TAPPI Academy can help get you there.

TRAINING GUIDE

2021
WHAT IS TAPPI ACADEMY?

TAPPI Academy is the premier technical education and training center of excellence for the worldwide pulp, paper, packaging, tissue and converting industries. This suite of training resources delivers:

- Access to Respected, Award-Winning, Subject-Matter Experts
- Most Comprehensive Curriculum Compared to Content Elsewhere
- Peer-Reviewed, Antitrust and Anti-Commercial Compliant Curriculum
- TAPPI’s Worldwide Credibility Derived from 100+ Years in Industry Service

We invite you to explore the many resources offered through TAPPI Academy.

Where you have questions, we’re available to help!

Online: www.TAPPI.org/Academy
Email: training@TAPPI.org
Phone: 770-209-7222

Education and Training Today

Even in the best of times, manufacturing is often impacted by economic or demand fluctuations, regulatory changes or labor shortages. The COVID-19 pandemic is an event that’s challenging mills to approach daily operations differently by observing travel limitations, telework options and social distancing measures.

While face-to-face events may be on hold, training remains a critical business priority for long-term employee satisfaction and efficiency for the success of your organization. Afterall, with operations in many sectors continuing at peak production, employee and team training should, too!
TO ADVANCE YOUR CAREER

TAPPI Academy resources are excellent stepping stones for your own career path. With so many options, choosing a first step or planning ahead may feel challenging.

**Invest Time for Education**
Set aside dedicated time to scan TAPPI Academy resources to find training resources that apply directly to your role at work. Many options are free with TAPPI membership, such as documents and articles found in eLibrary or convenient webinars that often take less than an hour to view. You can follow a sustained training path similar to the one below to integrate TAPPI Academy resources into a long-term educational plan.

**Coordinate with Your Supervisor**
Schedule a discussion with your manager about areas where you may need additional knowledge and skills to perform to the best of your ability. Ask about the growth potential with your position and what training or certifications you'll need to get there. You may also want to share with your manager the research you've compiled using TAPPI Academy resources to identify other topics and products that would help you reach your goals.

**Prepare Supporting Materials**
Conferences and face-to-face training events may also have travel expenses to consider. TAPPI provides printable materials to help you justify costs and communicate the return on investment for specific training.

“TAPPI Academy is an invaluable go-to if you assist others with employee training or manage workforce development within your organization.
We can help you plan and integrate a long-term process for training that can be tailored to fill shortfalls and reach objectives.

**Consider a TAPPI Company Classroom for Customized Training**
Many of TAPPI's training courses can be tailored to fit your company's specific needs, time and budget. A Company Classroom can be designed for one or multiple days, and delivered as blended learning, an online course or onsite at your location. You set the variables!

TAPPI.org/Company Classroom

**Company Licensing Available for eLearning**
TAPPI Academy eLearning resources provide excellent training options for your entire company or team. Site licenses are beneficial for groups of employees, extending the reach of the curriculum and allowing for training flexibility.

TAPPI.org/eLearning

**Team Training Plan**
As you get started, consider these steps for your organization:

1. **Conduct a Needs Assessment Survey**
   Ask managers to identify skills needed on their teams.

2. **Analyze Staffing Changes**
   Determine knowledge shortfalls from new hires, retirements, or performance evaluations.

3. **Assess Training Options**
   Match company training needs with learning outcomes, curriculum topics, and instructor expertise. TAPPI can walk you through this!

4. **Outline Training Recommendations**
   Summarize goals, time required, expenses and ROI. Reach out to training@tappi.org with your questions.

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“I value the fact that my manager is investing in my future.”
~ J. K., Quality Control Manager

“I’ve always been excited about training. Every chance I had to read something new (industry related) or go to a training seminar was all I’d hoped for in a job/career. Now my job, within our company, is training.”
~ M. S., Director, Training and Development

“We are a 106-year-old organization with members in more than 66 countries. TAPPI is known for its standards used throughout mills in North America and the world and its resources like TAPPI Academy to advance workforce training and education.”
~ Larry N. Montague, TAPPI President and CEO

*H O W T O U S E T H I S T R A I N I N G G U I D E*
A co-worker told me about [the TAPPI Wet End Chemistry Course] and I wanted to gain a foundation and properties of starch and protein binders, materials and equipment.

