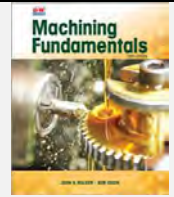
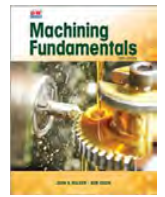




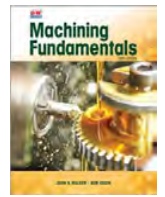
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to South Carolina Department of Education
Course Code: 6230 Machine Tool Technology I (Grades 9–12)



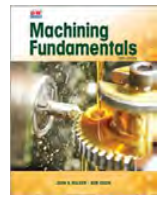
Standards	Correlating Text Pages
A. Safety	
1. Review school safety policies and procedures.	28-36, 99, 101-102, 103-104, 109, 113, 115, 156, 166 172, 206, 235-236, 312-313, 384, 398-399, 447-449, 516
2. Review classroom safety rules and procedures.	28-35
3. Review safety procedures for using equipment in the classroom.	28-35
4. Identify major causes of work/related accidents in office environments.	28-35
5. Demonstrate safety skills in an office/work environment.	28-35
B. Student Organizations	
1. Identify the purpose and goals of a Career and Technology Student Organization (CTSO).	19
2. Explain how CTSOs are integral parts of specific clusters, majors, and/or courses.	19
3. Explain the benefits and responsibilities of being a member of a CTSO.	19
4. List leadership opportunities that are available to students through participation in CTSO conferences, competitions, community service, philanthropy, and other activities.	19
5. Explain how participation in CTSOs can promote lifelong benefits in other professional and civic organizations.	19
C. Technology Knowledge	
1. Demonstrate proficiency and skills associated with the use of technologies that are common to a specific occupation.	21-22, 23
2. Identify proper netiquette when using e-mail, social media, and other technologies for communication purposes.	23
3. Identify potential abuse and unethical uses of laptops, tablets, computers, and/or networks.	23
4. Explain the consequences of social, illegal, and unethical uses of technology (e.g., piracy; illegal downloading; licensing infringement; inappropriate uses of software, hardware, and mobile devices in the work environment).	23, 445
5. Discuss legal issues and the terms of use related to copyright laws, fair use laws, and ethics pertaining to downloading of images, photographs, documents, video, sounds, music, trademarks, and other elements for personal use.	23, 445



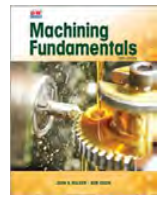
Standards	Correlating Text Pages
6. Describe ethical and legal practices of safeguarding the confidentiality of business-related information.	445
7. Describe possible threats to a laptop, tablet, computer, and/or network and methods of avoiding attacks.	23, 445
D. Personal Qualities And Employability Skills	
1. Demonstrate punctuality.	21-22
2. Demonstrate self-representation.	21-22
3. Demonstrate work ethic.	21-22
4. Demonstrate respect.	21-22
5. Demonstrate time management.	21-22
6. Demonstrate integrity.	21-22
7. Demonstrate leadership.	21-22
8. Demonstrate teamwork and collaboration.	21-22
9. Demonstrate conflict resolution.	21-22
10. Demonstrate perseverance.	21-22
11. Demonstrate commitment.	21-22
12. Demonstrate a healthy view of competition.	21-22
13. Demonstrate a global perspective.	21-22, 471
14. Demonstrate health and fitness.	21-22
15. Demonstrate self-direction.	21-22
16. Demonstrate lifelong learning	25
E. Professional Knowledge	
1. Demonstrate effective speaking and listening skills.	21-22
2. Demonstrate effective reading and writing skills.	21-22
3. Demonstrate mathematical reasoning.	21-22, 572-594
4. Demonstrate job-specific mathematics skills.	590-594
5. Demonstrate critical-thinking and problem-solving skills.	572-594
6. Demonstrate creativity and resourcefulness.	21-22
7. Demonstrate an understanding of business ethics.	445
8. Demonstrate confidentiality.	21-22, 445
9. Demonstrate an understanding of workplace structures, organizations, systems, and climates.	21-22
10. Demonstrate diversity awareness.	471
11. Demonstrate job acquisition and advancement skills.	19, 22-23, 25
12. Demonstrate task management skills.	21-22
13. Demonstrate customer-service skills.	21-22
Machine Tool Technology Level 1	
F. Job Process Planning And Management	
1. Develop a process for a part requiring milling, drilling, turning, or grinding.	6, 188-198, 202-207, 237-241, 257-258, 293-294, 317-334, 348-370



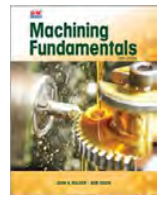
Standards	Correlating Text Pages
2. Fill out an operation sheet detailing the process plan and required speeds and feeds.	6, 188-198, 202-207, 237-241, 258, 293-294, 317-334, 348-370
G. Materials	
1. Define metallurgy and understand how metals are classified.	486, 489
2. Identify the different classification systems for metals, ISO standard, unified numbering system and color coding.	39-42, 486-498
3. Understand different techniques for machining diverse ferrous metals.	486-492
4. Identify the different classifications of carbon steel.	486-487
5. Identify the different types of carbon steels (e.g. hot-rolled, cold-rolled, alloy steels).	486-489
6. Recognize the different characteristics of various types of metals (e.g. ferrous, nonferrous, High Temperature, and rare.	486-498
7. Understand and identify the factors which determine machinability.	486-498
H. Print Reading/Drawing	
1. Blueprint Basics	
a. Understand industrial language terms.	38
b. Understand the use of blueprints.	39-51
c. Understand the basics of how a blueprint is laid out.	39-51
2. Blueprint Standards	
a. Match ISO and ANSI with their definitions.	39-42
b. Identify the symbols associated with ISO and ANSI standards.	39-42
c. Identify the meaning of orthographic projection.	39-51
d. Decipher the difference between 3rd and 1st angle projection.	39-51
e. Identify where different standards are used throughout the world.	39-42
3. Drawing Views	
a. List the six principle views associated with orthographic projection.	39-51
b. Decipher the difference between 3rd and 1st angle projection.	39-51
c. Decipher the difference between one, two and three view drawings.	39-51
d. Identify what a section view represents.	39-51
4. Drawing Types	
a. Identify section lines.	39-42



