



Grades 9 to 12 Print Media

Manitoba Technical-Vocational
Curriculum Framework
of Outcomes



GRADES 9 TO 12
PRINT MEDIA

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Framework of Outcomes

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Any websites referenced in this document are subject to change. Educators are advised to preview and evaluate websites and online resources before recommending them for student use.

This resource is available on the Manitoba Education and Advanced Learning website at
<www.edu.gov.mb.ca/k12/cur/teched/sy_tech_program.html>.

Available in alternate formats upon request.

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TECHNICAL-VOCATIONAL EDUCATION OVERVIEW

In 2013, Manitoba Education released the document [Technical-Vocational Education Overview](#) to provide the philosophical and pedagogical underpinnings for curriculum development and the teaching of courses in the Senior Years Technology Education Program. This overview provides educators with the vision and goals of technical-vocational education (TVE) in Manitoba.

Topics include the following:

- curriculum revitalization and renewal
- curriculum framework and implementation
- articulation
- assessment and reporting
- safety
- employability/essential skills and career development
- sustainable development

The TVE curriculum includes Grades 9 to 12 courses in a variety of areas, including print media.

PRINT MEDIA OVERVIEW

Introduction

Grades 9 to 12 Print Media: Manitoba Technical-Vocational Curriculum Framework of Outcomes identifies the goals, general learning outcomes (GLOs), and specific learning outcomes (SLOs) for nine print media courses. This framework is intended for use in all Manitoba schools teaching print media courses as part of the Senior Years Technology Education Program.

Delivery of Print Media

To receive a technical-vocational diploma from Manitoba Education and Advanced Learning, a student must complete eight departmentally developed courses from an approved technical-vocational cluster, together with 16 compulsory credits and six optional credits. The grade level in which the courses are offered are a local, school-based decision, but it is highly recommended that the sequencing of credits follow the schedule set out below.

Cross-curricular learning outcomes include essential skills from subject areas including, but not limited to, information and communication technology, science, English language arts, and mathematics. These outcomes are to be integrated into the authentic activities of the course.

Outcomes dealing with the following topics are also integrated into most courses:

- health and safety
- sustainability
- ethical and legal standards
- employability skills
- working conditions and career opportunities
- evolution, technological progression, and emerging trends

In the TVE curriculum, the emphasis is on hands-on learning activities. For instructional purposes, the sequence of learning outcomes and the learning outcomes included in each unit of study can vary, based on the learning activities within the course.

1. The curriculum is not sequential. In other words, outcomes might be taught in an order different from how they appear in the document.
2. In light of rapid changes in technology, teachers are encouraged to update their activities in order to meet the needs of students.

Print Media Goals and General Learning Outcomes (GLOs)

Process for Graphic Print Production

1. Demonstrate ability to apply the creative process to develop a professional **design** for print.
 - GLO 1.1 Identify the **design problem**.
 - GLO 1.2 Research the **factors that influence design**.
 - GLO 1.3 Recognize and apply the **elements and principles of design**.
 - GLO 1.4 **Conceptualize** the design solution.
 - GLO 1.5 **Communicate** the design solution.
 - GLO 1.6 Describe and apply **appropriate technology** to achieve the design solution.
2. Describe and apply **graphic print production processes**.
 - GLO 2.1 Describe and apply appropriate **pre-press techniques**.
 - GLO 2.2 Describe and apply commonly used **print production methods**.
 - GLO 2.3 Describe and apply **post-press methods**.
3. Operate and maintain the **tools and equipment** used in the print production industry.
 - GLO 3.1 Operate computer **hardware and software**.
 - GLO 3.2 Operate and maintain **print production tools and equipment**.
 - GLO 3.3 Operate and maintain **post-press tools and equipment**.
 - GLO 3.4: Handle and store print production materials.

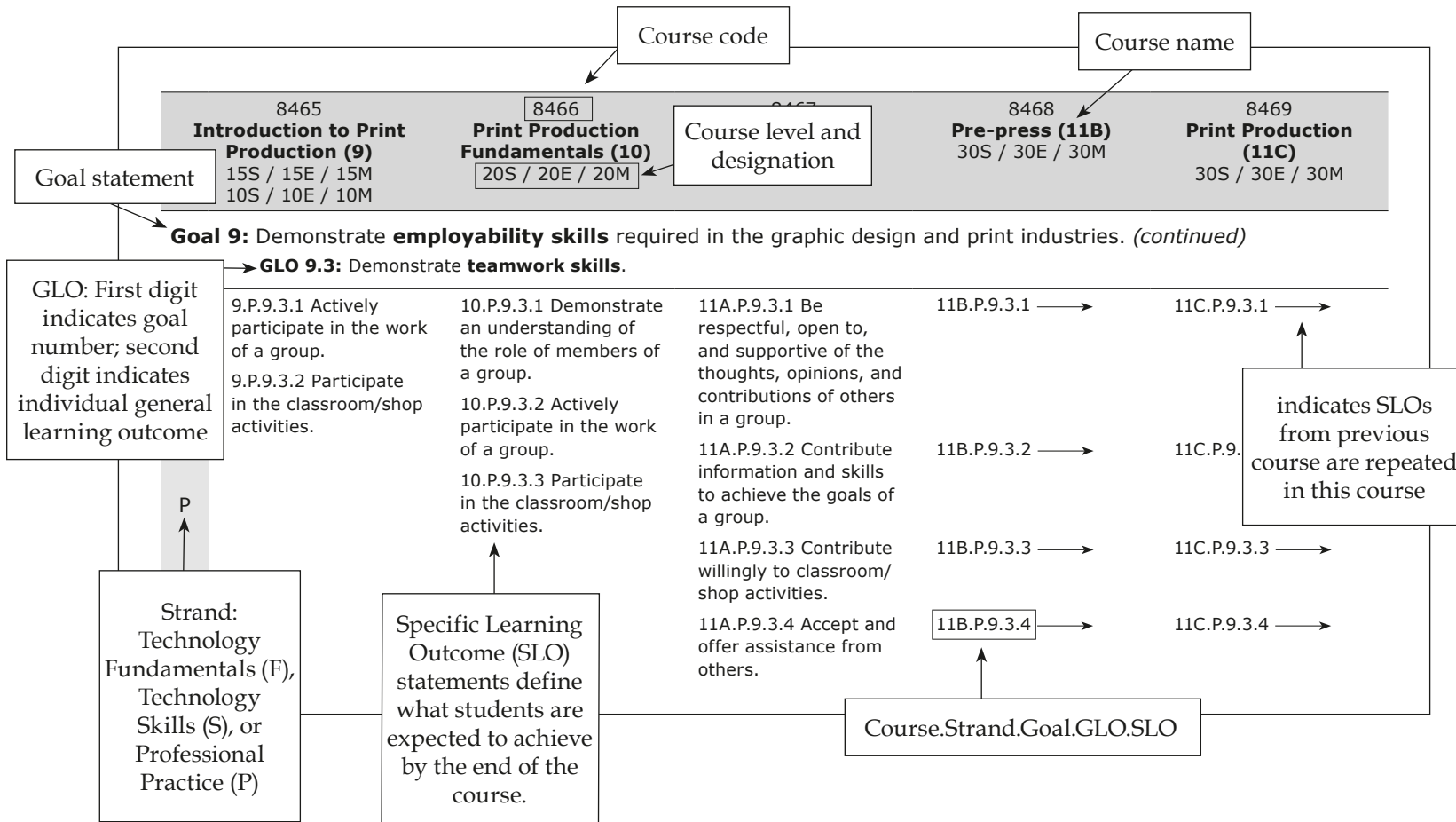
Cross-curricular, Sustainability, and Emerging Trends

4. Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industries.
 - GLO 4.1 Apply **mathematical solutions** to design production problems (e.g., conversion, measurement, estimation, and accuracy).
 - GLO 4.2 **Read, write, interpret, and communicate information** related to the design and print process (e.g., proofreading, visual, and/or written communication).
 - GLO 4.3 Describe the **physical properties of materials** used in the print production process and factors in the physical environment (e.g., conductivity, pH, viscosity).
5. Consider the impact of **sustainability** as it pertains to the print industry.
 - GLO 5.1 Appreciate the implications of the printing process on the **environment**.
 - GLO 5.2 Describe the interaction between society and the print industry and its impact on **sustainability**.
 - GLO 5.3 Recognize the **economic benefits of sustainable practices** in the print industry.
6. Explain the **evolution, technological progression, and emerging trends** in the print industry.
 - GLO 6.1 Appreciate the **historical significance, social impact, and continuing evolution** and development of the print industry. (e.g., the evolution and progression of design styles and approaches)
 - GLO 6.2 Demonstrate an awareness of the **evolution and progression of design styles and approaches**.
 - GLO 6.3 Demonstrate awareness of the continuing **evolution of the print industry**, as well as its **emerging trends and future technologies**.

Safety and Health, Employability Skills, and Career Development

7. Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace.
 - GLO 7.1 Describe and apply **health and safety rights, responsibilities, and procedures**.
 - GLO 7.2 Describe and follow **health and safety laws and regulations** as they relate to graphic print production.
8. Describe and follow the **ethical and legal standards** in the print industry.
 - GLO 8.1 Describe and follow current legal responsibilities and requirements when accessing **intellectual property** (e.g., copyright, trademarks).
 - GLO 8.2 Describe and follow **ethical trade practices**.
9. Demonstrate **employability skills** required in the graphic design and print industries.
 - GLO 9.1 Demonstrate **fundamental employability skills**.
 - GLO 9.2 Demonstrate **personal management skills**.
 - GLO 9.3 Demonstrate **teamwork skills**.
10. Describe **career opportunities** in the print production industry.
 - GLO 10.1 Demonstrate awareness of **employment and post-secondary opportunities** related to print production.

Guide to Reading the Print Media Goals and Learning Outcomes



Specific Learning Outcomes (SLOs)

Grades 9 to 12 Print Media: Manitoba Technical-Vocational Curriculum Framework of Outcomes identifies specific learning outcomes (SLOs) for use in all Manitoba schools teaching Grades 9 to 12 Print Media courses as part of the Senior Years Technology Education Program. Specific learning outcome statements define what students are expected to achieve by the end of the course.

It is essential for students to learn and to demonstrate safety practices and employability skills; therefore, some SLOs related to safety and to employability skills are repeated in all the courses.

Course Descriptions

Course titles, descriptions, and codes for the nine print media courses follow. For an explanation of the course codes, refer to the Guide to Reading the Print Media Goals and Learning Outcomes and to the *Subject Table Handbook: Technology Education*, which is available online at www.edu.gov.mb.ca/k12/docs/policy/sthte/index.html.

8465 Introduction to Print Production 15S/15E/15M
10S/10E/10M

This is an optional course (half-credit or full credit) intended for students who wish to sample the print media vocation.

Curriculum content focuses on a broad exploration of the entire discipline of print media. The emphasis will be on project-based activities.

The course includes an exploration of essential skills related to safety and employability. Students will also explore career development, sustainability, and new and emerging technologies in print media.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of trade documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands. For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8466 Print Production Fundamentals 20S/20E/20M

This course is intended for students who wish to explore the print media vocation.

Curriculum content focuses on an introduction to the entire discipline of print media. The emphasis will be on project-based activities.

The course includes an introduction to essential skills related to safety and employability. Students will also be introduced to career development, sustainability, and new and emerging technologies in print media.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of trade documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands. For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8467 Design 30S/30E/30M

This course is intended for students considering specialization in print media.

Curriculum content focuses on the initial stages of design within the print media process. Topics include the following:

- principles and elements of design
- solving design problems
- fundamentals of design
- page layout
- layout software
- typography

The course includes an emphasis on essential skills related to safety and employability skills. Students also learn about career development, sustainability, and new and emerging technologies specifically related to print media design.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of print media documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands.

For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8468 Pre-press

30S/30E/30M

This course is intended for students considering specialization in print media.

Curriculum content focuses on the initial stages of pre-press within the print media process. Topics include the following:

- imposition
- colour management
- file management
- image capture
- image processing
- file packaging
- image carrier output

The course includes an emphasis on essential skills related to safety and employability skills. Students also learn about career development, sustainability, and new and emerging technologies specifically related to print media design.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of print media documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands.

For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8469 Print Production

30S/30E/30M

This course is intended for students considering completing the specialization phase in print media.

Curriculum content focuses on the initial stages of print production within the print media process. Topics include the following:

- ink
- substrate
- substrate path
- print production chemicals
- print production process
- measurements

The course includes an emphasis on essential skills related to safety and employability. Students also learn about career development, sustainability, and new and emerging technologies specifically related to print media design.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of print media documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands.

For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8470 Advanced Design

40S/40E/40M

This course is intended for students entering the completion phase of their print media studies.

Curriculum content provides for an overview of the design process and application of that process in print media.

Topics include the following:

- advanced elements and principles of design
- advanced colour theory
- advanced image manipulation
- advanced typography
- advanced page layout

Students in the course will independently apply essential skills related to safety and employability. They will continue to develop their knowledge, skills, and attitudes in the areas of career development, sustainability, and new and emerging technologies in design specifically related to print media.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of print media documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands. For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8471 Advanced Pre-press

40S/40E/40M

This course is intended for students entering the completion phase of their print media studies.

Curriculum content provides for an overview of the pre-press process and application of that process in print media. Topics include the following:

- pagination
- colour management
- colour separation
- advanced imposition
- advanced image processing
- pre-press equipment operation and maintenance

Students in the course will independently apply essential skills related to safety and employability. They will continue to develop their knowledge, skills, and attitudes in the areas of career development, sustainability, and new and emerging technologies in pre-press.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of print media documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands. For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8472 Advanced Print Production 40S/40E/40M

This course is intended for students entering the completion phase of their print media studies.

Curriculum content provides for an overview of the print production process and application of that process in print media. Topics include the following:

- print production equipment operation and maintenance
- introduction to post press
- finishing
- advanced colour management
- advanced calculations
- bindery

Students in the course will independently apply essential skills related to safety and employability. They will continue to develop their knowledge, skills, and attitudes in the areas of career development, sustainability, and new and emerging technologies in print production.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of print media documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands. For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

8473 Applied Print Media 40S/40E/40M

This course is intended for students specializing in print media.

Curriculum content provides for an overview of the print production process and independent application of that process in print media. Topics include the following:

- managing print jobs
- communicating with clients
- synthesizing skills required to complete print jobs
- skills needed to succeed in the print industry
- diagnosing print production issues
- professional attitudes towards craftsmanship
- print media portfolio

Students in the course will independently apply essential skills related to safety and employability. They will continue to develop their knowledge, skills, and attitudes in the areas of career development, sustainability, and new and emerging technologies in print production.

