

Basic Machinist Technology

Course Objective: The student will study the fundamentals of mechanical work. The manual will provide a good reference for both the beginner and the expert.

Who this is for: Machinists, tool makers, die makers, students and engineers using machines in their work or hobbies.

Item Code	Lesson Description
MB.12	Mechanical drawing
MB.13	Fits and terminology
MB.14	Bench work
MB.15	How to make measurements
MB.16	Cutting speed and cutting fluids, drilling and related operations
MB.17	Lathe operations
MB.18	Grinding
MB.19	Metal sawing
MB.20	Toolmaking
MB.21	Geometry
MB.22	Mechanics

Item Code	Required Textbook
BKMB1BK	<i>The Starret Book for Student Machinists</i>
	This book not available separately

Item Code	Full Course Title (Includes Textbook)	Price
MB12FC	Basic Machinist Technology	\$257.35

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Basic Machinist

Hand Tools

Course Objective: Study the correct way to use and care of hand tools while emphasizing safety.

Who this is for: (All personnel) Anyone using hand tools wanting to know the correct way to use hand tools, take care of them and use them safely.

Item Code	Lesson Description
HT.1	Hand Tools (Part I)
HT.2	Hand Tools (Part II)

Item Code	Required Textbook
BKHT BK	<i>ABC's of Hand Tools</i>

Item Code	Full Course Title (Includes Textbook)	Price
HT1FC	Hand Tools	\$49.25

Enrolled students may take individual lessons.
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Mechanical Refrigeration

Course Objective: Develop a basic understanding of mechanical refrigeration, various refrigeration cars, types of refrigeration equipment, effects of heat on refrigeration, the relation of pressure and temperature measurements of refrigeration.

Who this is for: Mechanics, carmen, apprentices, maintenance personnel responsible for the care and maintenance of refrigeration cars.

Item Code	Lesson Description
MR.1	Basic principles: refrigeration cars and equipment
MR.2	Heat effects: pressure and temperature, measurements

* A separate booklet is required for each lesson

Item Code	Full Course Title (Includes Textbook)	Price
MR1FC	Mechanical Refrigeration	\$58.00

Enrolled students may take individual lessons.
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Basic Machinist

How to Run a Lathe

Course Objective: To aid the beginner or apprentice in the machine shop and the student in the school shop to secure a better understanding of the fundamentals and the operation of a Screw Cutting Engine Lathe. Also learn the best and most practical methods of machine shop practice in use.

Who this is for: Beginners or apprentices wanting to learn about the fundamentals of Screw Cutting Engine Lathes.

Item Code	Lesson Description
LA.1	Lathe work, parts, care, and operation
LA.2	Grinding tools, lathe measurements
LA.3	Plain turning, chuck work
LA.4	Taper turning and boring
LA.5	Cutting screw threads

Item Code	Required Textbook
BKLA BK	<i>How to Run a Lathe</i>

Item Code	Full Course Title (Includes Textbook)	Price
LA1FC	How to Run a Lathe	\$143.00

Enrolled students may take individual lessons.
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Basic Principles of Hydraulics

Objective: Explain the basic law of hydraulics (Pascal’s Law), the principle by how pumps work, the care and maintenance of hydraulic equipment.

Who this is for: Students, engineers, maintenance workers or anyone interested in gaining a basic knowledge of hydraulic pumps and the principles upon how they work.

Item Code	Lesson Description
BH.1	Types of pumps

Item Code	Required Textbook
BKBH1	<i>Basic Principles of Hydraulics—Types of Pumps</i>

Item Code	Full Course Title (Includes Textbook)	Price
BH1FC	Basic Principles of Hydraulics	\$27.95

Enrolled students may take individual lessons.

Basic Machinist

Machine Shop Practice, Vol. I

Course Objective: Understand the fundamentals of the basic machine tools and the technology which supports these operations. Study the basics to make precision parts for tools, dies, machines and instruments for all classes of machine tools.

Who this is for: Machinists, toolmakers, diemakers, students and engineers can use as a source of information on machining and related technology.

