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A D V A N C E D P R E - P R E S S (1 2 B)

40S/40E/40M

A Print Media Course

8471: ADVANCED PRE-PRESS (12B)

40S/40E/40M

Course Description

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.

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

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

- SLO 12B.F.1.1.1 Research cost factors (e.g., materials, labour, and quantity) for the pre-press process.
 - SLO 12B.S.1.1.1 Estimate time required for the pre-press process.
 - SLO 12B.S.1.1.2 Communicate the technical pre-press process used to create the design.
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GLO 1.2: Research the **factors that influence design**.

- SLO 12B.F.1.2.1 Consider the pre-press processes that influence design.
 - SLO 12B.S.1.2.1 Select the pre-press processes (based on design and pre-press factors) required for attaining the design solution.
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GLO 1.3: Recognize and apply the **elements and principles of design**.

- SLO 12B.F.1.3.1 Consider how elements and principles of design communicate messages effectively.
 - SLO 12B.S.1.3.1 Creatively apply the principles and elements of design in order to achieve an effective design solution.
 - SLO 12B.S.1.3.2 Creatively apply the rules of typography in order to achieve design solutions.
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GLO 1.4: Conceptualize the design solution.

- SLO 12B.F.1.4.1 Evaluate design solution and typographical options for printability.
 - SLO 12B.S.1.4.1 Interpret thumbnails, rough layouts, and comprehensives using appropriate symbols (e.g., type, graphic elements, and typography).
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GLO 1.5: Communicate the design solution.

- SLO 12B.F.1.5.1 Describe the process of communicating and collaborating with the designer and print production personnel.
 - SLO 12B.S.1.5.1 Verify proof to design specifications.
 - SLO 12B.S.1.5.2 Present pre-press solution.
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GLO 1.6: Describe and apply **appropriate technology** to achieve the design solution.

- SLO 12B.F.1.6.1 Analyze project files and assess page layout, image manipulation, and illustration software and their use in pre-press.
- SLO 12B.F.1.6.2 Describe how press-ready proofs are used in the print production process.
- SLO 12B.S.1.6.1 Apply file management practices and commonly used file formats for pre-press.
- SLO 12B.S.1.6.2 Analyze project files and select appropriate software for printability (e.g., pre-flight, packaging, and imposition).
- SLO 12B.S.1.6.3 Apply advanced typographical techniques.
- SLO 12B.S.1.6.4 Create a press-ready proof.

Goal 2: Describe and apply **graphic print production processes**.**GLO 2.1:** Describe and apply appropriate **pre-press techniques**.**File Management & Information Technology****Capture & Manipulate Images (F)**

SLO 12B.F.2.1.1 Select the appropriate image capture device considering source image and characteristics.

SLO 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).

File Revisions & Pre-flight Operations (F)

SLO 12B.F.2.1.3 Understand the impact customer revisions and file errors have on time, quality, and cost.

SLO 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).

Colour Management (F)

SLO 12B.F.2.1.5 Describe the properties that affect the measurement of colour (e.g., reflection, fluorescence, and substrate brightness).

SLO 12B.F.2.1.6 Identify colour measurement standards (e.g., light temperature, ASTM).

SLO 12B.F.2.1.7 Describe individual perception of colour (e.g., metamerism, colour blindness, and tiredness).

SLO 12B.F.2.1.8 Describe how images work across media.

Create a Proof (F)

SLO 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).

SLO 12B.F.2.1.10 Describe the proof submission process and client and printer responsibilities.

RIP Files (F)

SLO 12B.F.2.1.11 Define trapping (e.g., spreads, chokes, and overprinting) and its purpose for print accuracy.

SLO 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.

SLO 12B.F.2.1.13 Differentiate between convert to process or spot colour separations based on cost and technical considerations.

Impose Files (F)

SLO 12B.F.2.1.14 Select imposition solutions for printing and finishing problems.

Prepare File for Output (F)

SLO 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).

SLO 12B.F.2.1.16 Describe computer-to-plate process.

File Management & Information Technology (S)

SLO 12B.S.2.1.1 Apply efficient file management, archival, backup, and retrieval practices.

Capture & Manipulate Images (S)

SLO 12B.S.2.1.2 Capture and adjust images for output.

SLO 12B.S.2.1.3 Correct quality defects of images.

SLO 12B.S.2.1.4 Verify characteristics (e.g., output intent, physical size, file size, and resolution) and printability of the image.

SLO 12B.S.2.1.5 Assess image quality and manipulate to match specifications and output requirements.

File Revisions & Pre-flight Operations (S)

SLO 12B.S.2.1.6 Locate, document, and correct print production issues using pre-flight software and techniques.

SLO 12B.S.2.1.7 Assess the impact of customer revisions and file errors on time, quality, and cost.

