

IDAHO STATE UNIVERSITY COLLEGE OF TECHNOLOGY

PROGRAM TITLE: COMPUTERIZED MACHINING TECHNOLOGY

Information included in this handout may change at anytime without notice and should not be considered as a binding contract between Idaho State University and students.

Program Options & Length:

Computerized Numerical Control (CNC) Programmer, Postsecondary Technical Certificate (This option requires experience, must have instructor permission.)	1 - 2 Semesters
Computerized Numerical Control (CNC) Operator, Advanced Technical Certificate	2 1/2 Semesters
Machining Technology, Advanced Technical Certificate	3 1/2 Semesters
Computerized Machining Technology, Associate of Applied Science	4 1/2 Semesters

**Entry dates
for this program:**
August and January

**Approximate cost
for books, tools,
& supplies:**
\$3,176.00
(See below for registration fees.)

**For more information,
Contact:**
Idaho State University
College of Technology
Student Services Office
Campus Box 8380
Pocatello, ID 83209-8380
1.208.282.2622
e-mail: ctech@isu.edu
www.isu.edu/ctech/

Job Description: Machine tool operators, including skilled and semi-skilled workers, specialize on one or many machine tools that are used to shape metal to precise dimensions. Examples of such machinery are engine lathes, milling machines, or grinders. Skilled operators plan and set up machine operations according to blueprints and other instructions; semi-skilled operators do more repetitive and simpler tasks such as placing materials in machine tools and watching gauges and dials to make sure of proper machine functioning. Machinists are highly skilled operators of machine tools that make parts from a variety of materials following blueprints and sketches. They also repair manufacturing equipment and modify machines using their own creative skills.

Aptitudes and Interests: Above average ability to visualize objects three dimensionally and to make complex decisions to manufacture a wide variety of difficult parts. Also, an ability to compute difficult mathematical computations; knowledge of blueprint reading, the operation of machine tools, and basic machine shop practices. This trade requires significant mechanical aptitude and hand/eye coordination.

Education and Other Requirements: Completion of high school or equivalency certificate (GED) is required. Some employers require four years of apprenticeship training for machinists. Apprenticeship applicants must be 18 years of age, be a high school graduate or equivalent, and be physically able to perform the duties of the trade. Some machinists qualify for the job after several years of on-the-job training. Skills can also be acquired through community colleges and technical schools. This is a demanding occupation that requires many years of training and on-the-job experience to master. Persons interested in becoming machinists should be temperamentally suited to do highly accurate work that requires concentration and attention to detail.

Helpful High School Courses:

Blueprint Reading	Geometry	Machine Shop	Mathematics
Mechanical Drawing	Physics	Sheet Metal	Trigonometry

TUITION AND FEES

Fees apply to the current Idaho State University fee schedule located at <http://www.isu.edu/finserv/costinfo.shtml>.

Fees include **mandatory** student health insurance, any student with existing health insurance coverage may be exempt and waivers are available at <http://www.isu.edu/stuhlth/insurance/pp.html>.

ADMISSION STEPS

- Complete and return an Application for Admission along with a check or money order for \$40 (non-refundable), payable to Idaho State University. You may also apply online via the Idaho State University home page: www.isu.edu . Click on Prospective Students.
- Submit official college transcripts, if applicable, from each accredited institution of higher education that you have attended.
- Submit an official copy of your high school transcript or GED scores (Not required if you have completed and submitted proof of 14 or more academic credits from an accredited institution of higher education.)
- Meet with a College of Technology counselor, if desired, to obtain more in-depth information. To make an appointment, call (208)282-2622.
- Either:
 1. Complete the COMPASS Placement test. This test enables us to place you in the appropriate classes to enhance your success in college.
 2. Submit ACT/SAT scores, valid for seven (7) years from the date of testing. ACT scores are not required for acceptance to the College of Technology, however they are required to qualify for some scholarships
- Apply for financial aid if needed. Questions, call (208) 282-2756.
- Former College of Technology students who have been out of school one semester or more must complete the necessary forms in the Student Services office before returning to the program. Re-entering student must meet the requirements as outlined in the catalog effective at the date of their re-enrollment.

Idaho State University subscribes to the principles and laws of the State of Idaho and the federal government, including applicable executive orders pertaining to civil rights. All rights, privileges, and activities of the University are made available without regard to race, creed, color, sex, age, disability, national origin or veteran status. The University is an Equal Opportunity and Affirmative Action employer. Evidence of practices that are not consistent with such a policy should be reported to: Leonard E. "Buddy" Frazier, Affirmative Action Director; Museum Building, Room 422 Box 8315.E-mail frazleon@isu.edu, (208) 282-3964.

