

TECHNOLOGY	8:00 AM – 9:30 AM	10:00 AM – 11:30 PM	12:00 PM – 1:30 PM	2:00 PM – 3:30 PM
3D/ADDITIVE MANUFACTURING	<b>NEW! F10:</b> Application Discovery - Evaluating Real Use Cases for In-Office Metal 3D Printing ■	<b>NEW! F20:</b> 3D Printed Tools for Additive Manufacturing Environments ■	<b>NEW! F30:</b> The Ultimate Guide to Metal Additive: Mapping the Process from Discovery to Production ■	<b>NEW! F40:</b> Metal 3D Printing for Fabrication Shops ■
AUTOMATION	<b>NEW! F11:</b> Move to the 21st Century: The Pro's and Con's of Adding Automation to Your Process ■	<b>F21:</b> Getting Started with Robotics: A Journey to the World of Robotics ■	<b>NEW! F31:</b> Leading and Preparing an Industry 4.0 Organization and Workforce ■	<b>NEW! F41:</b> Industrial Internet of Things (IIoT) for the Job Shop ■
CUTTING		<b>NEW! F22:</b> Cutting for Advanced Materials ■		<b>NEW! F42:</b> Automated Processes in Hybrid Induction & Oxy-Fuel Cutting ■
FINISHING		<b>C20:</b> ABCs of Infrared ■		<b>NEW! C40:</b> It's Your Money - Control Your Costs ■
		<b>NEW! C21:</b> I Want to Powder Coat, Now What? ■		<b>C41:</b> Powder Coating Basics ■
		<b>NEW! C22:</b> Corrosion Basics and Prevention ■		<b>NEW! C42:</b> Understanding the Basics of Pretreatment ■
FORMING & FABRICATING	<b>F13:</b> Press Brake for Engineers ■	<b>F23:</b> Machine Safeguarding ■	<b>NEW! F33:</b> Material Handling ■	<b>F43:</b> Advanced Press Brake Technologies ■
	<b>F14:</b> Coil Processing: Slitting HSS Materials ■	<b>F24:</b> Roll Forming: Basics and Lubricants ■	<b>F34:</b> Roll Forming: Tooling and Trouble Shooting ■	<b>F44:</b> Advanced Solutions for Tube and Pipe ■
LASER		<b>NEW! F25:</b> Lasers for Joining Development and Control ■	<b>NEW! F35:</b> Remote Laser Joining & Interface Applications ■	<b>F45:</b> Lasers and Laser Systems for Advanced Manufacturing ■
LEAN	<b>NEW! F16:</b> Lean Principle: Getting Started with Your Lean Journey ■	<b>NEW! F26:</b> Lean Tools: Flow & Pull in High Variety Environment ■	<b>NEW! F36:</b> Lean Principle: OEM Quality Excellence: 6 Practical Steps to Becoming an Award-Winning Supplier ■	<b>F46:</b> Lean Principle: Strategic Planning and Hoshin Kanri - How to Achieve the Future You See ■
MANAGEMENT	<b>NEW! F17:</b> Choosing the Best Source of Growth Capital for Your Manufacturing Business ■	<b>NEW! F27:</b> Planning for the Present & Paving a Strategic Roadmap ■	<b>F37:</b> Job Shop Costing, Estimating and Scheduling for Complex Jobs ■	<b>NEW! F47:</b> Hands-on Workshop - Cultivate & Value Your Leadership ■
MARKETING & SALES	<b>NEW! F18:</b> Supercharge Your Networking & Inbound Marketing ■	<b>NEW! F28:</b> Your Schematic for Assembling a Powerful Digital Marketing Machine ■	<b>NEW! F38:</b> Build a Sales Strategy & Model for Scalable Growth ■	<b>NEW! F48:</b> Deliver Superb Customer Service & Build a Customer-Centric Culture ■
SMART MANUFACTURING	<b>NEW! F19:</b> Current State of Smart Manufacturing & The Connected Viewpoint ■	<b>NEW! F29:</b> SMART Manufacturing Basics to Get Started in The Digital World ■	<b>NEW! F39:</b> Industrial IoT Case Study - Real World Implementation ■	<b>NEW! F49:</b> Smart Manufacturing and Workforce Ready! ■
STAMPING		<b>NEW! S20:</b> Understanding Servo Metal Stamping Presses - Proper Usage, Troubleshooting and Maintenance ■	<b>S30:</b> ANSI Z224.1 & OSHA 1910.147 Applications of Alternative Methods for Hazardous Energy Control ■	<b>NEW! S40:</b> Application of Real-Time Visual Monitoring Tool in Stamping ■
		<b>S21:</b> Lubricants-1 ■		<b>NEW! S41:</b> Lubricants-2 ■
WELDING FABRICATION		<b>NEW! W200:</b> The Welding Economy ■		<b>NEW! W400:</b> Robotic & Arc Welding for Job Shops ■
