



Press Operator's Guide to
National Certification in
Flexographic Press Operating



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Demonstrating Your Knowledge as an Experienced Technical Professional

Operating a flexographic press in a competitive and high-tech environment requires superior knowledge and skills. Certification by the National Council for Print Industry Certifications signifies a comprehensive knowledge of the press production process. By passing this examination you will become one of a small group of certified press operators in the printing industry. Since the National Council's founding in 1995 fewer than 1,000 press operators have attained this status.

Certification reinforces your high level of knowledge to your employer and its customers. Further, it helps customers trust your company's ability to deliver on its commitments. Finally, the presence of certified operators underscores that our industry is staffed by world-class technical professionals.

This guide will help you to prepare for the Flexographic Press Operator's Certification Examination. By achieving certification, you will take a step to advance your career and be confident that your knowledge compares with the industry's most expert press operators.



About the National Council for Print Industry Certifications

The National Council is a nonprofit skill standards and certifying organization serving the graphic communications industry. It was founded in 1995 following the completion of industry skill standards for electronic imaging, press operating (flexographic, sheetfed and web offset), and finishing and distribution. Over the years it has certified the knowledge of hundreds of individuals, most of them press operators. The organization is located in metropolitan Milwaukee and shares resources with the Printing Industries of America affiliate, Great Lakes Graphics Association.

Skill Standards and Testing

Knowledge-based examinations produced by the National Council are based on industry skill standards (i.e., what an operator should know and be able to do), written for the expert level of performance. The original skill standards were developed by a collaborative group of concerned leaders from a wide range of backgrounds and experience from industry management, associations, education, and labor, under a matching grant from the United States Department of Education, awarded to the Graphic Arts Technical Foundation (now Printing Industries of America). Recently, the skills standards were updated to ensure that the certification exams are relevant to current industry trends and practices. The certification exams measure the candidate's knowledge against these national skill standards.

Qualifications to Take the Test

In order to qualify to take the certification test, you must have at least five years of full-time experience as a



flexographic press operator, with at least 2½ years of experience as a lead operator. This experience doesn't have to be all at one company, but is cumulative for your career. The company manager who submits your certification application and pays the application fee must certify that you have the necessary years of experience. Certification can later be revoked if it is discovered that this experience qualification was not met.

Testing Procedure and Requirements

The certification test is a challenging online test with a three-hour maximum time limit. It consists of about 185 multiple-choice questions. Each multiple-choice question

contains four or five answers from which to choose, with one single "best" possible answer. Examination content will contain questions that will assess core skills (math, measurement, and communication skills) and the operator's knowledge of press operations.

During the online test you have the flexibility of moving forward to the next question and backward to the previous question, as well as changing answers up until the time you click the "submit" button.

After clicking the "submit" button, you will immediately see the results of the test. Those achieving a score of 80% or better will be shown to have "passed" the certification test. Those achieving a score below 80% will be shown to have "failed" to achieve the necessary cutoff score. Also, you will be able to review the questions that were missed. An email will also be automatically generated and sent to the designated company representative containing only the test result (but not the questions missed).

In order to maintain the necessary control over the test-taking environment and computer systems used to take the test, the National Council has established strict requirements governing how the test must be taken.

You must complete the test:

- At the company site during normal business hours
- Without assistance from individuals or reference material. This is not an "open-book" test. Paper tablets, phones, electronic devices, books, and publications may not be brought into the testing area. Handheld calculators are permitted.
- Using a computer in an office area as determined by your management sponsor. To the extent possible the area should be free from interruptions.
- Within the three-hour time limit. There is no opportunity to "pause" the test and complete it at a later time. Any questions not answered will be deemed incorrect.

At no time during the test is it permissible to copy questions and/or answers in any manner or to discuss them with coworkers. Please help us protect the integrity of the test.

Achieving Certification

National Council awards certification upon passing the examination with a score of 80% or better and meeting the experience requirements. If you achieve certification you will receive a certificate and pocket card indicating National Council Certified Operator (NCCO) certification effective for a five-year period, a colorful embroidered baseball cap, and a personal letter from the National Council director.

Clearly, this knowledge-based certification does not imply or assure a level of excellence in on-the-job performance.

Retesting and Appeals

If you do not pass the certification exam, you may apply to take the test again after 180 days.