Idaho State University is committed to equal opportunity in education for all students, including those with documented disabilities. If you have a diagnosed disability or if you believe that you have a disability that might require reasonable accommodations, please contact: Dennis J. Toney, ADA Disabilities and Resource Center Director; Gravely Hall, Room 123 Box 8121.E-mail tonedenn@isu.edu, (208)282-3599.

Licensure, certification, and/or employment applications related to some degree programs require students to disclose any history of criminal prosecution which may include the student's driving record. Students who have a criminal history are strongly encouraged to contact the licensing agency or meet with the coordinator of the program they are interested in, prior to beginning classes, to discuss potential impediments to licensure, certification, or employment.

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COURSE SEQUENCE

AUGUST START: Session I, II, III, IV, Summer Session, V, VI, VII, VIII - graduating in May.

JANUARY START: Session I, II, no Summer Session, III, IV, V, VI, Summer Session, VII, VIII - graduating in December.

PSTC = Postsecondary Technical Certificate

CNCATC = CNC Advanced Technical Certificate

ADTC = Advanced Technical Certificate

AAS = Associate of Applied Science degree

PSTC	CNCATC	ADTC	AAS	Course #	Course Title	Credits
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Session I

	X	X	X	MACH 110	Engine Lathe Practice I	5
	X	X	X	MACH 111	Engine Lathe Theory I	2
	X	X	X	MACH 112	Machine Math I	2
		X	X	ENGL 101	English Composition	3
	X	X		TGE 151	Technical Writing I	2

Session II

	X	X	X	MACH 120	Milling Practice I	5
	X	X	X	MACH 121	Milling Theory I	2
	X	X	X	MACH 123	Interpreting Blueprints	2

Session III

	X	X	X	MACH 130	Engine Lathe Practice II	5
	X	X	X	MACH 135	Materials Science	2
	X	X	X	MACH 136	Applied Machining Geom & Trig	2

Session IV

	X	X	X	MACH 140	Milling Practice II	6
	X	X	X	COMM 101	Principles of Speech	3

Summer Session

		X	X	MACH 220	CAD/CAM I Applications	3
		X	X	MACH 221	CAD/CAM I Theory	3
		X	X	MACH 225	Interpreting Technical Data	2

PSTC	CNCATC	ADTC	AAS	Course #	Course Title	Credits
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Session V

	X	X	X	MACH 250	Advanced Machine Practice I	7
	X	X	X	TGE 158	Employment Strategies	2

Session VI

	X	X	X	MACH 260	Advanced Machine Practice II	7
X	X	X	X	MACH 261	CNC Introduction to Theory	2

Session VII

	X			MACH 230	CNC Mill Operations	8
	X			MACH 240	CNC Lathe Operations	8
X		X	X	MACH 270	CNC Machining Practice I	4
X		X	X	MACH 271	CNC Programming Theory I	2
X		X	X	MACH 272	CNC Math I	2
		X	X	MACH 275	CAD/CAM II	2

Session VIII

X		X	X	MACH 281	CNC Programming Theory II	2
X		X	X	MACH 290	CNC Machining Practice II	6

Students will also need to schedule the following classes if they are seeking the Associate of Applied Science degree: three (3) credits from Goal 3; four (4) credits from Goal 5; three (3) credits from Goals 6, 7, 9, 10A, 11, or 12.

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BOOK AND TOOL LIST

Textbooks may be purchased at the University Bookstore located at the Pond Student Union - Building #14. Textbooks may also be purchased or reserved on-line through www.efollett.com or the bookstore's website at www.isu.edu/bookstor. Payments may be made with cash, check, VISA, MasterCard, American Express, or Discover. A shipping charge will be added for mail orders. See the bookstore's website for more information on purchasing or reserving books or for refund policy information. **Save Your Receipts!**

**Approximate total book and tool costs for this program's options are listed below.
Additional book costs will vary depending on the courses taken to fulfill
general education requirements for the AAS degree.
For a breakdown of books by individual class requirements, you must check your course curriculum.**

NOTE: PRICES ARE SUBJECT TO CHANGE AT ANYTIME WITHOUT PRIOR NOTIFICATION

I. BOOKS (LISTED BY COURSE) AND SUPPLIES

DESCRIPTION	APPROXIMATE PRICE	
MACH 111 ENGINE LATHE THEORY I		
MACHINERY'S HANDBOOK	0831128005	90.00
MACHINE TOOL PRACTICES	0131188969	139.00
MACH 112 MACHINE MATH I		
MATHEMATICS FOR MACHINE TECHNOLOGY	1401815813	122.00
MACH 123 INTERPRETING BLUEPRINTS		
PRINT READING FOR INDUSTRY	1566378079	67.00
MACH 261 CNC INTRODUCTION TO THEORY		
CNC PROGRAMMING HANDBOOK (W/CD)	0831133474	70.00
Calculator – TI-36X or equivalent		18.00
Safety Shoes (Steel Toe required)		30.00
APPROXIMATE TOTAL BOOKS AND SUPPLIES		\$536.00