Cross-curricular learning outcomes, which include essential print media math, the science of print media, and the interpretation of print media documents, are to be integrated into the authentic activities of the course.

The learning outcomes are organized by Technology Fundamentals (F), Technology Skills (S), and Professional Practice (P) strands. For instructional purposes, the sequence of outcomes and the outcomes included in each unit of study can vary based on the projects within the course.

Curriculum Implementation Dates

During **voluntary implementation**, teachers have the option of teaching the entire new draft curriculum as soon as Manitoba Education and Advanced Learning releases it on the [Technology Education](#) website. Teachers also have the option of teaching courses from the previous curriculum. Teachers who implement courses before system-wide implementation need to ensure that students who are already taking courses from the previous curriculum achieve all SLOs with a minimum of redundancy.

Voluntary implementation for all print media courses began in the fall of 2012 and will continue until their respective system-wide implementation dates.

Date	System-Wide Implementation
Fall 2013	Grade 9 (optional)
Fall 2014	Grade 10
Fall 2015	Grade 11
Fall 2016	Grade 12

Under **system-wide implementation**, all teachers in Manitoba teach the new curriculum and use the new course codes. Teachers will no longer be able to use the previous course codes. Course codes are found in the [Subject Table Handbook: Technology Education](#).



GRADES 9 TO 11
PRINT MEDIA

General and Specific Learning
Outcomes by Goal

GRADES 9 TO 11 PRINT MEDIA
GENERAL AND SPECIFIC LEARNING OUTCOMES BY GOAL

8465 Introduction to Print Production (9) 15S / 15E / 15M 10S / 10E / 10M	8466 Print Production Fundamentals (10) 20S / 20E / 20M	8467 Design (11A) 30S / 30E / 30M	8468 Pre-press (11B) 30S / 30E / 30M	8469 Print Production (11C) 30S / 30E / 30M
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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print.

GLO 1.1: Identify the **design problem**.

F	9.F.1.1.1 Demonstrate basic knowledge of the need for design in the print production process.	10.F.1.1.1 Demonstrate basic knowledge of the need for design in the print production process.	11A.F.1.1.1 Identify options (e.g., billboard, packaging, advertisement, and environmental exposure) based on the end use of product.	11B.F.1.1.1 Identify cost factors (e.g., materials, labour, and quantity) for the design and print process.	11C.F.1.1.1 Check customer requirements.
	9.F.1.1.2 Demonstrate basic knowledge of the design process (i.e., thumbnails, rough layouts, comprehensives, and production layout).	10.F.1.1.2 Demonstrate basic knowledge of the design process (i.e., thumbnails, rough layouts, comprehensives, and production layout).	11A.F.1.1.2 Identify cost factors (e.g., materials, labour, and quantity) for the design and print process. 11A.F.1.1.3 Identify the impact demographics, audience, and client preferences have on the design solution. 11A.F.1.1.4 Describe the design process (i.e., thumbnails, rough layouts, comprehensives, and production layout).		11C.F.1.1.2 Recognize that the printing process and materials need to be adjusted in order to accommodate for the design. 11C.F.1.1.3 Describe different properties found in substrates and how these affect the print outcome.

8465 Introduction to Print Production (9) 15S / 15E / 15M 10S / 10E / 10M	8466 Print Production Fundamentals (10) 20S / 20E / 20M	8467 Design (11A) 30S / 30E / 30M	8468 Pre-press (11B) 30S / 30E / 30M	8469 Print Production (11C) 30S / 30E / 30M
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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.1: Identify the **design problem**. *(continued)*

S	9.S.1.1.1 Identify the required components (e.g., images, text) for the design problem.	10.S.1.1.1 Identify the required components (e.g., images, text) for the design problem.	11A.S.1.1.1 Gather and interpret information specific to the design problem. 11A.S.1.1.2 Communicate the design process.	11B.S.1.1.1 Gather and interpret information specific to the design problem. 11B.S.1.1.2 Communicate the design process as it relates to pre-press.	11C.S.1.1.1 Interpret and organize information specific to the design. 11C.S.1.1.2 Adjust the printing process and materials to accommodate for the design. 11C.S.1.1.3 Verify the technical specifications to match the client's requirements (e.g., substrate, die lines, colours, and accuracy and quality of work).
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8465 Introduction to Print Production (9) 15S / 15E / 15M 10S / 10E / 10M	8466 Print Production Fundamentals (10) 20S / 20E / 20M	8467 Design (11A) 30S / 30E / 30M	8468 Pre-press (11B) 30S / 30E / 30M	8469 Print Production (11C) 30S / 30E / 30M
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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.2: Research the **factors that influence design**.

F	<p>9.F.1.2.1 Identify purpose, audience, and type of print output required for the problem.</p>	<p>10.F.1.2.1 Identify purpose, audience, and type of print output required for the problem.</p>	<p>11A.F.1.2.1 Describe and list the basic processes that influence design (e.g., purpose, printing specifications, audience, printing method, delivery date, style, aesthetics, theme, technology, workforce, client’s personality, quantity, and post-press considerations).</p> <p>11A.F.1.2.2 Identify the impact budget has on design.</p>	<p>11B.F.1.2.1 Describe and list the basic pre-press processes that influence design.</p> <p>11B.F.1.2.2 Identify the pre-press process and its impact on project budget.</p>	<p>11C.F.1.2.1 Distinguish between online and offline finishing techniques.</p> <p>11C.F.1.2.2 Describe online finishing techniques (e.g., thermography, numbering, and bar coding).</p> <p>11C.F.1.2.3 Describe the qualities of different substrates (finish, grain direction, thickness, pressure sensitivity, distortion factor, faults, water damage, corrugation, and types of stock).</p>
S	<p>9.S.1.2.1 Examine samples of design solutions.</p> <p>9.S.1.2.2 Identify the required specifications (e.g., colour, size, font, and images) for the design problem.</p>	<p>10.S.1.2.1 Gather visual research for design solutions.</p> <p>10.S.1.2.2 Identify the required specifications (e.g., colour, size, font, and images) for the design problem.</p>	<p>11A.S.1.2.1 Gather visual research for design solutions.</p> <p>11A.S.1.2.2 Identify the required specifications (e.g., colour, size, font, and images) for the design problem.</p>	<p>11B.S.1.2.1 Identify the design specifications (e.g., colour, size, font, and images) and how pre-press translates to the finished final product.</p>	<p>11C.S.1.2.1 Interpret specifications and models for output.</p> <p>11C.S.1.2.2 Select and apply appropriate substrate and finishing techniques for each print job.</p>

8465 Introduction to Print Production (9) 15S / 15E / 15M 10S / 10E / 10M	8466 Print Production Fundamentals (10) 20S / 20E / 20M	8467 Design (11A) 30S / 30E / 30M	8468 Pre-press (11B) 30S / 30E / 30M	8469 Print Production (11C) 30S / 30E / 30M
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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.3: Recognize and apply the **elements and principles of design**.

F	<p>9.F.1.3.1 Demonstrate basic knowledge of how elements and principles of design communicate messages effectively.</p>	<p>10.F.1.3.1 Describe the use of the principles of design in pre-existing print materials.</p> <p>10.F.1.3.2 Demonstrate basic knowledge of how elements and principles of design communicate messages effectively.</p>	<p>11A.F.1.3.1 Describe the use of the principles of design in pre-existing print materials.</p> <p>11A.F.1.3.2 Demonstrate basic knowledge of how elements and principles of design communicate messages effectively.</p> <p>11A.F.1.3.3 Identify the fundamentals (e.g., classifications, style, and structure) of typography.</p> <p>11A.F.1.3.4 Identify type formatting (e.g., kerning, leading, justification, readability, and legibility) techniques.</p> <p>11A.F.1.3.5 Identify the rules of typography.</p>	<p>11B.F.1.3.1 Demonstrate a basic understanding of how elements and principles of design communicate messages effectively.</p>	<p>11C.F.1.3.1 Demonstrate an awareness of die cuts in print production (e.g., packaging, folders, label templates, and vinyl cuts).</p>
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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.3: Recognize and apply the **elements and principles of design**. *(continued)*

S	9.S.1.3.1 Arrange elements by applying principles of design to create a basic layout.	10.S.1.3.1 Arrange elements by applying principles of design to create a basic layout for a variety of printed materials.	11A.S.1.3.1 Arrange elements by applying principles of design to create a basic layout for a variety of printed materials.	11B.S.1.3.1 Arrange elements by applying principles of design to recreate/create a basic layout for a variety of printed materials.	11C.S.1.3.1 Produce a folded mock-up or dummy.
			11A.S.1.3.2 Apply the basic rules of typography.	11B.S.1.3.2 Apply the basic rules of typography.	

GLO 1.4: Conceptualize the design solution.

F	9.F.1.4.1 Brainstorm design ideas.	10.F.1.4.1 Brainstorm design ideas.	11A.F.1.4.1 Demonstrate basic knowledge of the initial stages of the design process (e.g., thumbnails, rough layouts).	11B.F.1.4.1 Consider the appropriateness of specific typographical solutions.	
	9.F.1.4.2 Demonstrate basic knowledge of the initial stages of the design process (e.g., thumbnails, rough layouts).	10.F.1.4.2 Demonstrate basic knowledge of the initial stages of the design process (e.g., thumbnails, rough layouts).	11A.F.1.4.2 Identify brainstorming techniques (e.g., mind map, visual, and words).		—

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.4: Conceptualize the design solution. *(continued)*

F			<p>11A.F.1.4.3 Describe how existing models can be used to develop a design option.</p> <p>11A.F.1.4.4 Consider the appropriateness of specific typographical solutions.</p>	—
S	9.S.1.4.1 Draw thumbnails and rough layouts using appropriate symbols (e.g., type, graphic elements).	10.S.1.4.1 Draw thumbnails and rough layouts using appropriate symbols (e.g., type, graphic elements).	<p>11A.S.1.4.1 Brainstorm design ideas.</p> <p>11A.S.1.4.2 Draw thumbnails and rough layouts using appropriate symbols (e.g., type, graphic elements).</p>	<p>11B.S.1.4.1 Interpret thumbnails and rough layouts using appropriate symbols (e.g., type, graphic elements).</p> <p style="text-align: center;">—</p>

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.5: Communicate the design solution.

F	—	—	11A.F.1.5.1 Describe the process of presenting a design solution to the client. 11A.F.1.5.2 Describe the process of communicating and collaborating on a completed design with the printer.	11B.F.1.5.1 Describe the process of communicating and collaborating on a completed design with the printer.	11C.F.1.5.1 Recognize the importance of participating in print production meetings with a focus on design solutions.
S	9.S.1.5.1 Communicate design solution (e.g., rough layouts, explanations, and justifications of the design).	10.S.1.5.1 Communicate and justify design solution (e.g., rough layouts, explanations and justifications of the design). 10.S.1.5.2 Identify items for portfolio collection.	11A.S.1.5.1 Communicate and justify design solution (e.g., rough layouts, typography, explanations, and justifications of the design). 11A.S.1.5.2 Verify proof to design specifications.	11B.S.1.5.1 Verify proof to design specifications.	11C.S.1.5.1 Participate actively in print production meetings with a focus on design solutions.

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.6: Describe and apply **appropriate technology** to achieve the design solution.

F	9.F.1.6.1 Identify software (e.g., page layout, image manipulation, and illustration) used in the print production industry.	10.F.1.6.1 Identify software (e.g., page layout, image manipulation, and illustration) used in the print production industry.	11A.F.1.6.1 Identify software (e.g., page layout, image manipulation, and illustration) used in the print production industry.	11B.F.1.6.1 Identify software (e.g., page layout, image manipulation, and illustration) used in pre-press.	11C.F.1.6.1 Demonstrate intermediate knowledge of colour management/ colour modes (e.g., subtractive, additive colour, spot, and CMYK).
	9.F.1.6.2 Identify the basic differences between vector and raster images.	10.F.1.6.2 Identify the basic differences between vector and raster images.	11A.F.1.6.2 Identify the basic differences between vector and raster images.	11B.F.1.6.2 Describe pre-press considerations for printability (e.g., image resolution, image mode, font structure, image format, and links).	11C.F.1.6.2 Determine whether design elements should overprint or knock out.
	9.F.1.6.3 Demonstrate basic knowledge of colour management (e.g., subtractive, additive colour, and spot).	10.F.1.6.3 Demonstrate basic knowledge of resolution in relation to output (e.g., ppi, dpi, lpi, screen resolution, and stochastic).	11A.F.1.6.3 Demonstrate basic knowledge of resolution in relation to output (e.g., ppi, dpi, lpi, screen resolution, and stochastic).	11B.F.1.6.3 Demonstrate basic knowledge of the purpose of press-ready proofs.	11C.F.1.6.3 Demonstrate an understanding of trapping, spreading, and choking.
	9.F.1.6.4 Demonstrate basic knowledge of file management practices.	10.F.1.6.4 Demonstrate basic knowledge of colour management/ colour modes (e.g., subtractive, additive colour, spot, RGB, and CMYK).	11A.F.1.6.4 Demonstrate basic knowledge of colour management/ colour modes (e.g., subtractive, additive colour, spot, RGB, and CMYK).		