If you are declared ineligible for certification testing or you are unsuccessful in passing the examination and you feel the decision or process was unfair or incorrect, you have the right to contact the National Council, explain the reasons for your dissatisfaction, and ask for a review of your situation. The National Council will either explain why it is maintaining its decision, correct the situation as needed, or forward credible concerns to the Appeals Committee. If your concerns are forwarded to the Appeals Committee, the National Council has 60 days to convene the Committee, have it issue a ruling, and respond to you.

Confidentiality

You will see your score and be alerted whether you have achieved certification immediately upon clicking the “submit” button at the conclusion of the test. The National Council will not release your test score to anyone but you and the company manager who co-signed the registration form. If you submitted the form and paid the fee yourself, the test score will only be released to you. The company individual (if one is named on the registration form) will receive an email with similar information shortly after the test has ended.

The names of all individuals who achieve certification will be added to the National Council website, unless you request not to be listed.

Under no circumstances will the National Council share examination questions or answers with candidates or their company management.

Recommended Test-Taking Strategies

Here are some tips that may help you achieve a higher score on the test:

- Prepare for the test by reviewing the sample questions, reading the recommended material, and ensuring that you know the definitions of terms used in the test.
- Get a reasonable amount of sleep the night before your test.
- Eat a light meal before the test. Having food in your stomach will give you energy and help you focus.

Topics Covered in the Flexographic Press Certification Examination

Here is a lengthy list of the topics covered on the test. In many cases, a topic will only be addressed by one question; your knowledge of other topics will be checked with multiple questions.

Color Theory and Viewing

- Additive and subtractive color basics
- Color viewing standards
- Densitometer: purpose and principles
- Measuring fluorescent and metallic inks
- Metamerism
- Spectrophotometer: purpose and principles

Diecutting

- Die pressure
- Removing waste matrix

Inking

- Anilox pressure
- BCM and dot gain
- Cell volume and count
- Choosing anilox: density, line count and fine type
- Cleaning anilox rolls
- Setting doctor blades

Inks

- Abrasiveness by ink type
- Additives to increase/reduce drying
- Components of ink
- Drying principles by ink type
- Effect of ink film thickness on density
- Ink laydown issues
- pH
- Preventing foaming
- Properties: Viscosity and transparency/opacity
- Printing metallic ink
- Purpose of resin/vehicle
- Setting ink flow
- Storing ink
- Purpose of antioxidants

Makeready and Color OKs

- Makeready steps
- Matching printed product to proof

Maintenance

- Lubrication: purpose and issues
- Preventative maintenance: components and benefits

Math and Reading

Using simple math skills to calculate:

- Average and range
- Amount of ink and reducer
- Footage and cut-offs
- Run time
- Teeth on drive gear
- Interpreting job tickets

Plates and Screening

- Platemaking process
- Screen angles for process color

Printing Units

- Achieving register
- Determining and setting printing pressures
- Doctor blades: types and setting
- Dot gain: types, influences, and measurement
- Identification of rollers in printing unit
- Ink sequence
- Mounting plates
- Nip setting
- Plate caliper
- Plate cylinder balance and diameter
- Plate registration
- Setting impression pressure
- Trapping: definition, measurement, and acceptable trap numbers
- Two-roll inking systems: pros and cons
- Use of anilox to adjust ink density

Safety

- Lockout/tagout requirements
- Personal protective equipment (PPE)
- Press guarding and safety devices
- Storing used rags
- Understanding Hazardous Material Identification System (HMIS)
- Understanding Material Safety Data Sheets (MSDS)
- Understanding nip points

Topics Covered in the Flexographic Press Certification Examination (Cont.)

Substrate

- Cleaning dirty stock
- Causes of fiber cuts
- Corona treatment
- Dyne: issues and ideal levels
- Impact of time on surface energy
- Measuring thickness
- Pressure-sensitive components

Quality Control

- Assessing barcode readability
- Checking dyne levels
- Commercial color guides: issues and usage
- Dot gain: how, and reasons to measure
- Good housekeeping practices
- Pressroom tools: micrometer, durometer
- Roll tag importance
- Testing ink adherence
- Understanding color tolerances
- Use of color bars
- Use of magnifier/loupe
- Use of roll-out tool

Troubleshooting

- Adhesive leakage
- Adhesive voids/air bubbles in PS stock
- Bouncing
- Blocking
- Buckling
- Dot bridging
- Excessive dot gain
- Feathering
- Fit problems

- Ghosting
- Hickeys
- Ink build-up on down web idlers
- Ink in heat seal area
- Ink not adhering
- Ink starvation
- Marks/indentations on substrate
- Misregister
- Moiré
- Mottle
- Plugging
- Poor trapping
- Offsetting
- Uneven tension in pressure sensitive stock
- UPC bar growth
- Wrinkling

