Goodheart-Willcox Publisher

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Goodheart-Willcox Publisher Correlation of *Machining Fundamentals* ©2014 to Tennessee Department of Education Section A – Advanced Manufacturing Course: Principles of Machining I

STANDARD / LEARNING EXPECTATION		CORRELATING PAGES
1. Students will perform safety examinations and maintain safety records.		
1.1	Demonstrate a positive attitude regarding safety practices and issues.	Textbook, Chapter 3, pages 25–32
1.2	Use and inspect personal protective equipment.	Textbook, Chapter 3, pages 25–32 Textbook, Chapter 13, page 205 Textbook, Chapter 33, page 557
1.3	Inspect, maintain, and employ safe operating procedures with tools and equipment, such as hand and power tools, ladders, scaffolding, and lifting equipment.	Textbook, Chapter 7, pages 97, 99, 101, 103, 105, 106, 108, 113, 117, 118, 125, 127, 128 Textbook, Chapter 3, pages 25–32
1.4	Demonstrate continuous awareness of potential hazards to self and others and respond appropriately.	Textbook, various chapters , pages: 26, 60, 87, 92, 97, 101, 113, 144, 155, 162, 164, 179, 180, 187, 190, 191, 197, 205, 215, 224, 237, 238, 241–243, 246, 254, 257, 267, 295, 303, 318, 339, 367, 368, 370, 391, 392, 394, 396, 399, 419, 426, 433, 434, 449, 451, 473, 482, 489, 491, 492, 503–507, 532, 542, 557
1.5	Assume responsibilities under HazCom (Hazard Communication) regulations.	
1.6	Adhere to responsibilities, regulations, and Occupational Safety & Health Administration (OSHA) policies to protect coworkers and bystanders from hazards.	Textbook, Chapter 3, page 28
1.7	Adhere to responsibilities, regulations, and Occupational Safety & Health Administration (OSHA) policies regarding reporting of accidents and observed hazards, and regarding emergency response procedures.	Textbook, Chapter 3, page 28
1.8	Demonstrate appropriate related safety procedures.	Textbook, Chapter 12, page 173; Chapter 13, page 207–208; Chapter 14, pages 237–239; Chapter 18, page 323–324; Chapter 19, pages 337 and 355; Chapter 20, page 372; Chapter 22, page 410–411, Chapter 29, page 513–514
1.9	Pass with 100% accuracy a written examination relating to safety issues	ExamView CD, Chapter 3 Workbook, Chapter 3, pages 17–20
1.10	Pass with 100% accuracy a performance examination relating to safety.	IRCD, Lesson Plan, Chapter 3

1.11	Maintain a portfolio record of written safety examinations and equipment examinations for which the student has passed an operational checkout by the instructor.	
2. Students will demonstrate leadership, citizenship, and teamwork skills required for success in the school, community, and workplace.		
2.1	Cultivate positive leadership skills.	Textbook, Chapter 2, pages 17 and 21
2.2	Participate in the student organization directly related to their program of study as an integral part of classroom instruction.	
2.3	Assess situations, apply problem-solving techniques and decision-making skills within the school, community, and workplace.	Textbook Chapter 12, page 191; Chapter 14, pages 217–223; Chapter 20, pages 371–372; Chapter 21, page 400; Chapter 33, pages 552–557
2.4	Participate as a team member in a learning environment.	Textbook Chapter 2, pages 21–24.
2.5	Respect the opinions, customs, and individual differences of others.	Textbook, Chapter 2, pages 21 and 23
2.6	Build personal career development by identifying career interests, strengths, and opportunities.	Textbook Chapter 2, pages 13–24.
3. Students will integrate reading, writing, math, and science skills and understand the impact of academic achievement in the work place.		
3.1	Assume responsibility for accomplishing classroom assignments and workplace goals within accepted time frames.	Textbook, Chapter 2, pages 20–23
3.2	Develop advanced study skills.	Textbook, Chapter 2, pages 15–16
3.3	Demonstrate and use written and verbal communication skills so others can understand.	Textbook Chapter 2, 20–24; Workbook, Chapter 2, 12; IRCD, Lesson Plans, Chapter 33. Workbook, Chapter 2, 13–15; Chapter 4, 23. Workbook, Chapter 2, 12; Lesson Plans, Chapters 2 and 3.
3.4	Read and understand technical documents such as regulations, manuals, reports, forms, graphs, charts, and tables.	Textbook, Chapter 4, pages 33–56; Reference Section, pages 570–603
3.5	Apply the foundations of mathematical principles such as algebra, geometry, and advanced math to solve problems.	Textbook Chapter 4, 45–56; Chapter 5, 60–70; Chapter 6, 85–94; Chapter 12, 185–186; Chapter 14, 235–236, Chapter 16, 272–273, 279, 285; Chapter 19, 347–354; Chapter 22, 411–413; Reference Section, 583
3.6	Apply basic scientific principles and methods to solve problems and complete tasks.	Textbook Chapter 28, 481–496; Chapter 29, 497–516; Chapter 27, pages 469–479; Reference Section, page 573

