

Technology Education: Communication

- 21.43100 Communication Technology
- 21.43200 Drafting Technology—Introduction
- 21.43300 Drafting Technology—Mechanical
- 21.43400 Drafting Technology—Architectural
- 21.43500 Graphic Arts Technology
- 21.43600 Digital Media Technology

Ronald Barker
Program Specialist
Technology Education
Georgia Department of Education
1752 Twin Towers East
Atlanta, Georgia 30334
404-657-8316
rbarker@doe.k12.ga.us

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The following individuals provided valuable service in the development of Georgia's competency-based curriculum framework for Technology Education.

BUSINESS REVIEW PANEL

Bob Funk
Research Director
Kimberly-Clark

Bill McCargo
VP Community Affairs
Scientific Atlanta

Karen Albrecht
Engineering Site Manager
Lockheed Martin

Richard Bodor
Graphic Design
Atlanta Robot Hobby Association

Yvonne Freeman
Executive Director
SECME

Robert Stargel
Vice President
Kimberly-Clark

Andy Whitley
Plant Manager
Astro Plastics

George Fertal
Plant Manager
Sweetheart Cup Company, Inc.

Jim May
Bioreactor/Fermentation Specialist
Maintenance Merial

Tiffanie Boyd
Human Resource Manager
General Mills Operations, Inc.

Ben Harbin
Chairman, Atlanta Chapter
Society of Manufacturing Engineers
Auto Ventshade Company

EDUCATION REVIEW PANEL

Samuel W. Beauford
Technology Education Instructor
Lucy C. Laney High School
Richmond County Schools
Augusta, Georgia

Willie A. Haynes
Technology Education Instructor
Jenkins County High School
Jenkins County Schools
Millen, Georgia

F. Phillip Sisk
Technology Education Instructor
East Paulding High School
Paulding County Schools
Douglasville, Georgia

Terry Cotton
Technology Education Instructor
Parkview High School
Gwinnett County Schools
Lilburn, Georgia

Douglas Elliott
Trade and Industrial Instructor
Cedartown High School
Polk School District
Cedartown, Georgia

Tim M. Schmitt
Technology Education Instructor
Lovejoy High School
Clayton County Schools
Stockbridge, Georgia

Clifton T. White, Jr.
Technology Education Instructor
Central High School
Talbot County Schools
Talbotton, Georgia

John Mangano
Social Science Instructor
Parkview High School
Gwinnett County Schools
Lilburn, Georgia

CORE EMPLOYABILITY SKILLS

BASIC SKILLS

1. Locates, understands, and interprets written information in a variety of formats, including such documents as manuals, graphs, reports, and schedules.
2. Communicates thoughts, ideas, information, and messages in writing and technologically, and creates documents such as letters, directions, manuals, reports, graphs, and flowcharts.
3. Performs and applies numerical concepts and calculations, and solves problems by choosing appropriately from a variety of mathematical techniques using mental, manual, and technological methods.
4. Receives, interprets, and responds to verbal and nonverbal messages in a manner appropriate to a given situation.
5. Organizes ideas and communicates orally in a clear, concise, and courteous manner.

THINKING SKILLS

6. Specifies goals, objectives, constraints, and supporting factors.
7. Identifies problems, alternative solutions, consequences of alternative solutions, and uses appropriate techniques to resolve given problems.
8. Implements a plan of action making modifications as needed to achieve stated objectives.
9. Uses effective learning techniques to acquire and apply new knowledge and skills.

PERSONAL QUALITIES

10. Assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.
11. Chooses ethical courses of action.
12. Takes initiative to accomplish tasks in a timely manner.
13. Exerts a high level of effort and perseveres towards goal attainment.
14. Demonstrates adaptability, dependability, and responsibility and such social behaviors as tolerance, honesty, empathy, and courtesy.

INTERPERSONAL SKILLS

15. Participates and interacts as a team member and leader.
16. Shares knowledge and skills with others.
17. Performs effectively in various environments with people of different ages, genders, cultures, socio-economic backgrounds, attitudes, and abilities.

18. Works to satisfy customer/client expectations.
19. Uses strategies appropriate to a given situation to prevent and resolve conflicts.