**DO NOT PURCHASE TOOLS UNTIL AFTER THE FIRST DAY OF CLASS.
VENDORS WILL BE AVAILABLE IN THE PROGRAM.**

II. TOOLS, FIRST SESSION (NOTE: TOOLS MUST BE PURCHASED BY FIRST WEEK OF CLASS)

QUANTITY	DESCRIPTION	PRICE
1 pair	Safety Glasses with side shields OSHA approved, non-prescription	\$ 10.00
1	6" X 3/4" Scale in Fractions, 32nds 64ths, 50ths, and 100ths	\$ 8.00
6	High speed steel with 5% cobalt lathe bits 3/8" x 3/8"	\$ 25.00
1	6 inch caliper - digital or dial type	\$ 85.00
1	2 inch paint brush	\$ 1.00
1	Dial indicator - 1" minimum travel	\$ 20.00
1	Dial test indicator with attachments	\$114.00

1	10 inch smooth cut file	\$ 15.00
1 set	25 piece radius gauge set	\$ 52.00
1	Thread center gauge - 60 degree standard	\$ 8.00
2	Grease pencils	\$ 1.00
1	20 oz. Dead Blow Hammer	\$ 25.00
1	Magnetic indicator base with attachments	\$ 90.00
1	Micrometer - 0-1" (Vernier Reading to 4 th decimal place)	\$107.00
1	Micrometer - 1-2" (Vernier Reading to 4 th decimal place)	\$ 123.00
1	Micrometer - 2-3" (Vernier Reading to 4 th decimal place)	\$ 175.00
1	Depth Micrometer - 0-6"	\$ 75.00
1 set	6 piece adjustable parallels	\$ 6.00
1	6 inch pliers	\$ 8.00
1 set	Screwdrivers - Regular and Phillips	\$ 9.00
1	Scriber	\$ 6.00
1	EZE - Lap Diamond Stone	\$ 8.00
1	Tape measure	\$ 18.00
1 set	Thread wires	\$ 16.00
1	Mighty Mag Way Magnetic Base	\$ 15.00
1	Wrench, Adjustable - 12"	\$ 15.00
1	Telescoping Gauge – 4 piece set	\$100.00
1	Mighty-Mag (way magnetic base)	\$15.00
1	Wrench, Hex Key - 1/32" to 3/8"	\$ 9.00
1	Wrench, Hex Key Metric 2-8	\$ 8.00
APPROXIMATE TOTAL TOOLS NEEDED FOR FIRST SESSION		\$ 1,312.00

III. TOOLS, SECOND SESSION (NOTE: TOOLS MUST BE PURCHASED BY FIRST WEEK OF CLASS)

QUANTITY	DESCRIPTION	PRICE
1	Tool Box - Top Box	\$ 250.00
1	Cabinet - Roller	\$ 425.00
2 each	Clamps, cantilever (1 inch, 2 inch and 3 inch)	\$ 52.00
1 set	Drills - 115 piece (USA Only)	\$120.00
1	Edge finder - single end	\$ 25.00
1 set	Swiss pattern files	\$ 12.00

1	10 oz. Ball Pein Hammer	\$ 15.00
1	Half round indicator clamp holder	\$ 35.00
1	Sharpening Stone (Arkansas Hard) - Approximately 4" x ½" x ½"	\$ 23.00
1	Tap guide	\$ 10.00
1	Square Combination Set (4 piece set)	\$145.00
1	Wrench, Box end - 3/4"	\$ 8.00
APPROXIMATE TOTAL TOOLS NEEDED FOR SECOND SESSION		\$ 1,120.00

IV. OTHER EXPENSES

DESCRIPTION	APPROXIMATE PRICE
Class fee for MACH 110	30.50
Class fee for MACH 120, 130, 140 (22.50 each)	67.50
Class fee for MACH 250, 260, 270, 290 (22.50 each)	90.00
Graduation Application fee for first Certificate/Degree	20.00
Optional fee for any additional Certificate/Degree	(10.00)
APPROXIMATE TOTAL OTHER EXPENSE	\$208.00

APPROXIMATE TOTAL BOOKS & TOOLS - MACHINING TECHNOLOGY	\$3,176.00
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ANTICIPATE ADDITIONAL EXPENSES ASSOCIATED WITH THIS PROGRAM:

TEXTBOOKS ASSOCIATED WITH ACADEMIC COURSES,

TRANSPORTATION, PARKING, CHILD CARE, HOUSING.

YOU MUST CHECK YOUR CLASS SCHEDULE TO DETERMINE TEXTBOOKS REQUIRED BY INSTRUCTOR.