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.6: Describe and apply **appropriate technology** to achieve the design solution. *(continued)*

F		<p>10.F.1.6.5 Demonstrate basic knowledge of file management practices and commonly used file formats for design and print production.</p> <p>10.F.1.6.6 Demonstrate basic knowledge of the purpose of a comprehensive proof.</p>	<p>11A.F.1.6.5 Demonstrate basic knowledge of file management practices and commonly used file formats for design and print production.</p> <p>11A.F.1.6.6 Demonstrate basic knowledge of the purpose of a comprehensive proof.</p>		
S	<p>9.S.1.6.1 Navigate operating system and apply file management practices (e.g., naming, formats, hierarchies, and saving).</p> <p>9.S.1.6.2 Use basic tools to create and manipulate raster and vector images for page layout.</p>	<p>10.S.1.6.1 Navigate operating system and apply file management practices (e.g., naming, formats, hierarchies, and saving).</p> <p>10.S.1.6.2 Use basic tools to create and manipulate raster and vector images for page layout.</p>	<p>11A.S.1.6.1 Navigate operating system and apply file management practices (e.g., naming, formats, hierarchies, and saving).</p> <p>11A.S.1.6.2 Use basic tools to create and manipulate raster and vector images for page layout.</p>	<p>11B.S.1.6.1 Navigate operating system and apply file management practices (e.g., naming, formats, hierarchies, and saving).</p> <p>11B.S.1.6.2 Use basic tools to create and manipulate raster and vector images for pre-press.</p>	<p>11C.S.1.6.1 Distinguish between process and spot colours in order to achieve the design solution.</p> <p>11C.S.1.6.2 Determine whether files need to be trapped.</p>

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.6: Describe and apply **appropriate technology** to achieve the design solution. *(continued)*

S	<p>9.S.1.6.3 Complete comprehensives.</p>	<p>10.S.1.6.3 Use appropriate procedures to acquire digital and continuous tone images (e.g., scanner and digital camera).</p> <p>10.S.1.6.4 Convert images between vector and raster formats.</p> <p>10.S.1.6.5 Create and print comprehensive proofs.</p>	<p>11A.S.1.6.3 Use appropriate procedures to acquire digital and continuous tone images (e.g., scanner and digital camera).</p> <p>11A.S.1.6.4 Apply basic typographical techniques.</p> <p>11A.S.1.6.5 Convert images between vector and raster formats.</p> <p>11A.S.1.6.6 Create and print comprehensive proofs.</p>	<p>11B.S.1.6.3 Verify document for printability (e.g., image resolution, image mode, font structure, image format, and links).</p> <p>11B.S.1.6.4 Apply basic typographical techniques.</p> <p>11B.S.1.6.5 Create a press-ready proof.</p>
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Goal 2: Describe and apply **graphic print production processes.**

GLO 2.1: Describe and apply appropriate **pre-press techniques.**

F	<p>9.F.2.1.1 Demonstrate basic knowledge of the print production process (e.g., pre-press, printing production, and post-press).</p> <p>9.F.2.1.2 Demonstrate basic knowledge of the need for proofing prior to production.</p>	<p>10.F.2.1.1 Demonstrate basic knowledge of the stages of the print production process (e.g., pre-press, printing production, and post-press).</p> <p>10.F.2.1.2 Demonstrate basic knowledge of the need for a production proof.</p> <p>10.F.2.1.3 Identify basic quality control components (e.g., printer’s marks) for a production proof.</p> <p>10.F.2.1.4 Explore various methods (e.g., PDFs, text-to-curve, and packing fonts and images) to prepare print file for output.</p> <p>10.F.2.1.5 Identify various image carriers.</p>	<p>11A.F.2.1.1 Describe various print production methods (e.g., offset, flexography, screen, and digital) as they affect design.</p> <p>11A.F.2.1.2 Recognize basics of layout and geometry (i.e., margins, bleeds, marks, page information, document size, page orientation, and page count, etc.).</p> <p>11A.F.2.1.3 Describe the purpose of file collection in the print production process (e.g., pre-flight, file hierarchy, and file management).</p> <p>11A.F.2.1.4 Demonstrate basic knowledge of proofing at various stages.</p>	<p>File Management & Information Technology</p> <p>11B.F.2.1.1 Describe the impact file organization has on production (e.g., delays, cost).</p> <p>11B.F.2.1.2 Describe efficient methods for file archiving, backup, and retrieval.</p> <p>11B.F.2.1.3 Describe the navigation of an internal and external network environment.</p> <p>Capture & Manipulate Images</p> <p>11B.F.2.1.4 Identify types of image capture devices (e.g., scanners and cameras) and their uses.</p>	<p>11C.F.2.1.1 Demonstrate an understanding of make-ready tasks.</p> <p>11C.F.2.1.2 Describe the properties of substrate for the printing job (e.g., fanning, jogging, and curl).</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>11A.F.2.1.5 Differentiate among CMYK, RGB, and spot colour format.</p>	<p>11B.F.2.1.5 Identify types of source images (e.g., reflective art, transparencies, paintings, and existing digital files).</p> <p>11B.F.2.1.6 Identify image properties (e.g., dimensions, dynamic range, resolution, colour space, and target profiles).</p> <p>11B.F.2.1.7 Identify quality defects of images (e.g., physical defects, posterization, pixelization, Moiré patterning, and overexposure or underexposure).</p> <p>11B.F.2.1.8 Describe basic image manipulation techniques (e.g., manipulating image content, selections, file formats, tonal shifts, retouching, colour correcting, and filter effects).</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>File Revisions & Pre-flight Operations</p> <p>11B.F.2.1.9 Describe the importance of the pre-flight process.</p> <p>11B.F.2.1.10 Identify mark-up and proofreading symbols.</p> <p>11B.F.2.1.11 Describe basic pre-flight issues affecting the final product, as applicable (e.g., bleed, overprint, resolution, links to external files, fonts, and colour mode).</p> <p>Colour Management</p> <p>11B.F.2.1.12 Describe technical colour theory (e.g., colour models, colour space, CMYK, RGB, spot colour, and PMS).</p> <p>11B.F.2.1.13 Describe colour profiles and the process and tools for colour measurement.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>11B.F.2.1.14 Describe colour gamut of devices (e.g., input device, monitors, and output device).</p> <p>Create a Proof</p> <p>11B.F.2.1.15 Describe the reasons for creating a proof.</p> <p>11B.F.2.1.16 Describe intent (e.g., colour, content, for position only) and types of proof formats (e.g., soft copy, hard copy, contract, and imposed).</p> <p>RIP Files</p> <p>11B.F.2.1.17 Differentiate among file formats (e.g., PDF, TIFF, and EPS) based on quality, functionality, portability, output device compatibility, and client/printer preference.</p> <p>11B.F.2.1.18 Describe the colour separation process.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>Impose Files 11B.F.2.1.19 Define imposition in terms of print production.</p> <p>11B.F.2.1.20 Describe imposition methods (e.g., work-and-turn, work-and-tumble, sheetwise, and ganging) and considerations, including efficiency and cost, printing equipment, finishing and bindery equipment, signatures, creep, and substrate properties.</p> <p>Prepare File for Output 11B.F.2.1.21 Describe plate-making and imaging methods including gravure, screen, offset lithography, flexography, digital, and emerging technologies.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>Pre-flight Operations</p> <p>11B.F.2.1.22 Locate print production issues using pre-flight software and techniques.</p> <p>11B.F.2.1.23 Locate and interpret mark-up information and proofreading symbols.</p> <p>11B.F.2.1.24 Verify the supplied file to the job specifications and desired output (e.g., document size, page orientation, margins, bleeds, marks, page information, binding allowance, page count, and file format).</p> <p>11B.F.2.1.25 Revise file based on mark-up information, proofreading symbols, job specifications, and desired output.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>Colour Management 11B.F.2.1.26 Compare colour to an output colour model standard (e.g., pantone swatch, and colour calibration equipment). 11B.F.2.1.27 Select correct colour mode for output.</p> <p>Create a Proof 11B.F.2.1.28 Output proof. 11B.F.2.1.29 Verify proof to specifications and quality standards for client approval.</p> <p>RIP Files 11B.F.2.1.30 Output a file for printing.</p> <p>Impose Files 11B.F.2.1.31 Create impositions using software. 11B.F.2.1.32 Apply imposition methods based on print job criteria.</p>
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Goal 2: Describe and apply **graphic print production processes**. *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques**. *(continued)*

F				<p>Prepare File for Output</p> <p>11B.F.2.1.33 Prepare and send a file for output (e.g., digital, film, and plate).</p> <p>11B.F.2.1.34 Create an image carrier (e.g., plate, stencil, and stamp).</p>	
S	<p>9.S.2.1.1 Prepare a print-ready file for output.</p> <p>9.S.2.1.2 Proof production layout.</p>	<p>10.S.2.1.1 Prepare a print-ready file for output.</p> <p>10.S.2.1.2 Verify production proof to job specification.</p> <p>10.S.2.1.3 Prepare an image carrier for printing (e.g., plate, screen).</p>	<p>11A.S.2.1.1 Verify that the files have the appropriate layout and geometry.</p> <p>11A.S.2.1.2 Verify that files are collected and ready for pre-press.</p> <p>11A.S.2.1.3 Verify proof to production specifications.</p>	<p>File Management & Information Technology</p> <p>11B.S.2.1.1 Organize files and documents locally and in a networked environment (e.g., name, project, media, and client).</p> <p>Capture & Manipulate Images</p> <p>11B.S.2.1.2 Prepare originals for scanning and adjust scanner settings (e.g., descreen, unsharp mask, bitmap mode, or line art).</p>	<p>11C.S.2.1.1 Select and prepare substrate for the printing job (e.g., fanning, jogging, and curl).</p> <p>11C.S.2.1.2 Perform make-ready tasks (e.g., prepare dampening system, prepare ink, prepare plates, prepare blanket, and set drying system and paper path).</p>

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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

S	<p>11B.S.2.1.3 Use image capture devices (e.g., scanners, cameras).</p> <p>11B.S.2.1.4 Convert file to appropriate file type for output.</p> <p>11B.S.2.1.5 Verify characteristics (e.g., output intent, physical size, file size, and resolution) and printability of the image.</p> <p>11B.S.2.1.6 Perform image manipulation operations to match specifications and output requirements.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.2: Describe and apply commonly used **print production methods.**

F	<p>9.F.2.2.1 Recognize various printing processes are used for different print products.</p> <p>9.F.2.2.2 Identify the common systems (e.g., paper path, imaging, and delivery system) used in the print production process.</p>	<p>10.F.2.2.1 Identify commonly used printing processes used for different print products.</p> <p>10.F.2.2.2 Identify the common systems of a printing press (e.g., paper path, imaging, and delivery system).</p>	<p>11A.F.2.2.1 Recognize the impact various printing production methods have on design.</p>	<p>11B.F.2.2.1 Describe how various printing methods influence pre-press choices.</p>	<p>11C.F.2.2.1 Describe how colour standards affect the types of target (e.g., density, dot gain).</p> <p>11C.F.2.2.2 Describe the steps in operating a press.</p> <p>11C.F.2.2.3 Describe printing and equipment problems.</p> <p>11C.F.2.2.4 Demonstrate an awareness of troubleshooting techniques to resolve production issues (e.g., noise, misfeeding, non-functioning, and production inconsistencies).</p>
S	<p>9.S.2.2.1 Apply printing production methods to create a project.</p>	<p>10.S.2.2.1 Apply printing production methods to create simple (e.g., one- or two-colour) projects.</p>	<p>11A.S.2.2.1 Apply printing production methods to create simple (e.g., one- or two-colour) projects.</p>	<p>11B.S.2.2.1 Apply pre-press techniques, as required, to output printed materials using one or more commonly used print production methods.</p>	<p>11C.S.2.2.1 Apply print production methods to create simple (e.g., one- or two-colour) projects.</p>

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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.2: Describe and apply commonly used **print production methods.** *(continued)*

S	<p>11C.S.2.2.2 Diagnose printing problems while running a press.</p> <p>11C.S.2.2.3 Set up, operate, and monitor the systems for print operation (e.g., paper feeder system, feeder system, dampening system, inking system, delivery system, and image carrier system).</p> <p>11C.S.2.2.4 Incorporate quality control procedures for the printing process (e.g., registration, plugged up half tones, plugged screens, excessive inking, scumming, problems associated with image carriers, hickeys, set-off, or offset).</p> <p>11C.S.2.2.5 Perform troubleshooting techniques to resolve production issues (e.g., noise, misfeeding, non-functioning, and production inconsistencies).</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.3: Describe and apply **post-press methods.**

F	9.F.2.3.1 Identify the commonly used post-press methods (e.g., bindery, finishing).	10.F.2.3.1 Identify the commonly used post-press methods (e.g., bindery, finishing).	11A.F.2.3.1 Recognize the implications of post-press methods on design.	11B.F.2.3.1 Describe how post-press methods influence pre-press choices.	11C.F.2.3.1 Describe the post-press operations (e.g., making perforations, punching, collating, trimming, binding, covering, scoring, gluing, padding, varnishing, lamination, foiling, embossing, folding, and die cutting).
					11C.F.2.3.2 Describe steps in binding and finishing printed material (e.g., stitching, spiral binding, glue binding, plastic coil, metal coil, comb binding, and perfect binding). 11C.F.2.3.3 Describe problems associated with post-press operations and the appropriate quality control procedures.

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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.3: Describe and apply **post-press methods.** *(continued)*

S	9.S.2.3.1 Apply basic post-press operations (e.g., cutting, binding, padding, folding, stitching, and punching) to a product.	10.S.2.3.1 Apply basic post-press operations. (e.g., cutting, binding, padding, folding, stitching, and punching).	11A.S.2.3.1 Incorporate post-press techniques (e.g., perforation line, dye lines, score lines, and margins) into design. 11A.S.2.3.2 Verify the design accuracy and functionality specific to post-press techniques. (e.g., proof and build model).	11B.S.2.3.1 Apply pre-press techniques as required for post-press operations.	11C.S.2.3.1 Perform post-press operations. 11C.S.2.3.2 Bind and/or finish printed material. 11C.S.2.3.3 Diagnose problems associated with post-press operations and incorporate the appropriate quality control procedures.
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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry.

GLO 3.1: Operate computer **hardware and software**.

F	<p>9.F.3.1.1 Identify commonly used tools and procedures in print production software.</p>	<p>10.F.3.1.1 Identify commonly used tools and procedures in print production software.</p>	<p>11A.F.3.1.1 Describe the common uses of print production software.</p> <p>11A.F.3.1.2 Describe the tools and procedures of print production software.</p> <p>11A.F.3.1.3 Describe input/output hardware and their uses (e.g., printers, scanners, storage devices, and digitized tablets).</p>	<p>11B.F.3.1.1 Identify commonly used software (e.g., layout, pre-flight, packaging, and imposition) in pre-press.</p> <p>11B.F.3.1.2 Describe file transfer protocols and methods (e.g., FTP, HTTP).</p> <p>11B.F.3.1.3 Describe the impact of file compression (e.g., ease of movement, quality).</p>	—
S	<p>9.S.3.1.1 Explore and apply commonly used functions within print production software.</p> <p>9.S.3.1.2 Create basic projects using image-manipulation (e.g., raster, vector) and page-layout software related to the print production process.</p>	<p>10.S.3.1.1 Explore and apply commonly used functions within print production software.</p> <p>10.S.3.1.2 Create basic projects using image-manipulation (e.g., raster, vector) and page-layout software related to the print production process.</p>	<p>11A.S.3.1.1 Use input/output hardware (e.g., printers, scanners, storage devices, and digitized tablets).</p> <p>11A.S.3.1.2 Use computer hardware and software to create a design.</p>	<p>11B.S.3.1.1 Operate pre-press computer systems and software (e.g., compression, file transfer, maintenance, and security).</p> <p>11B.S.3.1.2 Use image-manipulation (e.g., raster, vector) and page-layout software related to pre-press.</p>	—

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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry. *(continued)*

GLO 3.1: Operate computer **hardware and software**. *(continued)*

S	<p>11A.S.3.1.3 Use software tools and basic techniques to create a design (e.g., raster, vector, and page-layout software).</p> <p>11A.S.3.1.4 Use available resources (e.g., built-in help, web) to explore techniques and troubleshoot software and hardware issues.</p> <p>11A.S.3.1.5 Select and use the appropriate output device for proof.</p> <p>11A.S.3.1.6 Select options from the print dialog box (e.g., paper, type of paper orientation, separation, paper size, screen angles, bleeds, printer’s marks).</p>	<p>11B.S.3.1.3 Use compression techniques for storage and transfer of files.</p>	—
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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry. *(continued)*

GLO 3.2: Operate and maintain **print production tools and equipment**.