RESOURCES

20. Selects goal-relevant activities, prioritizes them, manages time, and prepares and follows schedules.
21. Uses or prepares budgets, makes projections, keeps records, and makes adjustments to meet objectives.
22. Acquires, stores, allocates, and uses materials and space efficiently.

TECHNOLOGY

23. Prevents, identifies, or solves problems with technical or electronic equipment.
24. Operates and maintains technical equipment and the work environment safely following applicable industry regulations and guidelines.
25. Utilizes a variety of technologies.

BUSINESS ASPECTS

26. Demonstrates understanding of basic economic concepts and how they are applied in business functions and activities.
27. Identifies forms of business ownership.
28. Demonstrates understanding of the scope of a business, its place within an industry, and the interrelationship of its parts.
29. Demonstrates understanding of the individual's role, responsibilities, and relationships in the organizational structure of a business.
30. Maintains safety, health, and environmental standards, and addresses ergonomic concerns.

CAREER DEVELOPMENT

31. Makes potential career decisions based upon interests, abilities, and values and formulates appropriate plans to reach career goals.
32. Demonstrates understanding of the relationship between educational achievement and career planning and how career choices impact family patterns and lifestyle.
33. Demonstrates effective skills for seeking and securing employment.
34. Demonstrates understanding of education and career development as a lifelong learning process which requires preparation for change.

21.43100 COMMUNICATION TECHNOLOGY

Prerequisite: 21.42500 Introduction to Technology I

COURSE DESCRIPTION: The study of communication systems allows students to reinforce, apply, and transfer their academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. In addition to their general academic and technical knowledge and skills, students gain an understanding of career opportunities available in the communication fields. They will also discover what employers require to gain and maintain employment in these career areas. Students will perform ethical and societal impact studies and hands-on activities that use the systems approach in the design and improvement of communication products. In addition, students will study and use digital graphics, audio, video, electronic, and multimedia communication systems as they develop skills in this area of technology. Students will participate in individualized, small group, and whole group activities.

SAFETY

35. Master relevant safety tests in each technological area.
36. Follow safety manuals, instructions, and requirements in each technical area.
37. Demonstrate appropriate methods of handling and storing tools and materials in each technological area.

FOUNDATIONS OF COMMUNICATION TECHNOLOGY

38. Define communication.
39. Research the history and development of various types of communication systems.
40. Identify the different types of communication technologies.
41. Describe career fields related to communication systems.

STANDARDS, CODES, LAWS, AND REGULATIONS IN THE COMMUNICATION INDUSTRY

42. Describe the importance of standards, codes, laws, and regulations in the communication industry.
43. Identify areas where standards, codes, laws, and regulations may be required.
44. Adhere to all appropriate standards, codes, laws, and regulations.

IMPACT AND ETHICAL ISSUES IN COMMUNICATION TECHNOLOGY

45. Assess the risks and benefits of solutions to communication problems.
46. Describe how communication technology has affected individuals, societies, cultures, economies, and environments.
47. Discuss the international effects of communication technology.
48. Describe how changes in communication technology affect business and industry.
49. Discuss the factors that affect the adoption or rejection of communication technology.

FOUNDATIONS OF VIDEO PRODUCTION

50. Describe persistence of vision and how it relates to video production.
51. Compare media formats.
52. Define broadcast and nonbroadcast television.
53. Identify the parts of a video system.
54. List the steps in the planning stages of video production.
55. Identify video and audio connections.
56. Recognize quality scene composition.
57. Demonstrate quality video camera operation.
58. Demonstrate effective video editing.
59. Describe the use of graphics in video production.
60. Describe the process used to achieve quality sound in a video production.
61. Compare various microphone types.
62. Demonstrate various lighting techniques that can be used in producing a video.
63. Create a professional-looking video.

