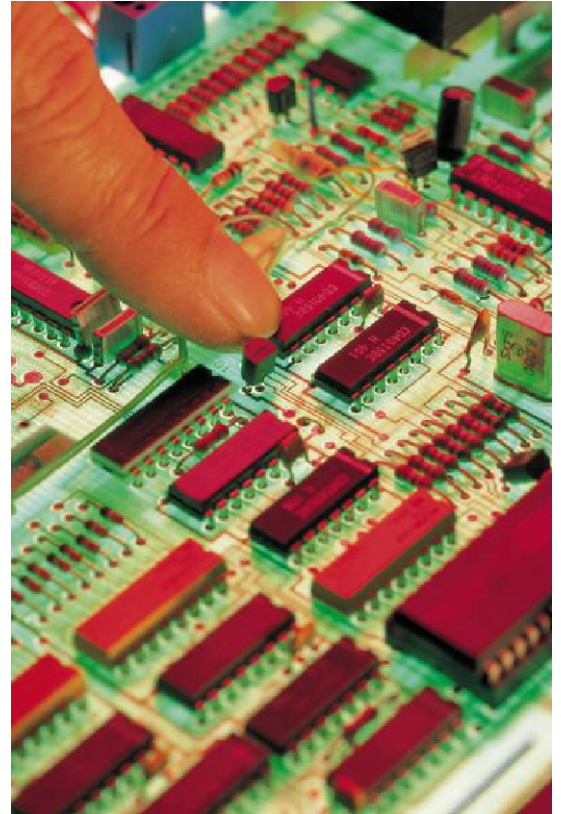
Categories and Applications

Major Electronic Equipment Categories

Components	Computer	Communications	Control	Instrumentation
Integrated circuits	Super computers	Radio	Factory automation	Test equipment
Transistors	Mainframes	Television	Robots	Test systems
Diodes	Servers (networks)	Telephone	Appliances	Data acquisition
Resistors	Workstations	Satellites	Home control	Medical
Capacitors	Personal computers	Cable TV	Security	Telemetry
Inductors	Peripheral equipment	Networks	Toys	
Transformers	Embedded controllers	Wireless systems	Automotive	
Connectors	Special purpose such as industrial or military	Consumer entertainment		
Printed circuits				
Wire and Cable				

Electronic Components

- Cable and connectors
- Capacitors
- Diodes
- Inductors and transformers
- Integrated circuits or chips
- Printed circuit boards (PCBs)
- Resistors
- Transistors



Computers

- Embedded microcontrollers
- Engineering workstations
- Peripheral equipment: printers, disk drives, CRT monitors, etc.
- Personal computers
- Mainframes
- Servers (for networks)
- Special purpose: military, industrial, etc.
- Supercomputers



Communications

- Cable TV
- Computer networks
- Radio, all types, broadcast, 2-way, etc.
- Satellite TV
- Telephones (wired, cellular, other)
- Wireless systems



Control and Monitoring

- Appliances
- Factory automation
- Home control
- Industrial telemetry
- Process control in plants
- Robots
- Security
- Toys
- Automotive



Instrumentation and Measurement

- Data acquisition
- Medical: diagnosis and testing
- Telemetry
- Test equipment: meters, oscilloscopes, others
- Test systems: special and automated