F	<p>9.F.3.2.1 Explore different types of image carriers.</p> <p>9.F.3.2.2 Identify measurement tools used in print production (e.g., line gauge, e-gauge).</p>	<p>10.F.3.2.1 Identify measurement tools and devices used in print production (e.g., line gauge, e-gauge).</p>	—	<p>11B.F.3.2.1 Identify pre-press tools and equipment (e.g., platesetter, screen and frame, imagesetter, and plate punch).</p>	<p>11C.F.3.2.1 Describe the operation and maintenance procedures for print production tools and equipment (e.g., cleaning and removing rollers, lubricating, and performing minor repairs and adjustments).</p>
S	<p>9.S.3.2.1 Handle substrates for printing.</p> <p>9.S.3.2.2 Assist in operation of a printing press.</p> <p>9.S.3.2.3 Assist in clean-up of the work area and equipment.</p>	<p>10.S.3.2.1 Use measurement devices and tools required for the print production process.</p> <p>10.S.3.2.2 Handle substrates for printing.</p> <p>10.S.3.2.3 Perform basic operations of a printing press.</p> <p>10.S.3.2.4 Assist in clean-up of the work area and equipment.</p>	<p>11A.S.3.2.1 Assist in clean-up of the work area and equipment.</p>	<p>11B.S.3.2.1 Operate pre-press output equipment (e.g., load image carrier, troubleshooting).</p>	<p>11C.S.3.2.1 Operate and maintain print production tools and equipment.</p> <p>11C.S.3.2.2 Clean and organize the workspace associated with print production.</p>

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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry. *(continued)*

GLO 3.3: Operate and maintain **post-press tools and equipment**.

F	<p>9.F.3.3.1 Explore post-press equipment.</p>	<p>10.F.3.3.1 Identify post-press equipment.</p> <p>10.F.3.3.2 Identify measurement tools and devices used in print production (e.g., line gauge, e-gauge).</p>	—	<p>11B.F.3.3.1 Describe basic operations of the press as they relate to pre-press methods.</p> <p>11B.F.3.3.2 Describe basic operations of post-press as they relate to pre-press methods.</p>	<p>11C.F.3.3.1 Describe intermediate post-press tools and equipment (e.g., simple cutting and folding, collating, and drilling).</p> <p>11C.F.3.3.2 Describe the operation and maintenance procedures for post-press tools and equipment (e.g., cutters, folders).</p>
S	<p>9.S.3.3.1 Apply appropriate post-press techniques as required.</p> <p>9.S.3.3.2 Assist in clean-up of the work area and equipment.</p>	<p>10.S.3.3.1 Use measurement devices and tools required for the print production process.</p> <p>10.S.3.3.2 Handle substrates for printing.</p> <p>10.S.3.3.3 Perform basic operations of a printing press.</p> <p>10.S.3.3.4 Assist in clean-up of the work area and equipment.</p> <p>10.S.3.3.5 Apply appropriate post-press techniques as required.</p>	<p>11A.S.3.3.1 Assist in clean-up of the work area and equipment.</p>	<p>11B.S.3.3.1 Perform basic operations of a printing press.</p> <p>11B.S.3.3.2 Apply appropriate post-press techniques as required.</p>	<p>11C.S.3.3.1 Operate and maintain post-press tools and equipment.</p> <p>11C.S.3.3.2 Apply intermediate post-press techniques.</p>

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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry. *(continued)*

GLO 3.4: Handle and store print production materials.

F		10.F.3.4.1 Identify handling and storage procedures for pre-press materials.		11B.F.3.4.1 Describe materials (e.g., film, plates, chemistry, and proofing paper) used in the pre-press process. 11B.F.3.4.2 Describe considerations for handling storage of pre-press materials.	
S	—	—	—	11B.S.3.4.1 Use materials required for pre-press operations.	—

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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industries.

GLO 4.1: Apply **mathematical solutions** to design production problems (e.g., conversion, measurement, estimation, and accuracy).

F	<p>9.F.4.1.1 Identify measurement units (e.g., points, picas, metric, and imperial) used in the print production process.</p> <p>9.F.4.1.2 Identify common substrate sizes.</p>	<p>10.F.4.1.1 Identify measurement units (e.g., points, picas, metric, and imperial) used in the print production process.</p> <p>10.F.4.1.2 Identify common substrate sizes.</p>	<p>11A.F.4.1.1 Describe commonly used measurement units in print production.</p> <p>11A.F.4.1.2 Convert between measurement systems (e.g., points, picas, metric, and imperial).</p> <p>11A.F.4.1.3 Describe ratios and percentages as they relate to design scaling and proportion.</p> <p>11A.F.4.1.4 Describe positioning systems as used to achieve a design effect (e.g., quadrants, X- and Y-axis, and grid systems).</p> <p>11A.F.4.1.5 Identify common sizes for print products (e.g., business cards, envelopes, mailed products, and letterhead).</p>	<p>11B.F.4.1.1 Identify common pre-press geometry (e.g., gripper margins, tail margins, micro dots, crops, bleeds, printer's marks, registration marks, and plate size).</p> <p>11B.F.4.1.2 Identify common sizes for substrates for the required job (e.g., business cards, envelopes, mailed products, and letterhead).</p>	<p>11C.F.4.1.1 Describe calculations and factors for optimal paper usage (e.g., sheets out, paper grain).</p> <p>11C.F.4.1.2 Describe ratios and percentages as they relate to ink and chemical mixing.</p>
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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industries. *(continued)*

GLO 4.1: Apply **mathematical solutions** to design production problems (e.g., conversion, measurement, estimation, and accuracy). *(continued)*

S	<p>9.S.4.1.1 Set up page or image size using appropriate measuring units.</p> <p>9.S.4.1.2 Measure fonts, dimensions, and substrates to appropriate production specifications.</p>	<p>10.S.4.1.1 Set up page or image size using appropriate measuring units.</p> <p>10.S.4.1.2 Measure fonts, dimensions, and substrates to appropriate production specifications.</p>	<p>11A.S.4.1.1 Apply measurement to the document set-up and creation (e.g., points, margins, gutters, column widths, point size, line size, and line gauge).</p> <p>11A.S.4.1.2 Apply scale and proportion to graphical elements appropriately.</p> <p>11A.S.4.1.3 Calculate moving distance (e.g., manually imposing, step and repeat).</p> <p>11A.S.4.1.4 Perform basic calculations (i.e., addition, subtraction, multiplication, and division of whole and decimal numbers and fractions).</p>	<p>11B.S.4.1.1 Apply measurement to output geometry (e.g., gripper margins, tail margins, micro dots, crops, bleeds, printer's marks, registration marks, and plate size).</p> <p>11B.S.4.1.2 Perform basic calculations (i.e., addition, subtraction, multiplication, and division of whole and decimal numbers and fractions).</p>	<p>11C.S.4.1.1 Perform basic calculations (i.e., addition, subtraction, multiplication, and division of whole and decimal numbers and fractions).</p> <p>11C.S.4.1.2 Apply measurement to set-up of press and post-press equipment.</p> <p>11C.S.4.1.3 Apply ratios (e.g., mixing ink, chemicals).</p> <p>11C.S.4.1.4 Apply measurements to post-press procedures (e.g., cutting, trimming, and folding).</p>
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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industries. *(continued)*

GLO 4.2: Read, write, interpret, and communicate information related to the design and print process (e.g., proofreading, visual, and/or written communication).

F	9.F.4.2.1 Read and identify project specifications.	10.F.4.2.1 Read and identify project specifications. 10.F.4.2.2 Identify proofreading symbols.	11A.F.4.2.1 Describe project specification and proofreading symbols.	11B.F.4.2.1 Describe the use of docketts and their relevance to pre-press. 11B.F.4.2.2 Identify resource materials related to pre-press (e.g., built-in help, online help, manuals, industry publications, and websites).	—
S	9.S.4.2.1 Apply project specifications.	10.S.4.2.1 Apply project specifications. 10.S.4.2.2 Use appropriate English, grammar, and style to written assignments. 10.S.4.2.3 Interpret proofreading symbols.	11A.S.4.2.1 Read simple and brief work-related materials related to the design procedure (e.g., specifications, teacher instructions, and docketts). 11A.S.4.2.2 Read materials on topics related to the design procedure (e.g., design-related journals, tutorials, trends, techniques and styles, online sources, and RFPs).	11B.S.4.2.1 Read simple and brief work-related materials to prepare work for printing (e.g., specifications, teacher instructions, and docketts). 11B.S.4.2.2 Read materials on topics related to pre-press. (e.g., manuals, online sources, RFPs, and trade magazines).	11C.S.4.2.1 Read simple and brief work-related materials for print and post-press production (e.g., specifications, teacher instructions, and docketts). 11C.S.4.2.2 Read materials on topics related to print production (e.g., manuals, online sources, and RFPs).

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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industries. *(continued)*

GLO 4.2: Read, write, interpret, and communicate information related to the design and print process (e.g., proofreading, visual, and/or written communication). *(continued)*

S	<p>11A.S.4.2.3 Write for specific target audiences and purpose (e.g., ad copy, articles, and memos).</p> <p>11A.S.4.2.4 Apply proper spelling, grammar, and punctuation to written work.</p>	<p>11B.S.4.2.3 Apply proper spelling, grammar, and punctuation to written work.</p> <p>11B.S.4.2.4 Use ICT to research, create, and communicate.</p>	<p>11C.S.4.2.3 Apply proper spelling, grammar, and punctuation to written work.</p> <p>11C.S.4.2.4 Read and understand instructions and specifications.</p>
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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industries. *(continued)*

GLO 4.3: Describe the **physical properties of materials** used in the print production process and factors in the physical environment (e.g., conductivity, pH, and viscosity).

F	<p>9.F.4.3.1 Recognize various printing materials are used for different print products.</p>	<p>10.F.4.3.1 Recognize various printing materials are used for different print products.</p> <p>10.F.4.3.2 Identify the properties and manufacturing process for substrate.</p>	<p>11A.F.4.3.1 Recognize various printing materials are used for different print products and processes (e.g., inks, substrate, coatings, varnishes, photographic material, washes, cleaning solutions, and solvents).</p> <p>11A.F.4.3.2 Identify the properties and manufacturing process for printing substrate.</p> <p>11A.F.4.3.3 Recognize the effects of humidity, temperature, and storage conditions on printing substrate.</p>	<p>11B.F.4.3.1 Describe the characteristics of paper (e.g., grains, weights, brightness, textures, and finish).</p> <p>11B.F.4.3.2 Describe materials used for the production of image carriers.</p> <p>11B.F.4.3.3 Identify the properties and manufacturing process for paper.</p>	—
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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industries. *(continued)*

GLO 4.3: Describe the **physical properties of materials** used in the print production process and factors in the physical environment (e.g., conductivity, pH, and viscosity). *(continued)*

S	—	—	11A.S.4.3.1 Match the appropriate product with the specific printing product or process.	—	—
			11A.S.4.3.2 Modify the printing process in order to accommodate different levels of humidity, temperature, and storage conditions.		

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Goal 5: Consider the impact of **sustainability** as it pertains to the print industry.

GLO 5.1: Appreciate the implications of the printing process on the **environment**.

F	<p>9.F.5.1.1 Identify the significance of recycling and reusing.</p> <p>9.F.5.1.2 Identify the need for proper disposal of used chemicals and cleaning supplies.</p>	<p>10.F.5.1.1 Identify the significance of recycling and reusing.</p> <p>10.F.5.1.2 Identify the need for proper disposal of used chemicals and cleaning supplies.</p>	<p>11A.F.5.1.1 Describe implications of design choices on the environment (e.g., paper, ink, coatings, aluminum plates, and de-inking chemicals).</p> <p>11A.F.5.1.2 Describe paper recycling options (e.g., post-consumer and pre-consumer paper, F and SC paper).</p> <p>11A.F.5.1.3 Describe methods of disposal for e-waste and the impact on the environment (e.g., computers, printers, scanners, and software).</p>	<p>11B.F.5.1.1 Identify the significance of reducing, reusing, and recycling as it applies to pre-press.</p>	<p>11C.F.5.1.1 Identify the significance of reducing, reusing, and recycling as it applies to print production.</p>
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Goal 5: Consider the impact of **sustainability** as it pertains to the print industry. *(continued)*

GLO 5.1: Appreciate the implications of the printing process on the **environment**. *(continued)*

S	9.S.5.1.1 Recycle paper and materials used in the print process.	10.S.5.1.1 Recycle paper and materials used in the print process.	11A.S.5.1.1 Include recognition of the sustainable practices (e.g., eco-friendly logos and information) in the design solution.	11B.S.5.1.1 Reduce, reuse, or recycle pre-press materials (i.e., chemicals, paper, or image carriers).	11C.S.5.1.1 Reduce, reuse, or recycle print production materials (i.e., chemicals, paper, or image carriers).
	9.S.5.1.2 Follow proper disposal process for used chemicals and cleaning supplies.	10.S.5.1.2 Follow proper disposal process for used chemicals and cleaning supplies.			

GLO 5.2: Describe the interaction between society and the print industry and its impact on **sustainability**.

F	9.F.5.2.1 Identify the print industry's social responsibility to human health and well-being.	10.F.5.2.1 Identify the print industry's social responsibility to human health and well-being, including physical and emotional health.	11A.F.5.2.1 Recognize the influence of design on human health and well-being (e.g., image selection and manipulation, typographic message).	11B.F.5.2.1 Demonstrate an awareness of diverse perspectives, including community and cultural perspectives, and how these have evolved through time.	—
	—	10.S.5.2.1 Recognize that certain content can be potentially harmful to human health and well-being, including physical and emotional health.	—	11B.S.5.2.1 Discuss the nature of content that is potentially harmful to human health and well-being, including physical and emotional health.	—

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Goal 5: Consider the impact of **sustainability** as it pertains to the print industry. *(continued)*

GLO 5.3: Recognize the **economic benefits of sustainable practices** in the print industry.