FOUNDATIONS OF ELECTRONIC COMMUNICATION

64. Define electronic communication.
65. Identify major landmarks in the development of electronic communication systems.
66. Describe the propagation of electromagnetic waves, their form, and modulation.
67. Compare the broadcasting of AM radio, FM radio, and television.
68. Describe the use of microwaves in telecommunication technology.
69. Create a fiber optic communications model.
70. Identify the major parts of a computer and their functions.
71. Use common input and output devices used with computers.
72. Explain the importance of the use of microchips in computers.
73. Differentiate between machine language and high level language.
74. Describe how computer operating systems are used.
75. Identify the major types of application software that are available.
76. Utilize the internet as a research tool.
77. Create professional-looking multimedia presentations.

FOUNDATIONS OF GRAPHIC COMMUNICATION

78. Name and describe the principles and elements of design.
79. Discuss how a graphic message is designed.
80. Measure type and describe the six major typestyles.
81. Explain how a graphic message is composed and assembled.
82. Create a simple graphic design, illustrating basic design elements
83. Describe how computers have changed the way in which graphic messages are created and produced.
84. Identify the role of film in the graphic production process
85. Describe the process camera.
86. Compare and contrast line photography and halftone photography.
87. Describe color separation and scanning.
88. Explain why stripping and pin registration are done and describe the process.
89. Name ways in which computers are used in the film conversion process.
90. Compare and contrast the major printing processes.
91. Explain how printed materials are converted into finished products.
92. Demonstrate screen printing on various media.
93. Create a digital graphic design using computer aided publishing software.

FOUNDATIONS OF DIGITAL PHOTOGRAPHY

94. Compare digital images to film images.
95. Identify types of digital cameras.
96. Explain how a digital camera works.
97. Identify different storage media used in digital photography.
98. Demonstrate proper use of a digital camera.
99. Compare and Contrast different types of lighting options used in photography.
100. Demonstrate various photo composition techniques.
101. Debate hardware needs for digital photo editing.
102. List the major photo editing software packages.
103. Modify digital images using photo editing software.
104. Create a digital photography portfolio.

TECHNICAL SKETCHING & COMPUTER AIDED DESIGN

105. Identify the basic principles of technical design.
106. Compare and contrast the different applications for drafting methods.
107. Create accurate multiview and isometric sketches.
108. Compare and contrast traditional drafting methods to that of computer aided design (CAD).
109. Create accurate multiview and isometric drawings using CAD.

21.43200 DRAFTING TECHNOLOGY-INTRODUCTION

Prerequisite: None

COURSE DESCRIPTION: This course is designed to introduce 2-D and 3-D sketching, geometric construction, multiview drawing, computer aided design (CAD), dimensioning, section drawing, and 3-D modeling. It introduces the student to processes involved in producing a manufactured part.

SAFETY

35. Master relevant safety tests in each technological area.
36. Follow safety manuals, instructions, and requirements in each technical area.
37. Demonstrate appropriate methods of handling and storing tools and materials in each technological area.

HISTORY OF DESIGN

38. Define technical drawing.
39. Define design.
40. Define the design process.
41. Describe the history of drawing and design.
42. Apply and use technical drawing and design standards.
43. Use and maintain a reference library of files and technical data.

FREEHAND SKETCHING

44. Prepare technical sketches, using orthographic projections.
45. Prepare pictorial technical sketches.
46. Letter freehand (i.e., notes, annotation, measurement).

DRAFTING TOOLS

47. Identify the basic tools and instruments for drafting.
48. Use and maintain drawing equipment.
49. Select appropriate drawing-related media and materials.

DRAWING

50. Prepare auxiliary view drawings.
51. Apply basic geometric construction principles.
52. Apply mathematical calculations involving practical geometry.
53. Interpret a blueprint, working drawing or other type of dimensional technical illustration.
54. Prepare multiview drawings.
55. Use English and metric measuring devices and systems.
56. Apply basic principles of dimensioning and annotations.
57. Prepare sectional view drawings, using conventional principles.

PICTORIAL DRAWINGS

58. Compare pictorial drawings (i.e., isometric and oblique).
59. Define types and uses of pictorial drawings.
60. Produce an oblique pictorial drawing.
61. Identify the isometric drawing procedures.
62. Produce an isometric pictorial drawing.

COMPUTER AIDED DESIGN (CAD)

63. List the major components of a computer-aided drafting system and its functions.
64. Set up drawing properties.
65. Produce a computer-aided drawing that can be displayed by means of a computer.
66. Extrude a 2-D object into a 3-D object.
67. Create a 3-D object using CAD's thickness command.
68. Produce a 3-D object by specifying the XYZ coordinates.
69. Animate a CAD drawing.