WORKFORCE DEVELOPMENT	<b>NEW! F200:</b> Practicing Emotional Intelligence for Workplace Success ■	<b>NEW! F211:</b> The Future of Talent: Attracting and Retaining The Top Talent for the 21st Century ■	<b>NEW! F212:</b> Creating Career Path Programs That Empower & Engage ■	<b>NEW! F213:</b> Pushing Your Envelope: How Smart People Overcome Self-Doubt and Live with Bold Enthusiasm ■
WELDING				
CAREER PATH WORKSHOPS	<b>W17:</b> Getting Started in Underwater Welding			1:00 PM
	<b>W18:</b> Creating a WPS in 60 Seconds			3:00 PM
PROFESSIONAL PROGRAM	<b>W23: Session 1:</b> Additive Manufacturing			1:40 PM
	<b>Session 2:</b> Modeling I			5:00 PM
	<b>Session 3:</b> Arc Welding			1:40 PM
SPECIAL PROGRAMS	<b>W30:</b> AWS Prayer Breakfast			7:00 AM
				8:30 AM

TECHNOLOGY	8:00 AM – 9:30 AM	10:00 AM – 11:30 PM	12:00 PM – 1:30 PM	2:00 PM – 3:30 PM	
3D/ADDITIVE MANUFACTURING		F60: Fundamentals of Additive Manufacturing 🟡	NEW! F70: Small & Large Format Printers for Additive Manufacturing 🟡	NEW! F80: How Additive Manufacturing Can Accelerate and Advance Your Design 🔴	
AUTOMATION		NEW! F61: Estimating and Job Costing for Industry 4.0 - The Science of Costing and the Art of Pricing 🟡	NEW! F71: The Full Potential of Automation and Lights-Out! 🔴	F81: IIoT Solutions to Better Manage Your Assets 🟡	
CUTTING		F62: Optimization of Cutting Metals with Fiber and Plasma Machining 🟡		F82: Comparative Cutting Innovations with Tech Tour 🟡	
FINISHING	NEW! C50: Lean and Green Cleaning 🔴	NEW! C60: Mother Earth Still Needs Our Help 🔴		C80: Identifying and Solving Finishing Defects - See It, Touch It, Fix It 🔴	
	NEW! C51: Powder System Design for Success 🔴	NEW! C61: How It's Made: Knowing Where Your Powder and Equipment Come From 🔴		C81: Lean and Mean - Making Powder Systems Work 🔴	
	NEW! C52: 1K, 2K, New K and Fluid Delivery Methods 🔴	NEW! C62: Oven Selection Solved 🟣		C82: Make Safety a Priority 🔴	
FORMING & FABRICATING		F63: Effective Safeguarding Risk Assessment 🟡	NEW! F73: Dust Collection for Fabrication Processes 🟡	F83: Sheet Metal Design and Press Brake Automation 🔴	
		F64: Coil Processing: Blanking Techniques and Handling Solutions 🔴	NEW! F74: Roll Forming: Design and Welding Techniques 🔴	F84: Roll Forming: Justification and In-Line Punching, Cutoff Dies 🔴	
LASER		NEW! F65: Quality & Control for Laser Joining Systems 🔴	NEW! F75: Accelerated & Combination Lasers for Sheet Metal 🔴	NEW! F85: Traditional & Fiber Laser Cutting for High Performance 🔴	
LEAN	NEW! F56: Lean Principle: Leadership and the Lean Journey 🟡	F66: Lean Tools: VSM Addressing Differences Between the Office and Shop Floor 🔴	F76: Lean Tools: A3 Thinking-Developing People & Solving Problems 🔴	F86: Lean Tools: Standard Work for Quality and Improvement 🟡	
MANAGEMENT	F57: Building a Competitive Advantage: Know What Your Business is Worth and Tax Credit Advantages 🟡	NEW! F67: The Dark Cloud Behind the Silver Lining: Economy in 2020 🟣	NEW! F77: Planning for the Future: The New Dawn of Manufacturing and Technology 🟡	NEW! F87: ERP Systems: Selection & Avoiding the ERP Technology Grim Reaper 🔴	
MARKETING & SALES	NEW! F58: Customer Experience for Manufacturers to Create Digitally-Powered Journeys That Help People Grow 🟡	NEW! F68: Sustainable Social Media Strategies 🟡	F78: Stengthen Your Marketing Through The Power of Story & Grow Your Revenue & Grow Your Team 🟡		
SMART MANUFACTURING	NEW! F59: Productivity, Performance & Quality Management for Smart Manufacturing 🔴	NEW! F69: Quit Making Excuses and Close the Loop - Now is the Time to Digitize 🔴	NEW! F79: From Rust-Belt to High-Tech: Transform, Ignite and Disrupt 🟣	NEW! F89: Artificial Intelligence for Machine Learning & Streamlining Quoting Process 🟣	