F	9.F.5.3.1 Identify the scope of the print industry.	10.F.5.3.1 Demonstrate awareness that the print industry can experience economic benefits by implementing sustainable practices.	11A.F.5.3.1 Discuss the economic benefits of sustainable practices used to achieve the design solution.	11B.F.5.3.1 Identify economic benefits of sustainable practices in the print industry (i.e., water-based inks and recycling paper, and more energy-efficient equipment).	11C.F.5.3.1 Recognize the economic benefits of sustainability on print production.
S	—	10.S.5.3.1 Recognize that the print industry can experience economic benefits by implementing sustainable practices.	—	11B.S.5.3.1 Discuss economic benefits of sustainable practices in the print industry (i.e., water-based inks and recycling paper, and more energy-efficient equipment).	—

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Goal 6: Explain the **evolution, technological progression, and emerging trends** in the print industry.

GLO 6.1: Appreciate the **historical significance, social impact, and continuing evolution** and development of the print industry (e.g., the evolution and progression of design styles and approaches).

F	9.F.6.1.1 Summarize the evolution of printing as a communication medium.	10.F.6.1.1 Summarize the evolution of printing as a communication medium.	11A.F.6.1.1 Describe the evolution of design movements. 11A.F.6.1.2 Describe the influence of print on society (e.g., propaganda, advertising, and dissemination of information).	11B.F.6.1.1 Describe the historical significance and social impact of pre-press.	11C.F.6.1.1 Describe the historical significance and social impact of print production.
	9.F.6.1.2 Identify the impact that style and technology have on the effectiveness of a design.	10.F.6.1.2 Demonstrate awareness of the effect of globalization on the print industry. 10.F.6.1.3 Identify the impact that style and technology have on the effectiveness of a design. 10.F.6.1.4 Explore how audience and new materials and techniques are transforming design (e.g., varnishes, 3D printing, and dye cutting).			
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Goal 6: Explain the **evolution, technological progression, and emerging trends** in the print industry.

GLO 6.2: Demonstrate an awareness of the **evolution and progression of design styles and approaches.**

F	9.F.6.2.1 Demonstrate awareness of the impact emerging trends and technology have on the print industry.	10.F.6.2.1 Identify the impact that style and technology have on the effectiveness of a design. 10.F.6.2.2 Explore how audience, new materials, and techniques are transforming design (e.g., varnishes, 3D printing, and die cutting).	11A.F.6.2.1 Describe the influence of print on society (e.g., propaganda, advertising, and dissemination of information). 11A.F.6.2.2 Describe how past, current, and future technologies influence design styles.	—	—
S	—	—	—	—	—

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Goal 6: Explain the **evolution, technological progression, and emerging trends** in the print industry.

GLO 6.3: Demonstrate awareness of the continuing **evolution of the print industry**, as well as its **emerging trends and future technologies**.

F	9.F.6.3.1 Demonstrate awareness of the impact emerging trends and technology have on the print industry.	—	11A.F.6.3.1 Demonstrate an awareness of the continuing evolution of design, as well as its emerging trends and future technologies.	11B.F.6.3.1 Demonstrate an awareness of the continuing evolution of pre-press, as well as its emerging trends and future technologies.	11C.F.6.3.1 Demonstrate an awareness of the continuing evolution of print production, as well as its emerging trends and future technologies.
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Goal 7: Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace.

GLO 7.1: Describe and apply **health and safety rights, responsibilities, and procedures.**

P	<p>9.P.7.1.1 Follow proper shop practices, which help protect the safety and health of students and staff (e.g., keep work area clean and organized, and avoid horseplay).</p> <p>9.P.7.1.2 Identify emergency evacuation procedures.</p> <p>9.P.7.1.3 Identify hazards (e.g., electrical safety, ergonomics, material handling, chemical, and sound) related to materials, processes, tools, and equipment used in print production.</p> <p>9.P.7.1.4 Use appropriate aids to minimize risk of injury.</p>	<p>10.P.7.1.1 Follow safe practices and procedures for facilities, processes, materials, tools, and equipment used in print production.</p> <p>10.P.7.1.2 Identify fire prevention strategies.</p> <p>10.P.7.1.3 Identify emergency evacuation procedures.</p> <p>10.P.7.1.4 Identify hazards (e.g., electrical safety, ergonomics, material handling, chemical, and sound) related to materials, processes, tools, and equipment used in print production, as well as resources and methods for reducing these hazards (e.g., spill kit).</p>	<p>11A.P.7.1.1 Demonstrate adherence to safe practices and procedures for facilities, processes, materials, tools, and equipment used in design.</p> <p>11A.P.7.1.2 Identify hazards associated with design (e.g., storing and disposing chemicals, ventilation).</p> <p>11A.P.7.1.3 Demonstrate ergonomically correct procedures to avoid injury (e.g., stress, strain).</p>	<p>11B.P.7.1.1 Demonstrate adherence to safe practices and procedures for facilities, processes, materials, tools, and equipment used in pre-press.</p>	<p>11C.P.7.1.1 Demonstrate adherence to safe practices and procedures for facilities, processes, materials, tools, and equipment used in print production.</p> <p>11C.P.7.1.2 Describe and apply health and safety rights, responsibilities, and safety procedures as they apply to print production.</p> <p>11C.P.7.1.3 Describe fire prevention and control strategies.</p> <p>11C.P.7.1.4 Describe emergency evacuation and response procedures.</p>
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Goal 7: Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace. *(continued)*

GLO 7.1: Describe and apply **health and safety rights, responsibilities, and procedures.** *(continued)*

P	<p>9.P.7.1.5 Demonstrate ergonomically correct procedures to avoid injury (e.g., stress, strain).</p> <p>9.P.7.1.6 Locate first aid and eyewash station.</p> <p>9.P.7.1.7 Use appropriate personal protective equipment (e.g., gloves, safety glasses or goggles, hearing protection, and apron).</p>	<p>10.P.7.1.5 Demonstrate ergonomically correct procedures to avoid injury (e.g., stress, strain).</p> <p>10.P.7.1.6 Locate first aid and eyewash station.</p> <p>10.P.7.1.7 Identify and use protective clothing, gear, and equipment appropriately.</p>	<p>11C.P.7.1.5 Identify hazards associated with unique print production situations (e.g., moving parts, safety guards, storing and disposing chemicals, sound, and ventilation).</p> <p>11C.P.7.1.6 Describe hazards (e.g., electrical safety, ergonomics, material handling, chemical, and sound) related to print production materials, processes, tools, and equipment, as well as the precautions that should be taken to avoid these hazards (e.g., spill kit).</p>
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Goal 7: Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace. *(continued)*

GLO 7.1: Describe and apply **health and safety rights, responsibilities, and procedures.** *(continued)*

P	<p>11C.P.7.1.7 Identify and use the safety features of tools and equipment (e.g., guards, equipment start-up lag, kill switches, lockout, and tag out) appropriately.</p> <p>11C.P.7.1.8 Demonstrate ergonomically correct procedures to avoid injury (e.g., stress, strain).</p> <p>11C.P.7.1.9 Locate first aid and eyewash station.</p> <p>11C.P.7.1.10 Demonstrate the appropriate use of protective clothing, gear, and equipment.</p>
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Goal 7: Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace. *(continued)*

GLO 7.2: Describe and follow **health and safety laws and regulations** as they relate to graphic print production.

P	<p>9.P.7.2.1 Identify WHMIS symbols, labels, and terminology, and follow WHMIS guidelines.</p> <p>9.P.7.2.2 Comply with health and safety legislation and practices.</p> <p>9.P.7.2.3 Identify personal responsibility for health and safety.</p> <p>9.P.7.2.4 Describe the reporting process for injuries.</p>	<p>10.P.7.2.1 Identify WHMIS symbols, labels, and terminology, and follow WHMIS guidelines.</p> <p>10.P.7.2.2 Comply with health and safety legislation and practices.</p> <p>10.P.7.2.3 Identify personal responsibility for health and safety.</p> <p>10.P.7.2.4 Describe the reporting process for injuries.</p>	<p>11A.P.7.2.1 Describe and follow health and safety laws and regulations as they relate to design.</p> <p>11A.P.7.2.2 Comply with health and safety legislation and practices.</p> <p>11A.P.7.2.3 Identify personal responsibility for health and safety.</p> <p>11A.P.7.2.4 Describe the reporting process for injuries.</p>	<p>11B.P.7.2.1 Describe and follow health and safety laws and regulations as they relate to pre-press.</p> <p>11B.P.7.2.2 Comply with health and safety legislation and practices.</p> <p>11B.P.7.2.3 Identify personal responsibility for health and safety.</p> <p>11B.P.7.2.4 Describe the reporting process for injuries.</p>	<p>11C.P.7.2.1 Use, handle, and store materials in accordance with WHMIS guidelines.</p> <p>11C.P.7.2.2 Identify and comply with health and safety legislation and practices.</p> <p>11C.P.7.2.3 Describe the rights and responsibilities of employees (e.g., the right to know, the right to refuse, and the right to participate).</p> <p>11C.P.7.2.4 Describe the reporting process for injuries.</p>
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Goal 8: Describe and follow the **ethical and legal standards** in the print industry.

GLO 8.1: Describe and follow current legal responsibilities and requirements when accessing **intellectual property** (e.g., copyright, trademarks).

P	9.P.8.1.1 Identify ownership rights of intellectual property.	10.P.8.1.1 Identify ownership rights of intellectual property (e.g., plagiarism, copyright violation, and hate literature).	11A.P.8.1.1 Describe ownership rights and the process for securing intellectual property (e.g., plagiarism, copyright violation, hate literature, and acknowledging sources).	11B.P.8.1.1 Describe ownership rights and the process for securing intellectual property (e.g., plagiarism, copyright violation, hate literature, and acknowledging sources).	11C.P.8.1.1 Describe ownership rights and the process for securing intellectual property (e.g., plagiarism, copyright violation, hate literature, and acknowledging sources).
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GLO 8.2: Describe and follow **ethical trade practices**.

P	9.P.8.2.1 Design and print projects consistent with the local school code of conduct.	10.P.8.2.1 Design and print projects consistent with the local school code of conduct. 10.P.8.2.2 Understand the value added status of finished printed work (e.g., not stealing valuable printed material such as bank notes, coupons, gift certificates, and tickets for social events).	11A.P.8.2.1 Describe ethical trade practices related to the design process (e.g., misleading messages, protection of sensitive information, questionable content, and billing practices).	11B.P.8.2.1 Describe and follow ethical trade practices in relation to pre-press.	11C.P.8.2.1 Describe and follow ethical trade practices in relation to print production. 11C.P.8.2.2 Identify ethical trade practices (e.g., product security) related to print production.
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Goal 9: Demonstrate **employability skills** required in the graphic design and print industries.

GLO 9.1: Demonstrate **fundamental employability skills**.

p	9.P.9.1.1 Explain the importance of employability skills.	10.P.9.1.1 Explain the importance of employability skills.	11A.P.9.1.1 Describe the importance of employability skills in school, work, and daily life.	11B.P.9.1.1 Describe the importance of employability skills in school, work, and daily life.	11C.P.9.1.1 Describe the importance of employability skills in school, work, and daily life.
	9.P.9.1.2 Ask questions to clarify written or verbal instructions.	10.P.9.1.2 Ask questions to clarify written or verbal communication.	11A.P.9.1.2 Listen and ask questions to clarify problems and instructions.	11B.P.9.1.2 Listen and ask questions to clarify problems and instructions.	11C.P.9.1.2 Listen and ask questions to clarify problems and instructions.
	9.P.9.1.3 Identify sources of information and resources for <i>trade area</i> .	10.P.9.1.3 Identify sources of information and resources for <i>trade area</i> .	11A.P.9.1.3 Locate, gather, and organize <i>trade area</i> information using appropriate technology and information systems.	11B.P.9.1.3 Locate, gather, and organize <i>trade area</i> information using appropriate technology and information systems.	11C.P.9.1.3 Locate, gather, and organize <i>trade area</i> information using appropriate technology and information systems.
	9.P.9.1.4 Identify problem and follow problem-solving process.	10.P.9.1.4 Demonstrate an understanding of the problem-solving process for <i>trade area</i> .	11A.P.9.1.4 Assess situations and identify problems and possible solutions.	11B.P.9.1.4 Assess situations and identify problems and possible solutions.	11C.P.9.1.4 Assess situations and identify problems and possible solutions.

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Goal 9: Demonstrate **employability skills** required in the graphic design and print industries. *(continued)*

GLO 9.2: Demonstrate **personal management skills**.

P	9.P.9.2.1 Actively participate in a positive manner.	10.P.9.2.1 Actively participate in a positive manner.	11A.P.9.2.1 Arrive to the work station on time, ready to work.	11B.P.9.2.1 →	11C.P.9.2.1 →
	9.P.9.2.2 Complete tasks within stated deadlines.	10.P.9.2.2 Complete tasks within stated deadlines.	11A.P.9.2.2 Demonstrate interest, initiative, and effort.	11B.P.9.2.2 →	11C.P.9.2.2 →
	9.P.9.2.3 Demonstrate responsibility by being accountable for your actions.	10.P.9.2.3 Demonstrate responsibility by being accountable for your actions.	11A.P.9.2.3 Manage time to complete tasks/projects within stated deadlines.	11B.P.9.2.3 →	11C.P.9.2.3 →
	9.P.9.2.4 Accept feedback, comments, and contributions from others.	10.P.9.2.4 Accept feedback, comments, and contributions from others.	11A.P.9.2.4 Demonstrate responsibility by being accountable for your actions and those of your group.	11B.P.9.2.4 →	11C.P.9.2.4 →
	9.P.9.2.5 Listen and respond in order to understand and learn.	10.P.9.2.5 Listen and respond in order to understand and learn.	11A.P.9.2.5 Respond constructively to changes and feedback.	11B.P.9.2.5 →	11C.P.9.2.5 →
		10.P.9.2.6 Identify learning materials, resources, and opportunities.	11A.P.9.2.6 Demonstrate the willingness to continuously learn.	11B.P.9.2.6 →	11C.P.9.2.6 →
			11A.P.9.2.7 Appreciate the need for continuous learning in technologically dependant occupations.	11B.P.9.2.7 →	11C.P.9.2.7 →

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Goal 9: Demonstrate **employability skills** required in the graphic design and print industries. *(continued)*

GLO 9.3: Demonstrate **teamwork skills**.

P	9.P.9.3.1 Actively participate in the work of a group.	10.P.9.3.1 Demonstrate an understanding of the role of members of a group.	11A.P.9.3.1 Be respectful, open to, and supportive of the thoughts, opinions, and contributions of others in a group.	11B.P.9.3.1 →	11C.P.9.3.1 →
	9.P.9.3.2 Participate in the classroom/shop activities.	10.P.9.3.2 Actively participate in the work of a group.	11A.P.9.3.2 Contribute information and skills to achieve the goals of a group.	11B.P.9.3.2 →	11C.P.9.3.2 →
		10.P.9.3.3 Participate in the classroom/shop activities.	11A.P.9.3.3 Contribute willingly to classroom/shop activities.	11B.P.9.3.3 →	11C.P.9.3.3 →
			11A.P.9.3.4 Accept and offer assistance from others.	11B.P.9.3.4 →	11C.P.9.3.4 →

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Goal 10: Describe **career opportunities** in the print production industry.