21.43300 DRAFTING TECHNOLOGY—MECHANICAL

Prerequisite: 21.43200 Drafting Technology—Introduction

COURSE DESCRIPTION: The Drafting Technology Mechanical course presents the international language of lines and symbols related to mechanical engineering and emphasizes basic drafting skills, sketching, orthographic projections, and pictorial drafting. The course uses board and electronic media for problem solving. This course is designed to introduce more in-depth studies of 2-D and 3-D sketching, multi-view drawing, Computer Assisted Drawing (CAD), dimensioning, section drawing, and 3-D modeling. Students are also introduced to working drawings, assembly drawings, reading a micrometer, and the vernier caliper. Students use basic problem-solving techniques to achieve solutions to mechanical drafting related problems. The course introduces students to advanced processes involved in producing a manufactured part.

SAFETY

35. Master relevant safety tests in each technological area.
36. Follow safety manuals, instructions, and requirements in each technical area.
37. Demonstrate appropriate methods of handling and storing tools and materials in each technological area.

HISTORY OF DESIGN

38. Explain the influence of art on innovations in the field of engineering.
39. Explain the impact of artistic expression as it relates to consumer products.
40. Analyze the influence of artistic period and style upon product and architectural design.
41. Explain the design concept of form and function and its use in product design.
42. Explain the evolution of technology and identify engineering achievements through history.
43. Analyze the impact of innovations in tools and materials on consumer products.
44. Identify two innovations that have led to improved functionality of measurement tools.

INTRODUCTION TO DESIGN PROCESS

45. List the steps of the design process and explain the activities that occur during each phase.
46. Assess the value of working as a team and understand the benefits of collaboration.
47. Describe the importance of focusing on detail when executing the design process.
48. Apply the steps of the design process to solve a variety of design problems.
49. Demonstrate the principles and elements of design and incorporate them in design solutions.
50. Identify the use of the principles and elements of design in various products, print media, and art forms.
51. Collect and display examples of the application of the principles and elements of design utilized in products, print media, and art forms.
52. Identify the proper elements of a fully developed portfolio.
53. Identify the ethical issues surrounding portfolio artifacts.
54. Develop a portfolio to organize and display evidence of work.

SKETCHING AND VISUALIZATION

55. Integrate proper sketching techniques and styles in the creation of sketches.
56. Produce two-dimensional geometric figures.
57. Select and produce the appropriate pictorial style to best communicate solutions in the design process.
58. Create pictorial sketches to develop ideas, solve problems, and understand relationships during the design process.
59. Create sketches utilizing both the additive and subtractive methods to assess underlying geometric and perceptual principles.
60. Select an appropriate sketching method that is efficient in its use of color, form, and symbols representing abstract data.
61. Augment pictorial sketches with shading to improve communication.
62. Evaluate and select the necessary views to graphically communicate design solutions.
63. Interpret annotated sketches in the design analysis process.
64. Integrate annotated sketches in presentations, portfolio, and documentation process.
65. Develop properly annotated sketches to accurately convey data in a design solution.

GEOMETRIC RELATIONSHIPS

66. Define and contrast points, lines and line segments.
67. Identify major geometric shapes (isosceles triangle, right triangle, scalene triangle, rectangles, squares, rhombus, trapezoid, pentagon, hexagon, and octagon).
68. Use a compass, ruler and triangle to construct major geometric shapes.
69. Define the elements and types of angles.

70. Use a compass, ruler, and triangle to construct and bisect various types of angles.
71. Define terminology associated with arcs and circles.
72. Use a compass, ruler, and triangle to construct arcs, circles, and ellipses.
73. Distinguish and define geometric constraints.
74. Identify the following geometric constraints in given three-dimensional models: horizontal, vertical, parallel, perpendicular, tangent, concentric, collinear, coincident, and equal.
75. Apply the right hand rule to identify the X, Y, and Z axes of the Cartesian Coordinate System.
76. Apply a combination of absolute, relative, and polar coordinates to construct a three-dimensional model.
77. Define the origin planes in the Cartesian Coordinate System.
78. Identify the origin and planar orientations of each side of a three-dimensional model.