STAMPING	NEW! S50: Materials-1 🟣	NEW! S60: Materials-2 🔴		NEW! S80: Materials-3 🟡	
	NEW! S51: Connectivity-1 🟡	NEW! S61: Connectivity-2 🟡		NEW! S81: Connectivity-3 🟣	
WELDING FABRICATION		NEW! W600: Resistance & Arc Welding For Better Weldability and Hazard Reduction 🔴		NEW! W800: Improving Lightweight Materials Joining Through Friction Welding 🔴	
WORKFORCE DEVELOPMENT	NEW! F214: Engaging Manufacturing's Next Generation Through Full Contact Innovation 🟡	NEW! F215: Conflict & Communication For Strong Leadership 🟡	NEW! F216: Leadership Skills & Development Workshop 🔴 (12:00 PM - 4:30 PM)		
WELDING					
SEMINARS	W11: AWS Educational Overview of Welding Codes and Standards - Day 1			8:00 AM	5:00 PM
	W12: Applied Welding Metallurgy			8:00 AM	4:00 PM
	W13: WPS's for Weld Inspection and Test Taking Tips			8:00 AM	12:00 PM
CONFERENCES	W16: 5th International Electron Beam Conference - Day 1			8:00 AM	5:00 PM
PROFESSIONAL PROGRAM	W24: Session 4: Solid-State Processes			8:00 AM	12:00 PM
	Session 5: Surfacing & Dissimilar Joining			8:00 AM	12:00 PM
	Session 6: Welding Metallurgy I			8:00 AM	12:00 PM
	Session 7: Neural Networks & Machine Learning			1:40 PM	5:00 PM
	Session 8: Additive Manufacturing II			1:40 PM	5:00 PM
	Session 9: Welding Metallurgy II			1:40 PM	5:00 PM
RWMA SCHOOL	W22: RWMA Resistance Welding School - Day 1			8:00 AM	5:00 PM
EDUCATIONAL SESSIONS	W29: AWS/Weld-Ed Education Conference - Using Advanced Waveforms in Welding Education			9:00 AM	4:30 PM
SPECIAL PROGRAMS	W31: AWS Awards Luncheon			12:00 PM	2:00 PM

Detailed Education Program session descriptions, speakers, pricing, room locations and more can be found at [fabtechexpo.com/edu](http://fabtechexpo.com/edu).

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TECHNOLOGY	8:00 AM – 9:30 AM	10:00 AM – 11:30 PM	12:00 PM – 1:30 PM	2:00 PM – 3:30 PM
3D/ADDITIVE MANUFACTURING	<b>NEW! F90:</b> The ROI of 3D Printing: Analyze the Cost of Implementing 3D Printing for Your Business ■	<b>NEW! F100:</b> Impact and Quality Considerations for Additive Manufacturing ■	<b>F110:</b> Lasers and Additive Manufacturing Processes ■	<b>NEW! F120:</b> Safely Adopting Additive Manufacturing on The Production Floor ■
AUTOMATION	<b>NEW! F91:</b> Effective Automation for Joining in Emerging Technologies ■	<b>NEW! F101:</b> Integrating Robotic Automation into Your Process ■	<b>NEW! F111:</b> Which Robot Application is Right for Your Needs? ■	<b>NEW! F121:</b> Automating the Material Handling Process - Why Now is the Time ■
CUTTING		<b>F102:</b> Advantages of Waterjet Cutting Machining Technology ■		
FINISHING	<b>C90:</b> Architectural Coatings - Today and Future ■	<b>NEW! C100:</b> Conveying Effectively ■		<b>NEW! C120:</b> Quality Still Counts ■
	<b>C91:</b> Optimizing Powder Operations ■	<b>NEW! C101:</b> Mastering Batch Powder Coating Operations ■		<b>NEW! C121:</b> Powder Coating Troubleshooting ■
	<b>NEW! C92:</b> Creative Finishing Solutions ■	<b>NEW! C102:</b> Choose Your Weapon - Finding the Right Liquid Applicator ■		<b>NEW! C122:</b> Automation Roadmap for Liquid Finishing Operations ■
FORMING & FABRICATING	<b>NEW! F93:</b> A Modular Approach to Turning Non-Value-Added Time on a Press Brake into Productive Time ■	<b>F103:</b> Press Brake Safety ■	<b>NEW! F113:</b> Alternative Forming Processes ■	<b>NEW! F123:</b> Press Brake Hurdles ■
	<b>F94:</b> Roll Forming: Press Tonnage Rating and Welding Systems ■	<b>F104:</b> Tube & Pipe Lubricants, Bending and Case Studies in Tube Field Failures ■	<b>NEW! F114:</b> Alternative Techniques for Annealing, Testing and Grinding Abrasives ■	<b>F124:</b> Coil Processing: Slitting Thin Materials, Leveling & Deburring ■