Colour Management (S)

SLO 12B.S.2.1.8 Ensure colour accuracy, consistency, and repeatability in workflow and output devices.

SLO 12B.S.2.1.9 Apply the appropriate colour profiles for input/output devices.

SLO 12B.S.2.1.10 Verify the appropriate colour profiles.

SLO 12B.S.2.1.11 Run a calibration verification test.

Create a Proof (S)

SLO 12B.S.2.1.12 Verify proof to specifications and quality standards for client (e.g., teacher/customer) approval.

SLO 12B.S.2.1.13 Troubleshoot proofing output device.

RIP Files (S)

SLO 12B.S.2.1.14 Output colour separations based on CMYK and spot colour.

SLO 12B.S.2.1.15 Output file based on available output equipment (e.g., digital, CTP, sheet-fed, and large format inkjet).

SLO 12B.S.2.1.16 Adjust trapping (e.g., output method, image colour, and lines).

Impose Files (S)

SLO 12B.S.2.1.17 Create impositions using software.

SLO 12B.S.2.1.18 Select imposition methods based on print job criteria.

Prepare File for Output (S)

SLO 12B.S.2.1.19 Prepare and send a file for output (e.g., film, digital, and plate).

SLO 12B.S.2.1.20 Create image carrier for multi-colour printing (e.g., plate, stencil, and stamp).

SLO 12B.S.2.1.21 Verify the quality and accuracy of the image carrier.

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

SLO 12B.F.2.2.1 Evaluate pre-press solutions based on available printing equipment.

SLO 12B.S.2.2.1 Select pre-press techniques as required to output printed materials.

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

SLO 12B.F.2.3.1 Evaluate pre-press solutions based upon available post-press equipment.

SLO 12B.S.2.3.1 Select pre-press techniques as required for post-press operations.

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

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

SLO 12B.F.3.1.1 Evaluate print job and select appropriate pre-press software.

SLO 12B.S.3.1.1 Select and operate pre-press computer systems (i.e., RIP) and software based on the production process.

SLO 12B.S.3.1.2 Select and use image manipulation (e.g., raster, vector) and page layout software related to pre-press.

SLO 12B.S.3.1.3 Communicate using file transfer protocols and methods.

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

SLO 12B.F.3.2.1 Describe the need to maintain pre-press equipment.

SLO 12B.S.3.2.1 Operate and maintain pre-press output equipment (e.g., load image carrier, replenish chemicals, and troubleshoot).

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

SLO 12B.F.3.3.1 Describe advanced operations of the press as it relates to pre-press methods.

SLO 12B.S.3.3.1 Verify pre-press settings to finished printed job.

SLO 12B.S.3.3.2 Complete advanced post-press operations as they relate to pre-press methods.

GLO 3.4: Handle and store print production materials.

SLO 12B.F.3.4.1 Evaluate print job and equipment to select appropriate pre-press materials.

SLO 12B.S.3.4.1 Select and use print production materials required for pre-press operations.

SLO 12B.S.3.4.2 Handle and store print production materials used in the pre-press process.

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).

SLO 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).

SLO 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).

SLO 12B.S.4.1.2 Perform calculations (i.e., addition, subtraction, multiplication, and division of whole and decimal numbers and fractions).

SLO 12B.S.4.1.3 Select common sizes of substrates for the required job (e.g., business cards, envelopes, mailed products, and letterhead).

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

- SLO 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.
 - SLO 12B.F.4.2.2 Access current resource materials related to pre-press (e.g., RSS feeds, blogs, industry publications, and websites).
 - SLO 12B.S.4.2.1 Interpret work-related materials to prepare and verify work for printing (e.g., specifications, teacher instructions, and dockets).
 - SLO 12B.S.4.2.2 Create a docket based on project specifications (e.g., client, printer, and teacher).
 - SLO 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).
 - SLO 12B.S.4.2.4 Apply proper spelling, grammar, and punctuation to written work.
 - SLO 12B.S.4.2.5 Select and use ICT to research, create, and communicate.
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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).

- SLO 12B.F.4.3.1 Analyze project and select substrate based on design and available output equipment.
 - SLO 12B.F.4.3.2 Describe the advantages/disadvantages of various image carrier materials (e.g., aluminum, polymer, rubber, and film) and methods.
 - SLO 12B.F.4.3.3 Demonstrate an understanding of solubility and chemical reactions related to pre-press (i.e., developer, fixer, gumming unit).
 - SLO 12B.S.4.3.1 Communicate the results of using different materials and processes in pre-press.
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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.

- SLO 12B.F.5.1.1 Evaluate processes to reuse, reduce, or recycle pre-press materials (i.e., chemicals, paper, and image carriers).