Unwind, Infeed, Drying, and Delivery

- Adjusting tension for substrate
- Chill roll function
- Setting infeed system
- Substrate characteristics that affect setup
- Unwind tension

Terms You Should Be Familiar With

The certification test covers a variety of topics that a master operator needs to understand, from press mechanics and color principles to pressroom tools and chemistry. As a result, there are many acronyms, terms, and phrases referred to in the test. Here is a list of about 100 of them. While this isn't an exhaustive list, you would be wise to know what each entry means before taking the test.

Amines	Hazardous Material Identification	Static electricity
Anilox roll	System (HMIS)	Stickyback
Backlash (gears)	Hickey	Strobe light
Back exposure	Highlight dot	Substrate internal strength
Blocking	Infrared	Subtractive color theory
Billion cubic microns (BCM)	Ink extender	Surface energy
Bleeding	Ink sequence	Tape test
Blistering	Ink starvation	Telescoping
Blocking	Ink vehicle/resin	Tracking
Bouncing	Kelvin	Transparency
Densitometer	Lateral direction	Trapping
Caliper	Lockout/Tagout	Turnbar
Chill roll	Midtone	Two-roll ink system
Circumferential direction	Metamerism	Ultraviolet (UV) drying
Color cast	Micrometer	UPC
Colorimeter	Moiré	Viscosity
Control chart	Mole skin	Volatility
Corona treatment	Mottle	Waste matrix
CPI	Material Safety Data Sheet (MSDS)	Web buckle
Delta E (ΔE)	Nip point/pressure	Web guide
Densitometer	Nip roll	Web tension
Density	Opacity	Zahn cup
Diluents	Overprinting	
Doctor blade	Over-lamination	
Dot bridging	Pareto chart	
Dot gain	pH	
Doubling	Picking	
Down web idlers	Personal Protective Equipment (PPE)	
Durometer	Pinholing	
Dyne level	Plugging	
E-Stop	Preventative maintenance	
Feathering	Pull roll	
Fit	Offsetting	
Flow	Reactivity	
Fountain roll	Registration	
Ghosting	Roller bearing	
Glycol	Roll-out tool	
Gray balance	Screen angles	
Halftone	Shadow dot	
Halo	Spectrophotometer	

- The three-hour time limit means that it's crucial to budget your time wisely. Don't spend too much time on any one question. Since there are about 180 questions, you can take an average of one minute per question and still finish on time. That means you should have answered at least 60 questions after the first hour and 120 questions after the second hour. The testing software will constantly show you how much time you have left.
- Read each question carefully before you look at the answers. Misreading questions is the cause for a significant number of wrong answers.
- Come up with the answer in your head before looking at the possible answers, this way the choices given on the test won't throw you off or trick you.
- Carefully read all of the choices and eliminate answers you know aren't right.
- If necessary, take an educated guess and select an answer. Failing to answer a question is the same as selecting the wrong answer, so guessing is better than ignoring a question.
- Don't keep changing your answer; usually your first choice is the right one, unless you misread the question.

Recommended Preparation and Reading

We suggest that you discuss the topics and terms on the preceding pages—along with the sample questions which follow—with others in your pressroom, double-checking your knowledge on the variety of subjects you will encounter in the examination.

You can also prepare by reviewing the following books, which together contain virtually all of the information covered in the certification test.

[Flexography Principles & Practices 6.0](#), Flexographic Technical Association, 600 pages, 2013.

[Flexography 101 \(set of 4 booklets\)](#), Flexographic Technical Association, 2013.

[Common-Sense Flexography](#), Daniel Lanska, Printing Industries Press, 300 pages, 2007.

[Flexography Primer](#), J. Page Crouch, Printing Industries Press, 198 pages, 1998.

In addition, Flexographic Technical Association (FTA) offers the industry's best online curriculum for press operators composed of multi-level courses that focus on technical expertise, hands-on skills, and flexographic vocabulary. Learn more at [FIRST Operator Certification Program](#).

Your use of these materials is, of course, not a requirement for taking the examination. You can also prepare for the examination by discussing the terms, topics, and sample questions with your coworkers. And you may indeed wish to take the examination based only upon your years of experience in producing process color work, reviewing the topics, terms, and sample questions on your own.

More Information

If you have questions about the certification process or test, please contact NCPIC at:

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