MODELING

79. Utilize the creative thinking to create models.
80. Explain the difference between vertical and lateral thinking.
81. Categorize and select a solution to a problem.
82. Communicate ideas through written and verbal formats.
83. Identify the different graphical method of data representation.
84. Select the appropriate graphical format to a problem.
85. Analyze and develop graphical representation of given data.
86. Identify the different physical modeling techniques.
87. Create a model with its correct proportions.
88. Select the appropriate modeling materials to complete a three-dimensional model.
89. Evaluate a problem using mathematical formula.
90. Analyze a solution to a problem using the correct format of analysis.
91. Interpret a sketch and generate a model using a computer and CAD software.
92. Explain the difference between parametric and adaptive designs and be able to specify their uses.
93. Draw a two-dimensional sketch using a CAD package.
94. Apply geometrical and dimensional constraints to a sketch.
95. Generate a three-dimensional model.
96. Demonstrate the use of work features and how they are applied while constructing a solid model.
97. Explain the use and need of work planes, axes, and points in the development of a computer model.
98. Modify a sketch or feature of a model.

ASSEMBLY MODELING

99. Demonstrate assembly modeling skills to solve a variety of design problems.
100. Apply the base component effectively in the assembly environment.
101. Place and create components in the assembly modeling environment.

102. Create circular and rectangular patterns of components within an assembly model.
103. Replace components with modified external parts.
104. Perform part manipulation during the creation of an assembly model.
105. Demonstrate assembly modeling skills to solve a variety of design problems.
106. Perform part manipulation during the creation of an assembly model.
107. Apply assembly constraints to a successfully construct a multi-part object.
108. Utilize part libraries effectively during the assembly modeling process.
109. Demonstrate assembly modeling skills to solve a variety of design problems.
110. Employ sub-assemblies during the production of assemblies.
111. Explore and demonstrate assembly modeling skills to solve a variety of design problems.

DRIVING CONSTRAINTS

112. Understand and apply drive constraints to simulate the motion of parts in assemblies.
113. Demonstrate assembly modeling skills to solve a variety of design problems.
114. Apply adaptive design concepts during the development of sketches, features, parts, and assemblies.
115. Demonstrate assembly modeling skills to solve a variety of design problems.

MODELING ANALYSIS AND VERIFICATION

116. Demonstrate how to extract mass properties data from their solid models.
117. Evaluate the accuracy of mass properties calculations.
118. Describe how analysis data can be used to update parametric models.
119. List and explain the various mass property calculations, such as volume, density, mass, surface area, centroid, moment of inertia, products of inertia, radii of gyration, principal axes, and principal moments, and how they are used to evaluate a parametric model.
120. Use correct tolerancing techniques when dimensioning solid models.
121. Solve tolerance problems, including limits and fits.
122. Explain the difference between clearance fit, interference fit, and allowance.

MODEL DOCUMENTATION

123. Select the appropriate sheet size and title block for creating a drawing layout.
124. Translate a three-dimensional drawing or model into corresponding orthographic drawing views.
125. Explain the purpose, and/or application, of the following drawing views: isometric view, section view, auxiliary view, and detail view.
126. Generate an isometric view from orthographic drawing views.
127. Determine the correct application for the various section views required to illustrate an object's internal detail.
128. Describe the purpose and application of hatch marks and a cutting plane line, as used in a section view.

129. Create a detail view that corresponds to the appropriate orthographic drawing view.
130. Create an auxiliary view to show the detail on an inclined surface of a drawing object.
131. List the common dimensioning standards.
132. Demonstrate the use of common dimensioning systems.
133. Demonstrate the use of unidirectional and aligned dimensioning.
134. Differentiate the use of and demonstrate size and location dimensions by applying these types of dimensions to annotated sketches and drawings.
135. Demonstrate appropriate dimensioning rules and practices.
136. Set up and integrate the use of a customized common dimensioning standard.
137. Demonstrate the use of dimensioning practices on section, auxiliary, and assembly models.
138. Demonstrate tolerancing, and solve tolerance problems.
139. Apply appropriate annotations on sketches and drawings.
140. Formulate general and proprietary specifications to further communicate information relating to product design.