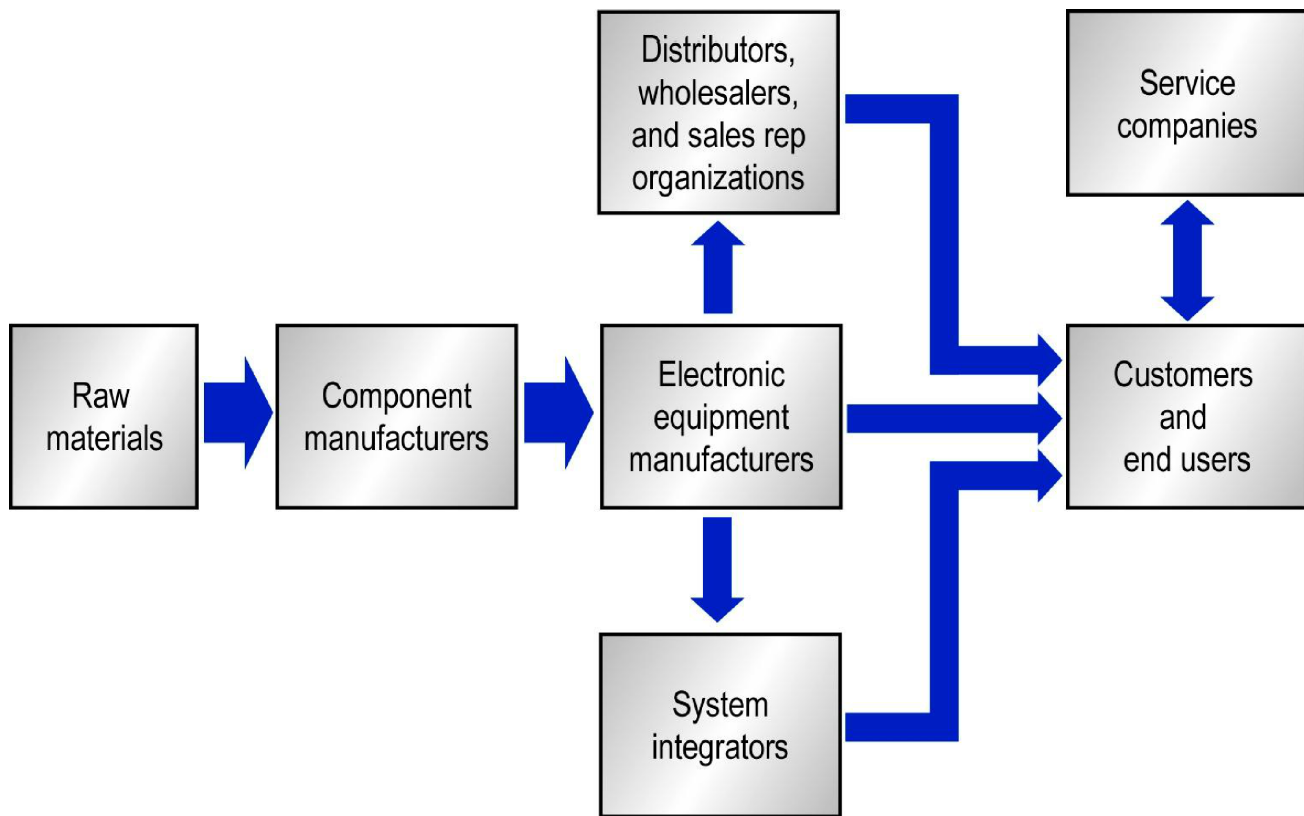


Markets and Employing Organizations

- Business/offices
- Consumer and entertainment
- Government
- Industry/factories-plants
- Medical
- Military
- Non-profit institutions



How the Electronics Industry Works

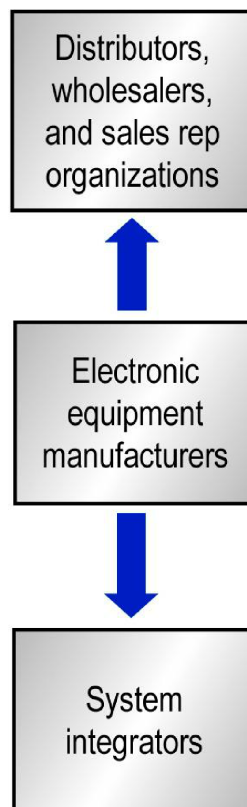


How the Electronics Industry Works



Component manufacturers convert raw materials like silicon, copper, aluminum, plastics, etc. into components that are sold to the equipment manufacturers.

How the Electronics Industry Works

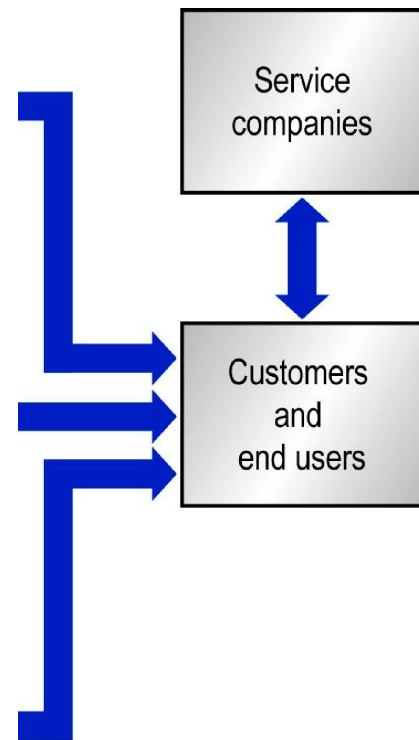


Then the electronics equipment manufacturers build a variety of products like computers, TV sets, DVD players, cell phones, and industrial controls.

Electronic products are either sold directly to end users by the manufacturers or through sales reps, distributors or wholesalers. System integrators are companies that put together complete systems made of the products of others and then sell the product as part of a larger end system built especially for the user.

How the Electronics Industry Works

Service companies supply support and services like maintenance, repair, training, installation, customer help, or consulting.



ADDITIONAL RESOURCES

Please see the Practice and Resources section of this module for Web References and a video clip on the electronics industry.

Test your knowledge

Introduction to Electronics Knowledge Probe

Click on [Course Materials](#) at the top of the page.
Then choose [Knowledge Probe](#).