Standards	Correlating Text Pages
b. Decipher the difference between engineering drawings and blueprints.	39-51
c. Interpret detailed drawings.	39-51
d. Identify shape and size descriptions of detailed drawings.	39-51
e. Identify specifications of detailed drawings.	48
f. Interpret assembly drawings.	48
g. Identify assembly drawings.	48
5. Blueprint Layout	
a. Identify the 5 standard paper sizes for blueprints.	51
b. Decipher the different sections of a blueprint.	39-51
c. Understand the basic blueprint template.	39-51
I. Quality Control And Inspection	
1. Develop an inspection plan and inspect simple parts using precision tools and techniques.	54-76
2. Prepare reports on the compliance of the parts.	54-76
3. Precision Measurements	54-76
a. Steel Rules	
1. Identify the types of measurements that can be measured accurately with steel rules.	55
2. Understand the physical attributes of steel rules.	55
3. Understand the different configurations of steel rules.	55
4. Decipher between a fractional scale and a decimal scale.	55
5. Identify what scale needs to be used based on the dimensional size on the part print.	55
6. Understand how to properly position a steel rule on a part.	55
7. Determine the measurement value using a fractional scale.	55
8. Determine the measurement value using a decimal scale.	55
b. Slide Calipers	
1) Decipher between a vernier, dial, and digital precision caliper.	56-65
2) Identify the three different measurements that can be taken with precision calipers.	56-65



Standards	Correlating Text Pages
3) Clean and calibrate precision calipers.	56-65
4) Identify specifications that should be measured with a precision calipers.	56-65
5) Identify the different components of precision calipers.	56-65
6) Use, read and interpret an inch Vernier precision caliper.	56-65
7) Use, read and interpret a metric Vernier precision caliper.	56-65
8) Use, read and interpret a dial precision caliper.	56-65
9) Use, read and interpret a digital precision caliper.	56-65
c. Micrometers	
1) Identify different types of micrometers.	56-61
2) Identify the different components of micrometers.	56-61
3) Understand the mechanics of a micrometer.	56-61
4) Properly handle and maintain micrometers.	56-61
5) Properly test and calibrate micrometers.	56-61
6) Use, read and interpret outside micrometers.	56-61
7) Use, read and interpret depth micrometers	56-61
J. Job Execution	
1. Manual Operations: Bench work	
a. Using aluminum, hand drill and hand tap holes.	122, 188-191
b. Use hand drills, hand taps, tap wrench, files, scrapers, and coated abrasives to deburr parts.	531
c. Use arbor presses to perform press fits. Use bench vises and hand tools appropriately.	125
2. Manual Operations: Layout	
a. Layout the location of hole centers and surfaces within an accuracy of +/- .015.	88-90
3. Contour Band Sawing	
a. Set up and perform contour sawing to a layout.	161-164
b. Choose and mount appropriate blades.	161-164
c. Weld, break, and re-weld blades as necessary.	161-164
4. Drill Press	
a. Setup and operate drill presses.	169-171
b. Perform routine drill press operations.	169-171



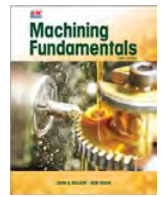
Standards	Correlating Text Pages
5. Turning Operations: Between Centers Turning	
a. Setup and carry out between centers turning operations for straight turning.	237-241
6. Turning Operations: Chucking	
a. Setup and carry out chucking operations for turning.	221-224
7. Milling: Square Up a Block	
a. Set up and perform squaring up the six surfaces of a block to within +/- .002 and .002 over 4.5" squareness.	293-294, 324-334
8. Vertical Milling	
a. Setup and operate vertical milling machines. Perform routine milling and location of hole centers within +/- .005".	317-324
K General Housekeeping And Maintenance	
1. Keep the duty station clean and safe for work.	28, 384
2. Keep the tools, workbenches, and manual equipment clean, maintained, and safe for work.	28, 384
L. Preventive Maintenance: Machine Tools	
1. Inspect and assess the general condition of an assigned machine tool.	384
2. Make routine adjustments as necessary and as authorized.	384
3. Report to supervision problems that are beyond the scope of authority.	384
4. Carry out daily, weekly, and/or monthly routine upkeep chores cited on checklists for a given machine tool.	384
M. Tooling Maintenance	
1. Inspect and assess the condition of tooling.	384
2. Refurbish tooling where appropriate.	384
3. Refer tooling for repair or regrind where appropriate.	384
N. Industrial Safety And Environmental Protection	
1. Machine Operations and Material Handling	
a. Carry out assigned responsibilities while adhering to safe practices in accordance with OSHA requirements and deadlines.	31-32
b. Document safety activities as required.	31-32
2. Hazardous Materials Handling and Storage	
	28-35



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Standards	Correlating Text Pages
a. Handle and store hazardous materials as assigned while adhering to safe practices in accordance with OSHA and EPA requirements and guidelines.	28-35
b. Document safety activities as required.	28-35
O. Career Management And Employment Relations	
1. Analyze modern machine careers.	14-25
2. Develop and explain a short-term career plan and resume.	21-25