Introduction to Wet End Wet end chemistry troubleshooting, optimization, product quality, machine productivity

I attended the TAPPI Introduction to Pulp and Paper Technology Course because I wanted an overview of the entire pulp making and papermaking process. I now ask better questions and have a better understanding of the answers.”

"A co-worker told me about [the TAPPI Wet End Chemistry Course] and I wanted to gain a foundation in papermaking and understand how the process relates to quality defects. I'll now be able to ask the right questions when it comes to production. I really enjoyed the overall content.”

NEW! Web Handling and Converting
Eliminate wrinkles, baggy webs and apply effective spreading. Troubleshoot a variety of web, web handling and converting issues. Control systems for tension, nip, guiding and design processes included

NEW! Web Winding: Machines, Mechanics and Measurements
Eliminate winding defects, troubleshoot a variety of web, winding and operational issues. Winding machinery, winding control systems for tension, nip and torque included

NEW! Wet Pressing
Felt cleaning and conditioning, roll presses, shoe presses, steam boxes, wet pressing theory

NEW! White Water and Filtrate Systems
DAF systems, strainers, filter, circulation loops, clarification, white water system design

The book describes the most important advances in papermaking wet end chemistry and papermaking application technologies in past decades. Highlights how recent progress in equipment, automation and procedures are providing papermaking efficiency plus uniformity and end-use performance of products. Available at TAPPI.org/Bookstore

The Benefits of a Risk-based Pressure Vessel and Storage Tank Inspection Program
Tissue Softness Explained
Do We Need an Industry 4.0 Lexicon?
Papermaking with Non-wood Fibers
Energy Savings & Runtime Extension Strategies For Recovery Boilers
An Overview of Metallblown Media for PPI
Personnel Protection Using Textile Substrates

Work routines interrupted by the pandemic influenced a dramatic shift to remote training options in 2020. Access to TAPPI Academy webinars increased by more than 400 percent!

We thought you might be interested in the most-watched webinars this past year:
- Personnel Protection Using Textile Substrates
- Energy Savings & Runtime Extension Strategies For Recovery Boilers
- An Overview of Metallblown Media for PPI
- Papermaking with Non-wood Fibers
- Do We Need an Industry 4.0 Lexicon?
- Rag Mixing Wet End Additives
- Basics of Refining
- Tissue Softness Explained
- Paper Quality Measurement – Past, Present and Future
- The Benefits of a Risk-based Pressure Vessel and Storage Tank Inspection Program
Pulp Education

**Bleaching**
Alkaline extraction, bleaching equipment, recycling, oxygen delignification

**Chemical Recovery**
Chemical recovery operations, terminology, equipment and process variables

**Evaporators**
Black liquor evaporator operations, equipment, principles, testing

**Environmental**
CNCO and contaminated condensate systems, HVAC, and wastewater systems

**Environmental Control**
U.S. environmental laws/regulations, air emission treatment and more

**Fiber Supply**
Fiber supplied to the pulping process; log handling, chip screening and testing and more

**Introduction to Pulp & Paper Technology**
Technology overview of how and why things happen in pulp and paper processes

**Kraft Recovery Operations Course**
Kraft pulp mill operations; effect of processes on Kraft pulp quality

**Kraft Pulping and Bleaching Course**
Kraft pulping and bleaching sections were particularly appreciated. It's good to reinforce what I already know and fill in the gaps.

**Pulp Manufacturing Technology**
Overview of pulping, pulp processing, bleaching technology, process variables, equipment

**Pulp Properties & Testing Labs**
Lists of procedures used to analyze raw materials, chips, pulp and more

**Recruit**
Batch cooking, blow line refining, brown stock systems, digesters, Kraft pulping by-products

**Recovery**
Intermediate; covers chemistry, physics and engineering principles in Kraft recovery mills

**Supplemental and Recycled Fiber**
OCC and supplemental and recycled fiber processes

**Brownstock Washing**
Provides knowledge for pulp mill operators at any level. This book reviews current state-of-the-art methods for designing and operating brownstock washing systems. Available at TAPPI.org/bookstore