PRODUCTION

141. Explain the need to involve all of the manufacturing team members in the decision making process of designing a product.
142. Categorize manufacturing specifications and constraints needed to produce a product.
143. Evaluate material characteristics for manufacturing a specific product and identify the correct manufacturing process needed to produce that product.
144. Apply the correct machine process.
145. Explain the need to limit the number of processes used to manufacture a product.
146. Demonstrate process routing.
147. Explain the differences between Computer Numerical Control (CNC), Flexible Manufacturing System (FMS), and Computer Integrated Manufacturing (CIM).
148. Explain the need for a company to minimize material handling by procurement of materials in a timely fashion.
149. Identify the need to perform a cost analysis of a product.
150. Interpret data, which has been statically analyzed, to ensure product quality.
151. Evaluate the areas of manpower and facility requirements.
152. Protect a product for shipping.
153. Analyze aesthetic requirements to enhance packaging for the consumer.

MARKETING

154. Demonstrate an understanding of common vocabulary words used in association with product cost analysis.
155. Formulate a product cost analysis for a given product.
156. Demonstrate packaging design requirements.
157. Design a package for a given product.

21.43400 DRAFTING TECHNOLOGY-ARCHITECTURAL

Prerequisite: 21.43200 Drafting—Introduction and 21.43300 Drafting—Mechanical

COURSE DESCRIPTION: The Drafting Technology Architectural course presents the international language of lines and symbols related to architectural engineering. The course emphasizes print reading, design, floor plan development, perspective solutions, and rendering. The course uses board and electronic media for problem solving.

ARCHITECTURAL DRAWING AND DESIGN

38. Define architectural drawing.
39. Analyze architectural styles.
40. Describe the fundamentals of the architectural design process.
41. Develop site analysis.
42. Use and maintain a reference library of files and technical data.
43. List and describe factors and methods of financing.
44. Analyze room planning techniques.
45. Prepare design sketches.
46. Design a floor plan.
47. Design a foundation plan.
48. Create sectional views.
49. Design exterior perspective views.
50. Render presentation designs.
51. Design exterior elevations.
52. Design interior elevations.
53. Create door and window schedules.
54. Create detail sheets for fireplaces and chimneys, stair details, and cabinet details.
55. Acquire specification information, using the Internet and /or manuals.
56. Develop and design electrical, plumbing, and climate control plans.
57. Identify and describe non-traditional structures used in modern architecture and their advantages and disadvantages.
58. Create presentation drawings.
59. Build presentation models.
60. Create a mass model of a building design.
61. Analyze and describe modular floor plan construction and its advantages and disadvantages in modern architecture.
62. Gain fundamental computer-aided drawing/design (CAD) ability standards for building design.
63. Identify and describe available computer aided drafting and design software used in industry.
64. Create and use architectural libraries for insertion into a building design.
65. Create a walk-thru presentation of a section of a building.
66. Examine all aspects of the industry including planning, management, finance, labor issues, and community issues.

SAFETY

ARCHITECTURAL DRAWING AND DESIGN

35. Master relevant safety tests in each technological area.
36. Follow safety manuals, instructions, and requirements in each technical area.
37. Demonstrate appropriate methods of handling and storing tools and materials in each technological area.
38. Define architectural drawing.
39. Analyze architectural styles.
40. Describe the fundamentals of the architectural design process.
41. Develop site analysis.
42. Use and maintain a reference library of files and technical data.
43. List and describe factors and methods of financing.
44. Analyze room planning techniques.
45. Prepare design sketches.
46. Design a floor plan.
47. Design a foundation plan.
48. Create sectional views.
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56. Develop and design electrical, plumbing, and climate control plans.
57. Identify and describe non-traditional structures used in modern architecture and their advantages and disadvantages.
58. Create presentation drawings.
59. Build presentation models.
60. Create a mass model of a building design.
61. Analyze and describe modular floor plan construction and its advantages and disadvantages in modern architecture.
62. Gain fundamental computer-aided drawing/design (CAD) ability standards for building design.
63. Identify and describe available computer aided drafting and design software used in industry.
64. Create and use architectural libraries for insertion into a building design.
65. Create a walk-thru presentation of a section of a building.
66. Examine all aspects of the industry including planning, management, finance, labor issues, and community issues.