Item Code	Lesson Description
MS.1	Basic metal-cutting operations
MS.2	Basic measuring instruments
MS.3	Layout work, drilling machines, twist drills
MS.4	Drilling machine operation
MS.5	Engine lathe construction, single-point cutting too and their performance
MS.6	Cylindrical drilling
MS.7	Chucking work, taper and angle turning
MS.8	Faceplate work, screw threads, and screw thread measuring
MS.9	Machine shop practice: cutting screw threads on a lathe, turret lathes, production lathes, and vertical lathes
MS.10	Machine shop practice: precision hole location, The Jig Borer, metal cutting saws

Item Code	Required Textbook
BKMSI	<i>Machine Shop Practice, Vol. 1</i> This book not available separately

MS1FC	Machine Shop Practice, Vol. 1	\$258.50
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Enrolled students may take individual lessons.
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Machine Shop Practice, Vol. 2

Course Objective: Build on the basic knowledge learned in Volume I (machining and related technology) through information on the latest techniques of machining and useful tables etc.

Who this is for: Machinists, toolmakers, diemakers, students and engineers can use as a source of information on machining and related technology.

Item Code	Lesson Description
MS.11	Shaper construction and shaper tools, shaper work
MS.12	Planers and planer work, milling, machine construction
MS.13	Milling cutters, milling machine operation
MS.14	Indexing, dividing head work
MS.15	Helical and cam milling
MS.16	Horizontal boring machine and grinding wheels
MS.17	Cylindrical grinding, surface grinding
MS.18	Cutter and tool grinding
MS.19	Numerical control machine tools
MS.20	Surface plate work

Item Code	Required Textbook
BKMSII	<i>Machine Shop Practices, Vol. 2</i>
	This book not available separately

Item Code	Full Course Title (Includes Textbook)	Price
MS11FC	Machine Shop Practice, Vol. 2	\$258.50

Enrolled students may take individual lessons.
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Basic Machinist

Basic Millwright Work

Course Objective: This course is intended to be a helpful guide for the practical person solving problems that present themselves from day to day to the millwright and maintenance mechanic in construction and operation of industrial plants.

Who this is for: Millwrights and maintenance mechanics.

Item Code	Lesson Description
MG.1	Drawing and sketching
MG.2	Machinery and equipment installation
MG.3	Principles of mechanical power transmission and V-bolt drives
MG.4	Flat belts, gears
MG.5	Chain drives, couplings
MG.6	Packings and seals
MG.7	Bearings, structural steel
MG.8	Structural steel, screw threads
MG.9	Fasteners
MG.10	Pipe fittings
MG.11	Pipe valves
MG.12	Carpenry(Part 1)
MG.13	Carpenry(Part 2)

Course continued on facing page

Guide to Basic Millwright Work continued

Item Code	Lesson Description
MG.14	Sharpening saws, wood fastening
MG.15	Sheet metal work and blacksmithing
MG.16	Rigging (Part 1)
MG.17	Rigging (Part 2)
MG.18	Electricity
MG.19	Welding (Part 1)
MG.20	Welding (Part 2)
MG.21	Pumps
MG.22	Air compressors
MG.23	Air compressors
MG.24	Portable power tools, mensuration, and mechanical calculations

Item Code	Required Textbook
BKMILL	<i>Millwright's Mechanic's Guide</i>

Item Code	Full Course Title (Includes Textbook)	Price
MG1FC	Basic Millwright Work	\$614.90

Enrolled students may take individual lessons.
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Basic Machinist

Basic Hydraulic Technology

Course Objective: The beginning student will learn about hydraulics from basic physical concepts of component operation and its application.

Who this is for: Anyone wishing to learn basic hydraulics, how it

Item Code	Lesson Description
HD.1A	The physical world of a machine and hydraulic transmission of force and energy
HD.2A	Petroleum-based hydraulic fluid and fire-resistant hydraulic fluid
HD.3A	Operation at the suction side of pump and hydraulic actuators
HD.4A	Control of hydraulic energy and check valves, accumulators and cylinders
HD.5A	Flow control valves and directional control valves
HD.6A	Pressure control valves and pilot-operated pressure control valves
HD.7A	Hydraulic pumps and hydraulic motors

Item Code	Required Textbook
BKHD SUP	<i>Industrial Hydraulic Technology</i> This book not available separately

Item Code	Full Course Title (Includes Textbook)	Price
HD1AFC	Basic Hydraulic Technology	\$204.00

Enrolled students may take individual lessons.
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