**Black Liquor Evaporation**
Kraft pulp and black liquor production worldwide, properties relevant to evaporation, evaporation fundamentals, design principles and analysis for black liquor evaporation, auxiliary processes, scaling and fouling in black liquor evaporators, and terminology

**Kraft Recovery Boilers, Third Edition**
Covers chemical principles, black liquor properties, spray and combustion/chimney bed characteristics, fouling, plugging, sootblowing, corrosion and cracking, emissions, safety, and control design principles. The book is coauthored by eight experts who have served as instructors for the Kraft Recovery Operations Course for many years. Available at TAPPI.org/bookstore

**Additional titles include:**
- "The Intro to Kraft Pulping and Bleaching Course gave me a better understanding of recovery overall. The reference materials were useful and the presenters were absolute experts in their field."

Corrugated Education

**Advanced Bonding Course**
Increases understanding of corrugated bonding process, variables impacting bond performance, bonding settings, glue line analysis, combined board caliper, process centering

**Best Practices on the Corrugator Course**
Supports achieving higher productivity for better product quality board, waste reduction, settings for peak performance, critical properties of raw materials

**Board Tests**
Tests used to predict stacking performance of bases, performance during handling, tests to monitor corrugating and converting operations at box plants; flat crush test (FC), warp test, pin adhesion test

**Box Plant Equipment Basics**
Common box plant equipment and processes, discusses equipment layout, material flows, storage considerations

**Corrugated Adhesives**
Background of corrugating adhesives, describes purpose or function of ingredients in modern, starch-based adhesives

**Corrugated Packaging Box Basics**
Fundamental overview of equipment, materials, and processes

**Corrugated Box Basics**
Common industry terms, describes popular corrugated board and corrugated box styles, corrugated box usage considerations

**Corrugators**
Corrugating process, wet end components, preconditioning, preheating, corrugating and pressure rolls, adhesive application, double face glue unit, hot plate section, dry end, stacker, and double, triple wall corrugators

**Die Cutters**
Corrugated board and box making equipment, design and operation of rotary and planer die cutters, in-line sectional die cutter machines

**Flexo Folder-Gluers**
Design and operation of the machine sections of a flexo folder-gluer, feed section, printing section, creaser-slotter, die cutter, glue tap unit, folding section, delivery end

**Introduction to Corrugated Course**
Develops abilities in developing, understanding, and communicating common corrugated language to identify and resolve quality issues on the corrugator

**Other Box Plant Equipment**
Design and operation of box plant equipment, printer-slotters, folder-glues, stitchers, lappers, laminators, presses, hot lamination, bundlers and palletizers

**Raw Materials**
Wood fiber sources, chemical pulping, papermaking processes, and various glues, inks and coatings used in the production of corrugated board and corrugated boxes

**Safety**
Safe work behavior, equipment safety hazards, stored energy hazards, chemical hazards, emergency stops, vehicle and pedestrian hazards within box plants

**Corrugated Containers Manufacturing Process**
Comprehensive textbook describes the entire process of manufacturing corrugated containers; provides in-depth content for professionals working in all areas of corrugated containers. Available at TAPPI.org/bookstore

TAPPI utilizes the expertise of The Packaging School as an exclusive licensee of the professional packaging curriculum developed at Clemson University. Learn more about this valuable partnership at TAPPI.org/packagingschool

Additional titles include:
- NEW! Packaging 101 Boot Camp
- Corrugated Containers
- Paperboard Cartons
- Sustainable Packaging
- Packaging Foundations
- Packaging Laws and Regulations
- Packaging Distribution
- Packaging Design Workflow
- Packaging Machinery
- Packaging Printing
- Glass Packaging
- Metal Packaging
- Polymers in Packaging

Please go to TAPPI.org/Academy or TAPPI.org/Bookstore for more information.
### Tissue Education

- **Introduction to Tissue Conversion Course**: Overview of converting process from unwind stand to the big saw, machinery and processes of rolled products explained with animations, descriptions and voice-over.

- **Introduction to Tissue Packaging Course**: Utilizes animations, descriptions and voice-overs to describe the tissue wrapping process; breaks down each subsection and process of a multi-layer poly wrapper and binder.