- SLO 12B.S.5.1.1 Reduce, reuse, or recycle pre-press materials (i.e., chemicals, paper, or image carriers).
- SLO 12B.S.5.1.2 Follow proper protocol for dealing with used chemicals and cleaning supplies.
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GLO 5.2: Describe the interaction between society and the print industry and its impact on **sustainability**.

- SLO 12B.F.5.2.1 Value diverse perspectives, including community and cultural perspectives, and understand how these have evolved through time.
- SLO 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.
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GLO 5.3: Recognize the **economic benefits of sustainable practices** in the print industry.

- SLO 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).
- SLO 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).
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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).

- SLO 12B.S.6.1.1 Describe the historical significance, social impact, and continuing evolution and development of pre-press materials and processes.
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GLO 6.2: Demonstrate an awareness of the **evolution and progression of design styles and approaches**.

No applicable SLOs.

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

- SLO 12B.S.6.3.1 Demonstrate an awareness of emerging and future pre-press technologies.

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.**

- SLO 12B.P.7.1.1 Describe and apply health and safety rights, responsibilities, and safety procedures as they apply to pre-press.
- SLO 12B.P.7.1.2 Describe and demonstrate adherence to safe work practices when using print production materials, processes, tools, and equipment.
- SLO 12B.P.7.1.3 Describe types of fires and fire-control equipment and fire prevention and control strategies.
- SLO 12B.P.7.1.4 Describe emergency evacuation and response procedures.
- SLO 12B.P.7.1.5 Identify hazards and the training required for unique print production equipment.
- SLO 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).
- SLO 12B.P.7.1.7 Demonstrate ergonomically correct procedures to avoid injury (e.g., stress, strain).
- SLO 12B.P.7.1.8 Locate first aid and eyewash station.
- SLO 12B.P.7.1.9 Assess situations and select appropriate personal protective equipment required for print production materials, processes, and tools.

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

- SLO 12B.P.7.2.1 Describe the WHMIS guidelines and use, handle, and store materials accordingly.
- SLO 12B.P.7.2.2 Identify ways hazardous materials enter the body.
- SLO 12B.P.7.2.3 Describe and comply with health and safety legislation and practices (e.g., *Workplace Safety and Health Act*).
- SLO 12B.P.7.2.4 Describe the right-to-refuse process, including the rights and responsibilities of employees, employers, and supervisors.
- SLO 12B.P.7.2.5 Describe the reporting process for injuries.

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).

SLO 12B.P.8.1.1 Demonstrate an understanding of the current legal responsibilities and requirements when accessing intellectual property in relation to pre-press.

GLO 8.2: Describe and follow **ethical trade practices**.

SLO 12B.P.8.2.1 Describe and follow ethical trade practices during pre-press (e.g., copyright).

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

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

SLO 12B.P.9.1.1 Arrive to the work station on time and ready to work.

SLO 12B.P.9.1.2 Consider how employability skills can be transferred among school, work, and daily life.

SLO 12B.P.9.1.3 Communicate using the language of the trade area.

SLO 12B.P.9.1.4 Share information through written and oral communication.

SLO 12B.P.9.1.5 Understand and appreciate the points of view of others.

SLO 12B.P.9.1.6 Access, analyze, and apply information resources to solve trade area problems.

SLO 12B.P.9.1.7 Analyze and evaluate problems and recommend creative and innovative solutions.

SLO 12B.P.9.1.8 Implement solution and assess for effectiveness.

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

SLO 12B.P.9.2.1 Interact with people, problems, and situations with honesty, integrity, and personal ethics.

SLO 12B.P.9.2.2 Demonstrate interest, initiative, and effort.

SLO 12B.P.9.2.3 Plan and manage time to complete tasks/projects within stated deadlines.

SLO 12B.P.9.2.4 Demonstrate responsibility and leadership by being accountable for your actions and those of your group.

- SLO 12B.P.9.2.5 Adapt to change and compromise in new situations and suggest alternative ways to achieve complete tasks/projects.
 - SLO 12B.P.9.2.6 Demonstrate the willingness to continuously learn and teach, mentor, or coach others.
 - SLO 12B.P.9.2.7 Develop a personal learning plan.
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GLO 9.3: Demonstrate **teamwork skills**.

- SLO 12B.P.9.3.1 Recognize and respect people’s diversity, individual differences, and perspectives when working in a group.
 - SLO 12B.P.9.3.2 Lead or support a group, when appropriate, to achieve the goals of the group.
 - SLO 12B.P.9.3.3 Provide contributions to the group and work within its dynamics to achieve a goal.
 - SLO 12B.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.
 - SLO 12B.P.9.3.5 Readily provide assistance to other students and teachers to complete a task/project.
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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.

- SLO 12B.P.10.1.1 Identify various sectors and occupational areas related to pre-press.
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