21.43500 GRAPHIC ARTS TECHNOLOGY

Prerequisite: 21.43100 Communication Technology

COURSE DESCRIPTION: The Graphic Arts Technology course presents the tools, material, and processes involved in the mass production of photography and printing, such as relief, screen process printing, and thermography. The course includes using a digital camera and instruction in composition, imposition, press work, and computer-aided publishing. Activities in this course include graphic design, computerized image composition, screen printing, prepress production, image transfer, and finishing processes.

SAFETY

35. Master relevant safety tests in each technological area.
36. Follow safety manuals, instructions, and requirements in each technical area.
37. Demonstrate appropriate methods of handling and storing tools and materials in each technological area.

FOUNDATIONS OF GRAPHIC COMMUNICATION

38. Explain the important role of graphic communication in our technological society.
39. Identify the major processes commonly associated with the graphic communication industry.
40. Describe career fields related to the graphic communication industry.
41. Define the role of graphics in the free enterprise system.

STANDARDS, CODES, LAWS, AND REGULATIONS IN THE GRAPHIC COMMUNICATION INDUSTRY

42. Describe the importance of standards, codes, laws, and regulations in the graphic communication industry.
43. Identify areas where standards, codes, laws, and regulations may be required.
44. Adhere to all appropriate standards, codes, laws, and regulations.

IMPACT AND ETHICAL ISSUES IN GRAPHIC COMMUNICATION

45. Assess the risks and benefits of solutions to graphic communication problems.
46. Describe the affect of graphic communication has on individuals, societies, cultures, economies and environments.
47. Discuss the international effects of graphic communication.

MEASUREMENT

48. Compare conventional and metric systems of measurement.
49. Convert from one system to another.
50. Describe various measurement terms found in graphic communication.
51. Explain the use of specialized measuring tools and equipment..

TYPE FACES

52. Explain the development of typestyles throughout the world.
53. Identify the nomenclature of a typeface.
54. Identify basic typeface classifications and a style of type in each classification.
55. Identify the common type sizes and units used in typography.
56. List and explain the factors that contribute to the legibility of type.
57. Summarize how computerized typesetting has increased the capabilities of typography.

SUBSTRATES

58. Trace the historical highlights of papermaking.
59. Identify the basic characteristics of paper.
60. Describe basic paper types or classifications.
61. Summarize the characteristics of plastic substrates.

DESIGN

62. Summarize the role of the graphic designer.
63. Define graphic design.
64. List and explain the elements of design.
65. Utilize the principles of design.
66. Design a graphic product to meet a specific need.

PAPER SELECTION

67. Identify basic paper types and sizes.
68. Determine grain directions of paper.
69. Handle and jog paper stock.
70. Identify potential paper problems.

DESKTOP PUBLISHING

71. Flow copy from word processing programs to page layout programs according to job specifications.
72. Import an image in a page layout document.
73. Identify the various kinds of items that can be designed and produced using desktop publishing.
74. Identify basic desktop publishing equipment.
75. Explain the limitations and capabilities of desktop publishing.
76. Identify the differences between bitmap and vector.
77. Define postscripts.
78. Distinguish between word-processing, page layout, and graphic software.
79. Demonstrate the operation of digital image preparation.
80. Select appropriate software for word processing, graphics, scanning, and page layout.
81. Define the type arrangements: flush left-ragged right, flush right-ragged left, centered, and justified.
82. Explain font management from customer's files.
83. Select appropriate page layout software for a given job.
84. Demonstrate the use of an electronic dictionary, spell check, and automatic hyphenation.
85. Demonstrate text alignment, element positioning, and rules of page design for printed matter.
86. Set up column grids for electronic page layout according to job specifications.
87. Set up/select appropriate pagination for a given job.
88. Set text with appropriate margins, formatting, gutters, leading, and headings.
89. Design and produce a document, using desired fonts, styles, margins, indents, and tabs.
90. Proofread, edit, and make corrections to copy on screen.
91. Create a tri-fold brochure using graphics and text for publication.
92. Create a newsletter using windows, blocks, text, graphics, frames, and headings.
93. Demonstrate the use of drop caps.
94. Create a printed piece using tints, reverses, and manipulated type for effect.
95. Produce a multi-color flyer.