GLO 10.1: Demonstrate awareness of **employment and post-secondary opportunities** related to print production.

P	<p>9.P.10.1.1 Identify a variety of career and employment opportunities related to trades and technology.</p> <p>9.P.10.1.2 Identify career and employment activities related to print production.</p> <p>9.P.10.1.3 Demonstrate awareness of skills and knowledge required in print production.</p> <p>9.P.10.1.4 Select <i>Introduction to Print Production</i> items for their Print Media Career Portfolio.</p>	<p>10.P.10.1.1 Identify career and employment opportunities related to trades and technology.</p> <p>10.P.10.1.2 Identify career and employment activities related to print production.</p> <p>10.P.10.1.3 Select items from <i>Print Production Fundamentals</i> for their Print Media Career Portfolio.</p>	<p>11A.P.10.1.1 Describe a variety of career and employment opportunities related to trades and technology.</p> <p>11A.P.10.1.2 Identify and describe career and employment opportunities related to graphic design.</p> <p>11A.P.10.1.3 Select <i>Design</i> items for their Print Media Career Portfolio.</p>	<p>11B.P.10.1.1 Identify and describe career and employment opportunities related to pre-press.</p>	<p>11C.P.10.1.1 Identify and describe career and employment opportunities related to print production.</p> <p>11C.P.10.1.2 Select <i>Print Production</i> items for their Print Media Career Portfolio.</p>
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GRADE 12
PRINT MEDIA

General and Specific Learning
Outcomes by Goal

GRADE 12 PRINT MEDIA

GENERAL AND SPECIFIC LEARNING OUTCOMES BY GOAL

8470 Advanced Design (12A) 40S / 40E / 40M	8471 Advanced Pre-press (12B) 40S / 40E / 40M	8472 Advanced Print Production (12C) 40S / 40E / 40M	8473 Applied Print Media (12D) 40S / 40E / 40M
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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print.

GLO 1.1: Identify the **design problem**.

F	<p>12A.F.1.1.1 Recommend an option for a design solution based on the end use of the product.</p> <p>12A.F.1.1.2 Research cost factors (e.g., materials, labour, and quantity) for the design and print process.</p> <p>12A.F.1.1.3 Describe the impact demographics, audience, and client preferences have on the design solution.</p>	<p>12B.F.1.1.1 Research cost factors (e.g., materials, labour, and quantity) for the pre-press process.</p>	<p>12C.F.1.1.1 Determine which adjustments need to be made to the printing process and materials in order to accommodate for the design.</p>	<p>12D.F.1.1.1 Initiate a dialogue with the client or teacher in order to identify the design problem.</p>
S	<p>12A.S.1.1.1 Estimate design and print job costs.</p> <p>12A.S.1.1.2 Communicate the design process and justify the design solution.</p>	<p>12B.S.1.1.1 Estimate time required for the pre-press process.</p> <p>12B.S.1.1.2 Communicate the technical pre-press process used to create the design.</p>	<p>12C.S.1.1.1 Adjust the printing process and materials to accommodate for the design.</p> <p>12C.S.1.1.2 Verify the technical specifications to match the client's requirements (e.g., substrate, die lines, colours, accuracy, and quality of work).</p>	<p>12D.S.1.1.1 Work with the client or teacher to identify the design solution by synthesizing appropriate print media design skills and knowledge.</p>

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.2: Research the **factors that influence design**.

F	12A.F.1.2.1 Consider the processes that influence design (e.g., purpose, printing specifications, audience, printing method, delivery date, style, aesthetics, theme, technology, workforce, client's personality, quantity, and post-press considerations).	12B.F.1.2.1 Consider the pre-press processes that influence design.	12C.F.1.2.1 Distinguish between online and offline finishing techniques. 12C.F.1.2.2 Describe online finishing techniques (e.g., thermography, numbering, and bar coding). 12C.F.1.2.3 Describe the qualities of different substrates (e.g., finish, grain direction, thickness, pressure sensitivity, distortion factor, faults, water damage, corrugation, and types of stock).	—
S	12A.S.1.2.1 Incorporate research into design solution. 12A.S.1.2.2 Select processes required for design solution based on design factors.	12B.S.1.2.1 Select the pre-press processes (based on design and pre-press factors) required for attaining the design solution.	12C.S.1.2.1 Select and apply appropriate substrate and finishing techniques for each print job.	12D.S.1.2.1 Research design, print production, and post-press processes in order to solve a given design problem.

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.3: Recognize and apply the **elements and principles of design**.

F	<p>12A.F.1.3.1 Consider how elements and principles of design communicate messages effectively.</p> <p>12A.F.1.3.2 Relate the significance of typography to the effectiveness of the overall design.</p> <p>12A.F.1.3.3 Evaluate the effectiveness of the use of typographical conventions in order to achieve design solutions.</p>	<p>12B.F.1.3.1 Consider how elements and principles of design communicate messages effectively.</p>	<p>12C.F.1.3.1 Demonstrate an awareness of die cuts in print production (e.g., packaging, folders, label templates, and vinyl cuts).</p>	—
S	<p>12A.S.1.3.1 Creatively apply the principles and elements of design in order to achieve an effective design solution.</p> <p>12A.S.1.3.2 Evaluate design solutions based on the principles of design.</p> <p>12A.S.1.3.3 Self- and peer-assess design solutions using constructive advice.</p> <p>12A.S.1.3.4 Creatively apply the rules of typography in order to achieve design solutions.</p>	<p>12B.S.1.3.1 Creatively apply the principles and elements of design in order to achieve an effective design solution.</p> <p>12B.S.1.3.2 Creatively apply the rules of typography in order to achieve design solutions.</p>	<p>12C.S.1.3.1 Produce a comprehensive, folded mock-up or dummy.</p>	<p>12D.S.1.3.1 Independently produce a comprehensive mock-up or dummy that is ready to be reviewed and approved by the client.</p>

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.4: Conceptualize the design solution.

F	<p>12A.F.1.4.1 Select brainstorming techniques.</p> <p>12A.F.1.4.2 Synthesize existing models to creatively influence a design option.</p> <p>12A.F.1.4.3 Evaluate typographical options and choose ones based on the desired solution.</p> <p>12A.F.1.4.4 Evaluate and critique printed material based on the principles of design.</p> <p>12A.F.1.4.5 Evaluate design solutions for printability.</p>	<p>12B.F.1.4.1 Evaluate design solution and typographical options for printability.</p>	—	—
S	<p>12A.S.1.4.1 Collaborate to brainstorm design ideas.</p> <p>12A.S.1.4.2 Draw thumbnails, rough layouts, and comprehensives using appropriate symbols (e.g., type, graphic elements, and typography).</p>	<p>12B.S.1.4.1 Interpret thumbnails, rough layouts, and comprehensives using appropriate symbols (e.g., type, graphic elements, and typography).</p>	—	—

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.5: Communicate the design solution.

F	12A.F.1.5.1 Describe the process of communicating and collaborating with stakeholders (e.g., client, art director, designer, and production manager) involved, leading to a design solution.	12B.F.1.5.1 Describe the process of communicating and collaborating with the designer and print production personnel.	12C.F.1.5.1 Recognize the importance of participating in print production meetings with a focus on design solutions.	—
S	12A.S.1.5.1 Relate the initial request from the client to the phases of creative development and the evolution of the design solution. 12A.S.1.5.2 Verify proof to design specifications. 12A.S.1.5.3 Present a design solution to an audience.	12B.S.1.5.1 Verify proof to design specifications. 12B.S.1.5.2 Present pre-press solution.	12C.S.1.5.1 Participate actively in print production meetings with a focus on design solutions.	12D.S.1.5.1 Preside over the production meeting with the client in order to receive feedback and implement the design solution.

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.6: Describe and apply **appropriate technology** to achieve the design solution.

F	<p>12A.F.1.6.1 Differentiate between vector and raster images.</p> <p>12A.F.1.6.2 Analyze appropriate resolution based on output.</p> <p>12A.F.1.6.3 Differentiate between colour management and colour modes.</p>	<p>12B.F.1.6.1 Analyze project files and assess page layout, image manipulation, and illustration software and their use in pre-press.</p> <p>12B.F.1.6.2 Describe how press-ready proofs are used in the print production process.</p>	<p>12C.F.1.6.1 Demonstrate advanced knowledge of colour management/colour modes (e.g., subtractive, additive colour, spot, and CMYK).</p>	—
S	<p>12A.S.1.6.1 Select software to achieve a design solution.</p> <p>12A.S.1.6.2 Select image format based on output.</p> <p>12A.S.1.6.3 Apply file management practices and commonly used file formats for design and print production.</p> <p>12A.S.1.6.4 Create and manipulate raster and vector images for page layout.</p> <p>12A.S.1.6.5 Apply advanced typographical techniques.</p>	<p>12B.S.1.6.1 Apply file management practices and commonly used file formats for pre-press.</p> <p>12B.S.1.6.2 Analyze project files and select appropriate software for printability (e.g., pre-flight, packaging, and imposition).</p> <p>12B.S.1.6.3 Apply advanced typographical techniques.</p> <p>12B.S.1.6.4 Create a press-ready proof.</p>	<p>12C.S.1.6.1 Choose between process and spot colours in order to achieve the design solution.</p> <p>12C.S.1.6.2 Apply manual or automatic trapping.</p>	<p>12D.S.1.6.1 Independently apply trapping, when required, in order to achieve the design solution.</p>

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Goal 1: Demonstrate ability to apply the creative process to develop a professional **design** for print. *(continued)*

GLO 1.6: Describe and apply **appropriate technology** to achieve the design solution. *(continued)*

S	<p>12A.S.1.6.6 Select procedures and techniques to acquire digital and continuous tone images based on source quality and output.</p> <p>12A.S.1.6.7 Create and assemble three-dimensional print proof.</p>
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Goal 2: Describe and apply **graphic print production processes.**

GLO 2.1: Describe and apply appropriate **pre-press techniques.**

F	<p>12A.F.2.1.1 Consider various print production methods (e.g., offset, flexography, screen, and digital) for a design solution.</p> <p>12A.F.2.1.2 Demonstrate knowledge of layout and geometry (i.e., margins, bleeds, marks, page information, document size, page orientation, and page count, etc.).</p>	<p>File Management & Information Technology</p> <p>Capture & Manipulate Images</p> <p>12B.F.2.1.1 Select the appropriate image capture device considering source image and characteristics.</p> <p>12B.F.2.1.2 Select image manipulation techniques (e.g., manipulate image content, selections, file formats, tonal shifts, retouching, colour correcting, and filter effects).</p> <p>File Revisions & Pre-flight Operations</p> <p>12B.F.2.1.3 Understand the impact customer revisions and file errors have on time, quality, and cost.</p> <p>12B.F.2.1.4 Describe pre-flight issues affecting the final product as applicable (e.g., bleed, rich black, four colour black, overprint, knock-out, screen rendering, resolution, links to external files, fonts, and colour mode).</p>	<p>12C.F.2.1.1 Demonstrate an understanding of make-ready tasks.</p> <p>12C.F.2.1.2 Describe the properties of substrate for the printing job (e.g., fanning, jogging, and curl).</p>	—
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>Colour Management</p> <p>12B.F.2.1.5 Describe the properties that affect the measurement of colour (e.g., reflection, fluorescence, and substrate brightness).</p> <p>12B.F.2.1.6 Identify colour measurement standards (e.g., light temperature, ASTEM).</p> <p>12B.F.2.1.7 Describe individual perception of colour (e.g., metamerism, colour blindness, and tiredness).</p> <p>12B.F.2.1.8 Describe how images work across media.</p> <p>Create a Proof</p> <p>12B.F.2.1.9 Describe process for verifying proofs based on print production standards (e.g., colour accuracy, registration marks, crop marks, proper imposition, overprints, proofreading, and formatting).</p> <p>12B.F.2.1.10 Describe the proof submission process and client and printer responsibilities.</p>	—
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

F	<p>RIP Files 12B.F.2.1.11 Define trapping (e.g., spreads, chokes, and overprinting) and its purpose for print accuracy.</p> <p>12B.F.2.1.12 Describe screen frequency (e.g., line screens, dot structure, screen angle, and Moiré patterns) and its impact upon print quality.</p> <p>12B.F.2.1.13 Differentiate between convert to process or spot colour separations based on cost and technical considerations.</p> <p>Impose Files 12B.F.2.1.14 Select imposition solutions for printing and finishing problems.</p> <p>Prepare File for Output 12B.F.2.1.15 Describe factors that affect image carrier quality (e.g., image sharpness and cleanliness, exposure, image transfer, density of plate emulsion, and distortion).</p> <p>12B.F.2.1.16 Describe computer-to-plate process.</p>	—
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

S	<p>12A.S.2.1.1 Incorporate print production techniques (e.g., distortion, trapping, dot gain) for a design solution.</p> <p>12A.S.2.1.2 Apply the principles of layout and geometry.</p> <p>12A.S.2.1.3 Apply pre-press techniques to design solution.</p> <p>12A.S.2.1.4 Verify proof to production specifications.</p>	<p>File Management & Information Technology</p> <p>12B.S.2.1.1 Apply efficient file management, archival, backup, and retrieval practices.</p> <p>Capture & Manipulate Images</p> <p>12B.S.2.1.2 Capture and adjust images for output.</p> <p>12B.S.2.1.3 Correct quality defects of images.</p> <p>12B.S.2.1.4 Verify characteristics (e.g., output intent, physical size, file size, and resolution) and printability of the image.</p> <p>12B.S.2.1.5 Assess image quality and manipulate to match specifications and output requirements.</p> <p>File Revisions & Pre-flight Operations</p> <p>12B.S.2.1.6 Locate, document, and correct print production issues using pre-flight software and techniques.</p>	<p>12C.S.2.1.1 Select and prepare substrate for the printing job (e.g., fanning, jogging, and curl).</p> <p>12C.S.2.1.2 Perform make-ready tasks (e.g., prepare dampening system, prepare ink, prepare plates, prepare blanket, set drying system, and paper path).</p>	<p>12D.S.2.1.1 Independently initiate, troubleshoot, and complete the appropriate pre-press techniques in order to prepare for print production.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