- **Tissue 101: Properties & Processes Course**: Introductory training designed for anyone who needs a comprehensive overview of tissue manufacturing; increases students’ understanding of tissue performance properties and process effect on product performance.

- **Tissue 201: Operations & Runnability Course**: Intermediate - to advanced-level course focused on improving tissue quality and consistency; covers reliability and maintenance best practices; troubleshooting.

- **Tissue Operations and Runnability Course**: Professional Certificate ensures demonstration of competency in critical tissue manufacturing knowledge.

- **Tissue 202: Converting Operations Course**: Intermediate instruction on basic rolled products converting processes, tissue parent roll (jumbo reel/soft roll) quality and variability, and impacts the runnability of these complex lines; TAPPI.org/TIS202.

- **Tissue Operations and Runnability Course**: Intermediate instruction designed to increase understanding of tissue properties, raw materials, equipment and processes.

- **Guidelines for Safe Assessment and Operation of Yankee Dryers**: Prepared by TAPPI’s Yankee Dryer Safety Subcommittee to provide guidelines for the safe operation and management of Yankee dryers. Available at TAPPI.org/Bookstore.

### Flexible Packaging Education

- **Blown and Cast Film Extrusion Course**: Covers common resins and equipment used in blown and cast film applications; film extrusion technology, improving existing extrusion processes.

- **Extrusion Coating Symposium**: Intermediate-to-advanced course delivers basic resin and equipment technology (extruders, dies, and auxiliary equipment) for extrusion coating applications; covers common process problems in extrusion coating.

- **Extrusion Coating Manual, 5th Edition**: The most comprehensive, hands-on manual covering the extrusion coating process, materials, equipment, and products for engineers, technicians, operators, and managers. Available at TAPPI.org/Bookstore.

- **The Ultimate Roll and Web Defect Troubleshooting Guide**: Considered an imperative guide for troubleshooting roll and web defects; a communication tool for suppliers and their customers to assist in the identification and elimination of roll and web defects. Available at TAPPI.org/Bookstore.

### Upcoming Events for Training

- **TAPPI's Tissue Converting Course**: Improved my knowledge of converting and allowed me to do more innovation work. We covered the function of each roll. Lots of videos helped show how things work. I also liked the pilot visit to see the real rolls and how converting runs.”

- **“The knowledge I gained from TAPPI’s Blown and Cast Film Extrusion Course helped me in processing and troubleshooting. I also gained knowledge of other products and resources to aid me in my career.”**

- **Tissue 101: Properties and Processes Course at TAPPICon**: April 24-25

- **Advanced Coating Course at TAPPICon**: April 24-25

- **Tissue 101: Properties and Processes Course at TAPPICon**: April 24-25

- **IDCON Work Management Planning and Scheduling**: January 19-21

- **IDCON Shutdown Turnaround Optimization Program**: February

- **NCSU Workshop for Pulp & Paper Basics (Interactive Distance)**: March 1-5

- **IDCOME Materials and Spare Parts Management**: March

- **NCSU Strategic & Financial Analysis for the Industry**: April 20-22

- **IDCON Root-Cause Problem Elimination**: April

- **Advanced Coating Course at TAPPICon**: April 24-25

- **Tissue 101: Properties and Processes Course at TAPPICon**: April 24-25

- **IDCON Work Management Planning and Scheduling**: May

- **IDCON Develop and Manage Preventive Maintenance**: May

- **Kraft Recovery Operations Course**: May 17-20

- **NCSU Workshop for Pulp & Paper Basics (Interactive Distance)**: June 7-11

- **Introduction to Corrugated Course**: Summer 2021

- **Best Practices on the Corrugator**: August 2021

- **Flexos and Die-cutters Course**: August 2021

- **NCSU Strategic & Financial Analysis for the Industry**: August 24-26

- **NCSU Workshop for Pulp and Paper Basics (Interactive Distance)**: October 4-8

- **NCSU Strategic & Financial Analysis for the Industry**: December 7-9

Please Note: Dates may be subject to change.
TRENDS IN WORKFORCE TRAINING

A few of the pandemic responses put in place this past year are expected to stick around for a while in the manufacturing industry, such as social distancing and remote learning, which is leading to emerging shifts in focus and delivery of continued education.