SCREEN PRINTING

96. Explain the principles of screen printing.
97. Select the proper fabric or other substrate to be used for screen printing.
98. Select and prepare screen frames as support devices.
99. Prepare and attach the fabric to a frame.
100. Cut and prepare stencils to be adhered to the screen.
101. Prepare photographic stencils.

FUTURE CHANGES IN GRAPHIC COMMUNICATION

102. Summarize the impact the computer has made and will continue to make on the graphic communication industry.
103. Review the types of electronic equipment moving into graphic communication.
104. Explain the growth areas in graphic communication.
105. Summarize the processes that will be phased out and the processes that will be more prominent in the future.
106. List the trends to watch in the future of graphic communication.

21.43600 DIGITAL MEDIA TECHNOLOGY

Prerequisite: 21.43100 Communication Technology

COURSE DESCRIPTION: Digital Media is becoming a very popular form of technology. Students enrolled this course will participate in an active, hands on curriculum exposing them to the digital worlds of audio, video, and imaging. Students will also gain experience in web development and multimedia authoring. Work in this course will be done using a variety of instructional strategies, including individual, small group, and whole group work.

SAFETY

35. Master relevant safety tests in each technological area.
36. Follow safety manuals, instructions, and requirements in each technical area.
37. Demonstrate appropriate methods of handling and storing tools and materials in each technological area.

FOUNDATIONS OF DIGITAL MEDIA

38. Define digital media.
39. Research and explain the history and development of digital media.
40. Describe career fields related to digital media.

STANDARDS, CODES, LAWS, AND REGULATIONS IN THE MEDIA INDUSTRY

41. Describe the importance of standards, codes, laws, and regulations in the media industry.
42. Identify areas where standards, codes, laws, and regulations may be required.
43. Adhere to all appropriate standards, codes, laws, and regulations.

IMPACT AND ETHICAL ISSUES IN DIGITAL MEDIA

44. Describe the affect digital media has had on individuals, societies, cultures, economies, and environments.
45. Discuss the international effects of digital media.
46. Describe the changes in the digital media field and how the changes affect business and industry.

UNDERSTANDING DIGITAL MEDIA TECHNOLOGY

47. Compare different digital signals and explain how sampling affects them.
48. Explain the importance of resolution in digital media.
49. Demonstrate the effects of compression on digital media.

DIGITAL IMAGING

50. Capture a digital image using a scanner.
51. Compare images captured at different resolutions.
52. Compare different digital image file types.
53. Capture an aesthetically pleasing image using a digital camera.
54. Edit an image using a computer.
55. Assemble a printed portfolio of digitally enhanced images.

DIGITAL AUDIO

56. Record audio samples into a computer.
57. Compare and contrast the different digital audio file types.
58. Alter audio files using a computer.
59. Edit short digital music files.
60. Create a Compact Disk of digital audio work samples.

DIGITAL VIDEO

61. Capture aesthetically pleasing video footage using a digital camcorder.
62. Compare and contrast the different digital video formats.
63. Edit raw video footage using a computer.
64. Insert titles, transitions, and audio digitally into a video.
65. Create digital 3D graphics to enhance the appeal of video projects.
66. Produce a short animated video using 3D animation software.
67. Create a video portfolio of digitally edited video projects.

WEB DEVELOPMENT

68. Identify major components of a web page.
69. Compare and contrast different types of web sites.
70. Demonstrate the fundamentals of web page layout and design.
71. Develop graphics and animations for web use.
72. Create a functional and aesthetic web site.

MULTIMEDIA AUTHORIZING

73. Convert video, audio, and graphic files to function within a multimedia DVD.
74. Develop storyboards to outline a multimedia DVD.
75. Insert text, video, audio, and graphic files into multimedia DVD.
76. Create a multimedia DVD of all class projects.