S	<p>12B.S.2.1.7 Assess the impact of customer revisions and file errors on time, quality, and cost.</p> <p>Colour Management</p> <p>12B.S.2.1.8 Ensure colour accuracy, consistency, and repeatability in workflow and output devices.</p> <p>12B.S.2.1.9 Apply the appropriate colour profiles for input/output devices.</p> <p>12B.S.2.1.10 Verify the appropriate colour profiles.</p> <p>12B.S.2.1.11 Run a calibration verification test.</p> <p>Create a Proof</p> <p>12B.S.2.1.12 Verify proof to specifications and quality standards for client (e.g., teacher/customer) approval.</p> <p>12B.S.2.1.13 Troubleshoot proofing output device.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.1: Describe and apply appropriate **pre-press techniques.** *(continued)*

S	<p>RIP Files 12B.S.2.1.14 Output colour separations based on CMYK and spot colour.</p> <p>12B.S.2.1.15 Output file based on available output equipment (e.g., digital, CTP, sheet-fed, and large format inkjet).</p> <p>12B.S.2.1.16 Adjust trapping (e.g., output method, image colour, and lines).</p> <p>Impose Files 12B.S.2.1.17 Create impositions using software.</p> <p>12B.S.2.1.18 Select imposition methods based on print job criteria.</p> <p>Prepare File for Output 12B.S.2.1.19 Prepare and send a file for output (e.g., film, digital, and plate).</p> <p>12B.S.2.1.20 Create image carrier for multi-colour printing (e.g., plate, stencil, and stamp).</p> <p>12B.S.2.1.21 Verify the quality and accuracy of the image carrier.</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.2: Describe and apply commonly used **printing production methods.**

F	12A.F.2.2.1 Design a variety of products for different printing methods.	12B.F.2.2.1 Evaluate pre-press solutions based on available printing equipment.	12C.F.2.2.1 Demonstrate an awareness of when and how to incorporate troubleshooting techniques to resolve production issues (e.g., noise, misfeeding, non-functioning, and production inconsistencies).	—
S	12A.S.2.2.1 Apply printing production methods to create complex (e.g., business package, multicolour) projects.	12B.S.2.2.1 Select pre-press techniques as required to output printed materials.	12C.S.2.2.1 Apply printing production methods to create advanced, multicoloured projects. 12C.S.2.2.2 Diagnose printing problems while running a press. 12C.S.2.2.3 Set up, operate, and monitor the systems for print operation (e.g., paper feeder system, feeder system, dampening system, inking system, delivery system, and image carrier system).	12D.S.2.2.1 Complete print docket or workflow files. 12D.S.2.2.2 Independently initiate, troubleshoot, and complete the appropriate print production techniques required to complete the print docket.

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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.2: Describe and apply commonly used **printing production methods.** *(continued)*

S	<p>12C.S.2.2.4 Incorporate quality control procedures for the printing process (e.g., registration, plugged up half-tones, plugged screens, excessive inking, scumming, problems associated with image carriers, hickeys, and set-off or offset).</p> <p>12C.S.2.2.5 Initiate and perform troubleshooting techniques to resolve production issues (e.g., noise, misfeeding, non-functioning, and production inconsistencies).</p>
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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.3: Describe and apply **post-press methods.**

F	12A.F.2.3.1 Describe how post-press methods enhance and/or influence design.	12B.F.2.3.1 Evaluate pre-press solutions based upon available post-press equipment.	12C.F.2.3.1 Describe the post-press operations (e.g., making perforations, punching, collating, trimming, binding, covering, scoring, gluing, padding, varnishing, laminating, foiling, embossing, folding, and die cutting).	12D.F.2.3.1 →
			12C.F.2.3.2 Describe steps in binding and finishing printed material (e.g., stitching, spiral binding, glue binding, plastic coil, metal coil, comb binding, and perfect binding).	12D.F.2.3.2 →
			12C.F.2.3.3 Describe problems associated with post-press operations and the appropriate quality control procedures.	12D.F.2.3.3 →

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Goal 2: Describe and apply **graphic print production processes.** *(continued)*

GLO 2.3: Describe and apply **post-press methods.** *(continued)*

S	<p>12A.S.2.3.1 Select and incorporate post-press techniques (e.g., perforation line, dye lines, score lines, and margins) for design solutions.</p> <p>12A.S.2.3.2 Verify the design accuracy and functionality specific to post-press techniques for a design solution (e.g., proof and build model).</p>	<p>12B.S.2.3.1 Select pre-press techniques as required for post-press operations.</p>	<p>12C.S.2.3.1 Perform post-press operations.</p> <p>12C.S.2.3.2 Bind and/or finish printed material.</p> <p>12C.S.2.3.3 Diagnose problems associated with post-press operations and incorporate the appropriate quality control procedures.</p> <p>12C.S.2.3.4 Perform troubleshooting techniques to resolve post-press issues.</p>	<p>12D.S.2.3.1 Independently initiate, troubleshoot, and complete the appropriate post-press techniques required to complete the print docket.</p> <p>12D.S.2.3.2 Prepare completed jobs for delivery according to print media industry standards.</p>
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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry.

GLO 3.1: Operate computer **hardware and software**.

F	<p>12A.F.3.1.1 Differentiate among print production software based on capability and efficiency.</p> <p>12A.F.3.1.2 Differentiate among input/output hardware and their uses (e.g., printers, scanners, storage devices, and digitized tablets).</p>	<p>12B.F.3.1.1 Evaluate print job and select appropriate pre-press software.</p>	—	<p>12D.F.3.1.1 Identify routine maintenance on computer hardware.</p>
S	<p>12A.S.3.1.1 Select input/output hardware required to achieve design solution (e.g., printers, scanners, storage devices, and digitized tablets).</p> <p>12A.S.3.1.2 Select and apply computer hardware and software to create a design solution.</p> <p>12A.S.3.1.3 Apply software tools and techniques to create a design solution (e.g., raster, vector, and page layout software).</p> <p>12A.S.3.1.4 Research new techniques to achieve unique design solutions.</p>	<p>12B.S.3.1.1 Select and operate pre-press computer systems (i.e., RIP) and software based on the production process.</p> <p>12B.S.3.1.2 Select and use image manipulation (e.g., raster, vector) and page layout software related to pre-press.</p> <p>12B.S.3.1.3 Communicate using file transfer protocols and methods.</p>	<p>12C.S.3.1.1 Operate and maintain the tools and equipment used in print production.</p>	<p>12D.S.3.1.1 Independently initiate, troubleshoot, and complete the appropriate print production techniques required to complete the print docket.</p> <p>12D.S.3.1.2 Perform routine maintenance on computer hardware.</p> <p>12D.S.3.1.3 Organize computer files so that they are properly labelled and stored.</p>

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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry. *(continued)*

GLO 3.1: Operate computer **hardware and software.** *(continued)*

S	<p>12A.S.3.1.5 Select and use the appropriate output device for proofs.</p> <p>12A.S.3.1.6 Select options from the print dialog box consistent with job specifications (e.g., paper, type of paper orientation, separation, paper size, screen angles, bleeds, and printer’s marks).</p>			
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GLO 3.2: Operate and maintain **print production tools and equipment.**

F	—	12B.F.3.2.1 Describe the need to maintain pre-press equipment.	12C.F.3.2.1 Describe the operation and maintenance procedures for print production tools and equipment (e.g., cleaning, removing rollers, lubricating, and perform minor repairs and adjustments).	—
S	12A.S.3.2.1 Assist in clean-up of the work area and equipment.	12B.S.3.2.1 Operate and maintain pre-press output equipment (e.g., load image carrier, replenish chemicals, and troubleshoot).	<p>12C.S.3.2.1 Operate and maintain print production tools and equipment.</p> <p>12C.S.3.2.2 Clean and organize the workspace associated with print production.</p>	12D.S.3.2.1 Initiate the clean-up of the work area, tools, and equipment.

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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry. *(continued)*

GLO 3.3: Operate and maintain **post-press tools and equipment**.

F	—	<p>12B.F.3.3.1 Describe advanced operations of the press as it relates to pre-press methods.</p>	<p>12C.F.3.3.1 Describe advanced post-press operations as they relate to print production methods.</p> <p>12C.F.3.3.2 Describe the operation and maintenance procedures for post-press tools and equipment (e.g., cutters, folders).</p> <p>12C.F.3.3.3 Describe advanced post-press tools and equipment.</p>	—
S	<p>12A.S.3.3.1 Assist in clean-up of the work area and equipment.</p>	<p>12B.S.3.3.1 Verify pre-press settings to finished printed job.</p> <p>12B.S.3.3.2 Complete advanced post-press operations as they relate to pre-press methods.</p>	<p>12C.S.3.3.1 Complete advanced post-press operations as they relate to print production methods.</p> <p>12C.S.3.3.2 Apply advanced post-press techniques (e.g., complex cutting and folding).</p>	<p>12D.S.3.3.1 Initiate the operation and maintenance of post-press tools and equipment.</p> <p>12D.S.3.3.2 Independently initiate and complete the appropriate maintenance of post-press tools and equipment, and troubleshoot problems.</p>

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Goal 3: Operate and maintain the **tools and equipment** used in the print production industry. *(continued)*

GLO 3.4: Handle and store print production materials.

F	—	12B.F.3.4.1 Evaluate print job and equipment to select appropriate pre-press materials.	—	—
S	—	12B.S.3.4.1 Select and use print production materials required for pre-press operations. 12B.S.3.4.2 Handle and store print production materials used in the pre-press process.	12C.S.3.4.1 Select and use materials required for print production operations. 12C.S.3.4.2 Handle and store materials used in print production processes.	12D.S.3.4.1 Initiate the appropriate handling and storing of print production materials.

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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industry.

GLO 4.1: Apply **mathematical solutions** to design production problems (e.g., conversion, measurement, estimation, and accuracy).

F	—	12B.F.4.1.1 Describe the impact geometry has on the quality and efficiency of output (e.g., gripper margins, tail margins, micro dots, crops, bleeds, printer’s marks, registration marks, and plate size).	—	—
S	12A.S.4.1.1 Apply measurement (e.g., points, margins, gutters, column widths, point size, line size, and line gauge) and mathematical functions (e.g., conversions, ratios, percentages, and positioning systems) to the document set-up and creation for the design solution. 12A.S.4.1.2 Determine appropriate size for the design solution.	12B.S.4.1.1 Apply measurement to output geometry (e.g., gripper margins, tail margins, micro dots, crops, bleeds, printer’s marks, registration marks, plate size, traps, and chokes). 12B.S.4.1.2 Perform calculations (i.e., addition, subtraction, multiplication, and division of whole and decimal numbers and fractions). 12B.S.4.1.3 Select common sizes of substrates for the required job (e.g., business cards, envelopes, mailed products, and letterhead).	12C.S.4.1.1 Perform calculations (i.e., addition, subtraction, multiplication, and division of whole and decimal numbers and fractions). 12C.S.4.1.2 Apply measurement to set-up of press and post-press equipment. 12C.S.4.1.3 Apply ratios (e.g., mixing ink, chemicals). 12C.S.4.1.4 Apply measurements to post-press procedures (e.g., cutting, trimming, and folding). 12C.S.4.1.5 Apply calculations and consider factors for optimal paper usage (e.g., sheets out, paper grain).	12D.S.4.1.1 Perform calculations (i.e., addition, subtraction, multiplication, and division of whole and decimal numbers and fractions). 12D.S.4.1.2 Apply measurement required for design, pre-press, print, and post-press production.

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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industry. *(continued)*

GLO 4.2: Read, write, interpret, and communicate information related to the design and print process (e.g., proofreading, visual, and/or written communication).

F	12A.F.4.2.1 Synthesize the information required to write information related to the design and print process.	12B.F.4.2.1 Recognize the essential information (e.g., quantity, number of pages, number of inks, and materials) required to complete a docket. 12B.F.4.2.2 Access current resource materials related to pre-press (e.g., RSS feeds, blogs, industry publications, and websites).	—	—
S	12A.S.4.2.1 Interpret work-related materials to determine the design procedure (e.g., specifications, teacher instructions, and docket). 12A.S.4.2.2 Read and extract information from materials on topics related to the design procedure (e.g., design-related journals, tutorials, trends, techniques and styles, online sources, and RFPs).	12B.S.4.2.1 Interpret work-related materials to prepare and verify work for printing (e.g., specifications, teacher instructions, and docket). 12B.S.4.2.2 Create a docket based on project specifications (e.g., client, printer, and teacher). 12B.S.4.2.3 Read and extract information from materials on topics related to pre-press (e.g., RSS feeds, blogs, industry publications, and websites).	12C.S.4.2.1 Interpret work-related materials and verify for print and post-press production (e.g., specifications, teacher instructions, and docket). 12C.S.4.2.2 Read and extract information from materials on topics related to print and post-press production (e.g., manuals, online sources, and RFPs). 12C.S.4.2.3 Apply proper spelling, grammar, and punctuation to written work.	12D.S.4.2.1 Interpret work-related materials related to the design procedure, pre-press, print, and post-press production processes (e.g., specifications, teacher instructions, and docket). 12D.S.4.2.2 Write specifications to produce instructions for the design procedure, pre-press, and print production processes.

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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industry. *(continued)*

GLO 4.2: Read, write, interpret, and communicate information related to the design and print process (e.g., proofreading, visual, and/or written communication). *(continued)*

S	<p>12A.S.4.2.3 Write for specific target audiences and purposes (e.g., ad copy, articles, and memos).</p> <p>12A.S.4.2.4 Apply proper spelling, grammar, and punctuation to written work.</p> <p>12A.S.4.2.5 Communicate detailed work instructions and specifications (e.g., docket, workflow instructions).</p> <p>12A.S.4.2.6 Communicate in writing to ensure information and messages are clear, concise, and easy to understand.</p> <p>12A.S.4.2.7 Demonstrate interpersonal skills needed to communicate with clients.</p>	<p>12B.S.4.2.4 Apply proper spelling, grammar, and punctuation to written work.</p> <p>12B.S.4.2.5 Select and use ICT to research, create, and communicate.</p>	<p>12D.S.4.2.3 Read and extract information from materials on topics related to the design procedure, pre-press, print, and post-press production processes.</p> <p>12D.S.4.2.4 Write for specific target audiences and purpose (e.g., ad copy, articles, memos, resumé, cover letter, and portfolio).</p> <p>12D.S.4.2.5 Apply proper spelling, grammar, and punctuation to written work.</p>
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Goal 4: Describe and apply the transferable **cross-curricular** (e.g., math, literacy, and scientific) knowledge and skills as they apply to the print industry. *(continued)*

GLO 4.3: Describe the **physical properties of materials** used in the print production process and factors in the physical environment (e.g., conductivity, pH, and viscosity).