Training Remains a Priority

Workforce development and training are appearing to remain a steady focus within the pulp and paper industry as a whole because of the continued skills gap.

TAPPI President and CEO, Larry N. Montague, said that “one of our industry’s biggest challenges is finding, training and retaining good people. The retirement tsunami in the U.S. is a very, very big challenge for us, not only TAPPI but also the entire industry.”

Training for Resilience Over Efficiency

Most operations focused sharply over the years on practices that streamlined roles and processes to increase efficiency, which worked efficiently so to speak, until the pandemic. Workflows and processes are being redesigned today for “resilience,” to allow for more flexibility when disruptions occur. Resilient operations, according to Gartner research, are those that provide employees with varied, adaptive and flexible roles so that they acquire cross-functional knowledge.

Greater Interest in Virtual Learning

Instructor-led, face-to-face training is a preferred delivery method for many learners, according to research by Training Industry. Virtual training led by subject-matter experts, eLearning and videos are also highly preferred formats among employees.

Research also shows that training programs that utilize multiple formats are more likely to meet learners’ preferences, which is the largest driver of training effectiveness.

Increased Training Investments

Many organizations are seeing the current climate as an opportunity to invest in training and upskilling staff, even with budgets reduced.

A report recently found that many organizations plan to continue remote learning practices and invest in remote-working tools beyond the pandemic.

Pete Augustine, TAPPI Board Chair and President of Fabio Perini N.A. encourages its members “to use our online platform called TAPPI Connect where they can post questions for issues and have access to experts from around the world.” Augustine underscores that TAPPI has increased the number of webinars, eLearning and blended course options offered, including hosting virtual gatherings for groups, such as young professionals.

4 Source: How COVID-19 is Changing HR Technology Investment, by D. Zielinski; published by SHRM.

Stay in Touch

Sign up for the free TAPPI Academy newsletter for your continued education, training and career advancement. The newsletter provides updates on events, new releases, opportunities and industry perspectives.

Subscription Form: https://iz4.me/rweH7z

Please go to TAPPI.org/Academy or TAPPI.org/Bookstore for more information.


What are Standards? A Standard is a common language that promotes the flow of goods between Buyer and Seller and protects the general welfare.*

TAPPI Standards are critical to the pulp, paper, tissue, package and converting industry.

TAPPI Standards Test Methods are testing procedures used in the measurement, evaluation, and description of products including raw materials used in their manufacture, use, or in scientific investigations.

Join a Standard Specific Interest Group (SSIG) & create and review Standards.

Get access to peer network, grow and share your knowledge, & become an influencer.

3 Quick Steps to Get Started
1. Visit tappi.org/JoinStandards
2. Complete the short form
3. Get Started!

TAPPI is certified by the American National Standards Institute (ANSI) as an American National Standards development organization. *ASTM

SAFETY CROSSES ALL BORDERS

Save time and reduce regulatory scrutiny with TAPPISAFE’s standardized approach:
- Basic Orientation
- Customized Site Orientation
- Customized Employee Orientation
- GateCheck Real-Time Verification
- Truck Driver Orientation

Visit TAPPISAFE.org or contact us at INFO@TAPPISAFE.ORG


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Sustaining Membership Benefits

1. Professional TAPPI membership for primary contact
2. One-year journal subscription
3. TAPPI Journal Yearbook
4. Paper360° magazine subscription
5. Recognition plaque to display at TAPPI events for exhibitors
6. Specialized e-newsletters

Sustaining Members get discounts on Company Classroom Training
Contact Shannon Warchalowsky at swarchalowsky@tappi.org or +1(770) 209-7296 to discuss your company classroom needs.

- 25,000 technical papers and articles in the TAPPI e-Library
- Discount on sponsorship & exhibiting 5%
- $1,500 charitable donation tax credit
- $1,000 discount on development of a customized employee safety orientation course through TAPPI SAFE
- Plus:
  - Premium exhibit space at TAPPI-PIMA Student Summit
  - Discounted TAPPI event registration for company employees
  - Recognition plaque to display at TAPPI events for exhibitors

For more information, contact Lisa Lockwood, Sustaining Member Concierge, at +1(770) 209-7266 or llockwood@tappi.org.