3.7	Understand computer operations and related applications to input, store, retrieve, and output information as it relates to the course.	Textbook, Chapter 23, pages 418–429, Chapter 24, pages 432–443; Chapter 25, pages 447–453
3.8	Research, recognize, and understand the interactions of the environment and *green* issues as they relate to the course work and to a global economy.	Textbook, Chapter 3, pages 25–31; Chapter 10, pages 153–157; Chapter 30, pages 526–527, Chapter 32, page 544
4. Students will investigate the evolution of machine technology and determine the influences and effects of technology on the workforce.		
4.1	Describe and illustrate the role of a machinist.	Textbook, Chapter 1, page 2 and 10; Chapter 2, pages 15–18
4.2	Develop a presentation on the evolution of machine tools.	Textbook, Chapter 1 pages 2–5 and 9–10
4.3	Formulate a discussion on how modern machines and tools have affected the workforce.	Textbook, Chapter 26, pages 455–465; Chapter 1, pages 10 and 12 IRCD, Lesson Plan, Chapters 1 and 26
4.4	Describe and design a presentation as an overview of machining processes.	Textbook, Chapter 1, pages 5–9 IRCD, Lesson Plan, Chapter 1
4.5	Explain and demonstrate the operation of CNC machining equipment.	Textbook, Chapter 22, pages 404–414, Chapter 1, pages 9–10
5. Students will demonstrate safe practices and environmental hazard prevention and treatment in a machining environment.		
5.1	Use a reference sheet of materials to assess and demonstrate the safety guidelines and regulations for the disposal of waste materials.	Textbook, Chapter 3, pages 25–31, Chapter 10, pages 153–157, Chapter 30, page 526
5.2	Analyze environmental hazards and preventions procedures for the machining industry.	Textbook, Chapter 3, pages 25–31; Chapter 28, page 492; Chapter 30, page 526
5.3	Perform environmental safety evaluations in machining situations.	
6. Students will calculate and interpret measurements commonly required in the machining processes.		
6.1	Formulate and prove the correct usage of common measurement tools to perform measurements to appropriate standards of accuracy and precision.	Textbook, Chapter 5, pages 58–83
6.2	Identify, calculate, and apply the English system of measurement.	Textbook, Chapter 5, pages 58–68
6.3	Identify, calculate, and apply the metric system of measurement.	Textbook, Chapter 5, pages 58–68
6.4	Interpret measurements encountered in the machining workplace.	Textbook, Chapter 4, pages 38–40 and 45–55; Chapter 5, pages 58–83

6.5	Explain, analyze, and calculate tolerances using measurement tools and machines.	Textbook, Chapter 5, pages 70–80; Chapter 27, pages 470–479
7. Students will read, analyze, and interpret blueprints.		
7.1	Define and explain basic blueprint vocabulary.	Textbook, Chapter 4, pages 33–55; Reference Section, page 603 IRCD, Certification Practice Prints
7.2	Classify and compare the different types of dimensions and general note symbols.	Textbook, Chapter 4, pages 33–55; Reference Section, page 603 IRCD, Certification Practice Prints
7.3	Interpret commonly used abbreviations and terminology.	Textbook, Chapter 4, pages 33–55 IRCD, Certification Practice Prints
7.4	Classify and differentiate types of perspective drawings.	Textbook, Chapter 4, pages 41–44 IRCD, Certification Practice Prints
7.5	Determine and calculate scale measurements of the view or section of a drawing.	Textbook, Chapter 4, pages 34–40 IRCD, Certification Practice Prints
8. Students will demonstrate the appropriate use of technologies used in the machining processes.		
8.1	Investigate the chemical and physical properties of materials used in the machining process.	Textbook, Chapter 28, pages 482–494; Chapter 29, pages 498–514
8.2	Demonstrate the steps involved in the bench layout processes for milling, cutting, welding, and machine operations.	Textbook, Chapter 6, pages 86–93; Chapter 7, 95–97, 109–116, 119–130; Chapter 14, pages 219–220 IRCD, Certification Practice Prints: 2.1 Benchwork and 2.2 Layout
8.3	Demonstrate a level of proficiency in common machining operations.	Textbook, Chapter 11, pages 159–168; Chapter 12, pages 169–202, Chapter 13, 203–210; Chapter 14, 211–250; Chapter 15; 251–268; Chapter 16, 269–290; Chapter 17 pages 291–296; Chapter 18, 297–326; Chapter 19, 328–336, 337–346; Chapter 20, 359–386; Chapter 21, pages 287–402 IRCD, Certification Practice Prints, 2.3 Turning Between Centers, : 2.4 Turning Operations—Chucking, 2.5 Power Feed Milling, 2.6 Vertical Milling, 2.7B Surface Grinding, 2.8 Drill Press, 2.9 Power Saw Operations