F	<p>12A.F.4.3.1 Evaluate the results of using different materials and processes to fulfill specific client requirements.</p> <p>12A.F.4.3.2 Discuss the properties of specific types of substrate used in printing.</p>	<p>12B.F.4.3.1 Analyze project and select substrate based on design and available output equipment.</p> <p>12B.F.4.3.2 Describe the advantages/disadvantages of various image carrier materials (e.g., aluminum, polymer, rubber, and film) and methods.</p> <p>12B.F.4.3.3 Demonstrate an understanding of solubility and chemical reactions related to pre-press (i.e., developer, fixer, gumming unit).</p>	—	—
S	<p>12A.S.4.3.1 Communicate the results of using different materials and processes as they affect the design process (e.g., coated versus uncoated paper).</p>	<p>12B.S.4.3.1 Communicate the results of using different materials and processes in pre-press.</p>	<p>12C.S.4.3.1 Demonstrate sufficient understanding of the physical properties of print production materials to ensure that the materials are at a standard suitable for the print job (e.g., expired inks, chemical ratios).</p>	<p>12D.S.4.3.1 Evaluate the physical properties of different materials used in print production in order to select the most suitable materials to complete the print job.</p>

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Goal 5: Consider the impact of **sustainability** as it pertains to the print industry.

GLO 5.1: Appreciate the implications of the printing process on the **environment**.

F	<p>12A.F.5.1.1 Consider design choices based on environmental impact (e.g., recycled paper, coatings, print providers, and water-based ink).</p> <p>12A.F.5.1.2 Describe local methods of disposal for e-waste (e.g., computers, printers, scanners, and software).</p> <p>12A.F.5.1.3 Discuss the global impact of e-waste.</p> <p>12A.F.5.1.4 Recognize the impact of environmentally friendly materials on the design message.</p>	<p>12B.F.5.1.1 Evaluate processes to reuse, reduce, or recycle pre-press materials (i.e., chemicals, paper, and image carriers).</p>	—	—
S	<p>12A.S.5.1.1 Advocate for sustainable practices.</p>	<p>12B.S.5.1.1 Reduce, reuse, or recycle pre-press materials (i.e., chemicals, paper, or image carriers).</p> <p>12B.S.5.1.2 Follow proper protocol for dealing with used chemicals and cleaning supplies.</p>	<p>12C.S.5.1.1 Follow sustainability practices for processes and materials used in print production.</p>	<p>12D.S.5.1.1 Initiate appropriate sustainability practices for all processes and materials used in the print job.</p>

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Goal 5: Consider the impact of **sustainability** as it pertains to the print industry. *(continued)*

GLO 5.2: Describe the interaction between society and the print industry and its impact on **sustainability**.

F	12A.F.5.2.1 Evaluate how the message in a design influences the values of human health and well-being.	12B.F.5.2.1 Value diverse perspectives, including community and cultural perspectives, and understand how these have evolved through time.	—	—
S	12A.S.5.2.1 Design materials that promote the values of human health and well-being (e.g., wellness, inclusiveness, and non-discriminatory behaviour).	12B.S.5.2.1 Discuss possible options when confronted with content that is potentially harmful to human health and well-being, including physical and emotional health.	—	12D.S.5.2.1 Initiate the discussion of options when confronted with content that is potentially harmful to human health and well-being, including physical and emotional health.

GLO 5.3: Recognize the **economic benefits of sustainable practices** in the print industry.

F	12A.F.5.3.1 Evaluate the economic benefit of a sustainability-influenced design solution.	12B.F.5.3.1 Research specific economic benefits of sustainable practices in the print industry (i.e., water-based inks and recycling paper, more energy-efficient equipment).	—	—
S	—	12B.S.5.3.1 Present specific economic benefits of sustainable practices in the print industry (i.e., water-based inks and recycling paper, more energy-efficient equipment).	12C.S.5.3.1 Present specific economic benefits of sustainable practices in print production.	12D.S.5.3.1 Initiate the discussion of specific economic benefits of sustainable practices in the print job.

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Goal 6: Explain the **evolution, technological progression, and emerging trends** in the print industry.

GLO 6.1: Appreciate the **historical significance, social impact, and continuing evolution** and development of the print industry (e.g., the evolution and progression of design styles and approaches).

F	12A.F.6.1.1 Analyze and identify the influence of print on the local, national, and global communities (e.g., propaganda, advertising, dissemination of information, and hidden and unintended messages).	—	—	—
S	12A.S.6.1.1 Model design solutions, considering current and past design styles and movements.	12B.S.6.1.1 Describe the historical significance, social impact, and continuing evolution and development of pre-press materials and processes.	12C.S.6.1.1 Describe the historical significance, social impact, and continuing evolution and development of print production materials and processes.	12D.S.6.1.1 Demonstrate the influence of the historical significance, social impact, or continuing evolution of the print industry within a print job.

GLO 6.3: Demonstrate awareness of the continuing **evolution of the print industry**, as well as its **emerging trends and future technologies**.

F	12A.F.6.3.1 Research and identify emerging trends and technology related to the design process and the need to adapt to changes.	—	—	—
S	12A.S.6.3.1 Model design solution with consideration for current and past design styles and movements.	12B.S.6.3.1 Demonstrate an awareness of emerging and future pre-press technologies.	12C.S.6.3.1 Demonstrate an awareness of emerging and future print production technologies.	—

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Goal 7: Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace.

GLO 7.1: Describe and apply **health and safety rights, responsibilities, and safety procedures.**

P	<p>12A.P.7.1.1 Describe and apply health and safety rights, responsibilities, and safety procedures as they apply to design.</p>	<p>12B.P.7.1.1 Describe and apply health and safety rights, responsibilities, and safety procedures as they apply to pre-press.</p> <p>12B.P.7.1.2 Describe and demonstrate adherence to safe work practices when using print production materials, processes, tools, and equipment.</p> <p>12B.P.7.1.3 Describe types of fires and fire-control equipment and fire prevention and control strategies.</p> <p>12B.P.7.1.4 Describe emergency evacuation and response procedures.</p> <p>12B.P.7.1.5 Identify hazards and the training required for unique print production equipment.</p>	<p>12C.P.7.1.1 Describe and apply health and safety rights, responsibilities, and safety procedures as they apply to print production.</p>	<p>12D.P.7.1.1 Initiate health and safety procedures that are required during the span of a print job.</p>
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Goal 7: Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace. *(continued)*

GLO 7.1: Describe and apply **health and safety rights, responsibilities, and safety procedures.** *(continued)*

P	<p>12B.P.7.1.6 Assess hazards (e.g., electrical safety, ergonomics, material handling, chemical, and sound) related to print production materials, processes, tools, and equipment, and describe the precautions that should be taken to avoid these hazards (e.g., spill kit).</p> <p>12B.P.7.1.7 Demonstrate ergonomically correct procedures to avoid injury (e.g., stress, strain).</p> <p>12B.P.7.1.8 Locate first aid and eyewash station.</p> <p>12B.P.7.1.9 Assess situations and select appropriate personal protective equipment required for print production materials, processes, and tools.</p>
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Goal 7: Demonstrate knowledge of appropriate **health and safety** practices and the ability to recognize and apply them to maintain a safe workplace. *(continued)*

GLO 7.2: Describe and follow **health and safety laws and regulations** as they relate to graphic print production.

P	<p>12B.P.7.2.1 Describe the WHMIS guidelines and use, handle, and store materials accordingly.</p> <p>12B.P.7.2.2 Identify ways hazardous materials enter the body.</p> <p>12B.P.7.2.3 Describe and comply with health and safety legislation and practices (e.g., <i>Workplace Safety and Health Act</i>).</p> <p>12B.P.7.2.4 Describe the right-to-refuse process, including the rights and responsibilities of employees, employers, and supervisors.</p> <p>12B.P.7.2.5 Describe the reporting process for injuries.</p>	<p>12C.P.7.2.1 Demonstrate appropriate health and safety regulations that are required during print production.</p>	<p>12D.P.7.2.1 Initiate the practice of appropriate health and safety laws and regulations that are required during a print job.</p>
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Goal 8: Describe and follow the **ethical and legal standards** in the print industry.

GLO 8.1: Describe and follow current legal responsibilities and requirements when accessing **intellectual property** (e.g., copyright, trademarks).

P	<p>12A.P.8.1.1 Recognize the designer’s responsibility to ensure work follows the legal requirements regarding intellectual property.</p> <p>12A.P.8.1.2 Describe the role of contracts in the design process.</p> <p>12A.P.8.1.3 Develop strategies to discuss controversial material issues with clients (e.g., hate literature, pornography, sexually explicit content, and religious content).</p>	<p>12B.P.8.1.1 Demonstrate an understanding of the current legal responsibilities and requirements when accessing intellectual property in relation to pre-press.</p>	<p>12C.P.8.1.1 Demonstrate an understanding of the current legal responsibilities and requirements when accessing intellectual property in relation to print production.</p>	<p>12D.P.8.1.1 Initiate the application of current legal responsibilities and requirements when accessing intellectual property during a print job.</p>
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GLO 8.2: Describe and follow **ethical trade practices**.

P	<p>12A.P.8.2.1 Design and print projects consistent with the local school code of conduct.</p> <p>12A.P.8.2.2 Adhere to ethical trade practices related to the design process (e.g., misleading messages, protection of sensitive information, questionable content, billing practices, and adherence to contracts).</p>	<p>12B.P.8.2.1 Describe and follow ethical trade practices during pre-press (e.g., copyright).</p>	<p>12C.P.8.2.1 Describe and follow ethical trade practices during print production (e.g., secure documents).</p>	<p>12D.P.8.2.1 Initiate the application of ethical trade practices during a print job.</p>
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Goal 9: Demonstrate **employability skills** required in the graphic design and print industries.

GLO 9.1: Demonstrate **fundamental employability skills**.

P	12A.P.9.1.1 Arrive to the work station on time and ready to work.	12B.P.9.1.1 →	12C.P.9.1.1 →	12D.P.9.1.1 →
	12A.P.9.1.2 Consider how employability skills can be transferred among school, work, and daily life.	12B.P.9.1.2 →	12C.P.9.1.2 →	12D.P.9.1.2 →
	12A.P.9.1.3 Communicate using the language of the trade area.	12B.P.9.1.3 →	12C.P.9.1.3 →	12D.P.9.1.3 →
	12A.P.9.1.4 Share information through written and oral communication.	12B.P.9.1.4 →	12C.P.9.1.4 →	12D.P.9.1.4 →
	12A.P.9.1.5 Understand and appreciate the points of view of others.	12B.P.9.1.5 →	12C.P.9.1.5 →	12D.P.9.1.5 →
	12A.P.9.1.6 Access, analyze, and apply information resources to solve trade area problems.	12B.P.9.1.6 →	12C.P.9.1.6 →	12D.P.9.1.6 →
	12A.P.9.1.7 Analyze and evaluate problems and recommend creative and innovative solutions.	12B.P.9.1.7 →	12C.P.9.1.7 →	12D.P.9.1.7 →
	12A.P.9.1.8 Implement solution and assess for effectiveness.	12B.P.9.1.8 →	12C.P.9.1.8 →	12D.P.9.1.8 →

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Goal 9: Demonstrate **employability skills** required in the graphic design and print industries. *(continued)*

GLO 9.2: Demonstrate **personal management skills**.

P	12A.P.9.2.1 Interact with people, problems, and situations with honesty, integrity, and personal ethics.	12B.P.9.2.1 →	12C.P.9.2.1 →	12D.P.9.2.1 →
	12A.P.9.2.2 Demonstrate interest, initiative, and effort.	12B.P.9.2.2 →	12C.P.9.2.2 →	12D.P.9.2.2 →
	12A.P.9.2.3 Plan and manage time to complete tasks/projects within stated deadlines.	12B.P.9.2.3 →	12C.P.9.2.3 →	12D.P.9.2.3 →
	12A.P.9.2.4 Demonstrate responsibility and leadership by being accountable for your actions and those of your group.	12B.P.9.2.4 →	12C.P.9.2.4 →	12D.P.9.2.4 →
	12A.P.9.2.5 Adapt to change and compromise in new situations and suggest alternative ways to achieve complete tasks/projects.	12B.P.9.2.5 →	12C.P.9.2.5 →	12D.P.9.2.5 →
	12A.P.9.2.6 Demonstrate the willingness to continuously learn and teach, mentor, or coach others.	12B.P.9.2.6 →	12C.P.9.2.6 →	12D.P.9.2.6 →
	12A.P.9.2.7 Develop a personal learning plan.	12B.P.9.2.7 →	12C.P.9.2.7 →	12D.P.9.2.7 →

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Goal 9: Demonstrate **employability skills** required in the graphic design and print industries. *(continued)*

GLO 9.3: Demonstrate **teamwork skills**.

P	12A.P.9.3.1 Recognize and respect people’s diversity, individual differences, and perspectives when working in a group.	12B.P.9.3.1 →	12C.P.9.3.1 →	12D.P.9.3.1 →
	12A.P.9.3.2 Lead or support a group, when appropriate, to achieve the goals of the group.	12B.P.9.3.2 →	12C.P.9.3.2 →	12D.P.9.3.2 →
	12A.P.9.3.3 Provide contributions to the group and work within its dynamics to achieve a goal.	12B.P.9.3.3 →	12C.P.9.3.3 →	12D.P.9.3.3 →
	12A.P.9.3.4 Independently plan, design, or carry out a project or task from start to finish, monitoring for agreed-upon work standards along the way.	12B.P.9.3.4 →	12C.P.9.3.4 →	12D.P.9.3.4 →
	12A.P.9.3.5 Readily provide assistance to other students and teachers to complete a task/project.	12B.P.9.3.5 →	12C.P.9.3.5 →	12D.P.9.3.5 →

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Goal 10: Describe **career opportunities** in the print production industry.

GLO 10.1: Demonstrate awareness of **employment and post-secondary opportunities** related to print production.

P	<p>12A.P.10.1.1 Identify various sectors and occupational areas related to graphic design.</p> <p>12A.P.10.1.2 Demonstrate awareness of the working conditions and dynamics of the graphic design industry.</p> <p>12A.P.10.1.3 Select <i>Advanced Design</i> items for their Print Media Career Portfolio.</p>	<p>12B.P.10.1.1 Identify various sectors and occupational areas related to pre-press.</p>	<p>12C.P.10.1.1 Identify various sectors and occupational areas related to print production.</p> <p>12C.P.10.1.2 Demonstrate awareness of the working conditions and dynamics of the print production industry.</p> <p>12C.P.10.1.3 Select <i>Advanced Print Production</i> items for their Print Media Career Portfolio.</p>	<p>12D.P.10.1.1 Describe a variety of career opportunities in print production, as well as the education and training required.</p> <p>12D.P.10.1.2 Complete a Print Media Career Portfolio that demonstrates their achievement of some outcomes in <i>Print Media</i>.</p>
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GRADES 9 TO 12
PRINT MEDIA

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