LASER	<b>AWF100:</b> Laser Welding Workshop ■ (8:00 AM - 12:30 PM)			<b>NEW! F115:</b> The Use of Additive and Subtractive Lasers in Mold & Die ■
LEAN	<b>NEW! F96:</b> Lean Principle: Go to Gemba ■	<b>NEW! F106:</b> Lean Tools: Lean Production Shop to a Job Shop ■		
MANAGEMENT	<b>F97:</b> Lawsuit Protection, Tax Reduction & Estate Planning Strategies ■	<b>NEW! F107:</b> Win the Inner Game: Free Yourself of Overwhelm and See Your Highest Potential Come True ■	<b>NEW! F117:</b> Diagnose Your Business: How to Free Yourself from Budget Limitations by Finding and Unlocking Hidden Money in Your Operations ■	<b>F127:</b> Enable the Transition to Next Gen - Family Business ■
MARKETING & SALES	<b>NEW! F98:</b> Digital Recruiting Strategies & Data for Continuous Improvement ■	<b>F108:</b> Business Builders: Make Business Development a Competitive Advantage ■	<b>F118:</b> Protecting Original Design: The Importance of IP in Metal Forming ■	<b>NEW! F128:</b> A Marketing Framework: From Lead to Sale - Marketing Tools & Tips for Fabricators & OEMs ■
SMART MANUFACTURING	<b>NEW! F99:</b> The Smart Factory & Feasibility with Case Studies ■	<b>NEW! F109:</b> A.I. for Predictive Manufacturing: Zero-Downtime, Zero-Defects ■	<b>NEW! F119:</b> Prevent Digital Failure and Benchmark Your Performance ■	<b>NEW! F129:</b> Smart Manufacturing on Predictable ROI ■
STAMPING	<b>NEW! S90:</b> Stamping-1 ■	<b>NEW! S100:</b> Stamping-2 ■		<b>NEW! S120:</b> Stamping-3 ■
	<b>NEW! S91:</b> Sensors-1 ■	<b>NEW! S101:</b> Sensors-2 ■		<b>NEW! S121:</b> Quality & Tooling ■
WELDING FABRICATION		<b>NEW! W100:</b> Optimization of Welding Documentation and Continuity Efficiency using Computer Software ■		
WORKFORCE DEVELOPMENT	<b>NEW! F217:</b> Operational Excellence for Significant and Sustained Performance With Incentive Pay ■		<b>NEW! F219:</b> Leading Innovation & Change Initiatives in Your Organization ■	<b>NEW! F220:</b> Manage, Mentor and Develop Your New Workforce & Staff for The Future ■
WELDING				
SEMINARS	<b>W11:</b> AWS Educational Overview of Welding Codes and Standards - Day 2			8:00 AM 5:00 PM
	<b>W14:</b> "Welding" Don't Be Afraid to Ask			8:00 AM 4:00 PM
	<b>W15:</b> Stainless Steel Welding D1.6 Structure			8:00 AM 4:00 PM
CONFERENCES	<b>W16:</b> 5th International Electron Beam Conference - Day 2			8:00 AM 5:00 PM
CAREER PATH WORKSHOPS	<b>W19:</b> Development of a New Standard for Metal Additive Manufacturing: AWS D20.1/D20.1M, Specification for Fabrication of Metal Components Using Additive Manufacturing			9:00 AM 11:00 AM
PROFESSIONAL PROGRAM	<b>W25: Session 10:</b> Plenary Session			8:00 AM 9:00 AM
	<b>Session 11:</b> In-Situ Measurement Techniques			10:00 AM 12:00 PM
	<b>Session 12:</b> Honorary Symposium for Prof. D. Olson			10:00 AM 12:00 PM
	<b>Session 13:</b> Industrial Technology I			10:00 AM 12:00 PM
	<b>Session 14:</b> Process Sensing & Control			1:40 PM 5:00 PM
	<b>Session 15:</b> Honorary Symposium for Prof. D. Olson			1:40 PM 5:00 PM
RWMA SCHOOL	<b>Session 16:</b> Weldability			1:40 PM 5:00 PM
	<b>W22:</b> RWMA Resistance Welding School - Day 2			8:00 AM 5:00 PM

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3D/ADDITIVE MANUFACTURING	<b>NEW! F130:</b> How MES Transfers Data Efficiently Through The Additive Manufacturing Value Chain & Business Case Method <span>■</span>			
AUTOMATION	<b>NEW! F131:</b> Sensors, Maintenance and Platforms for Leveraging Technology <span>■</span>			
FINISHING	<b>NEW! C130:</b> Power Up and Hang On for Efficiency and Savings <span>■</span>			
	<b>NEW! C131:</b> Using the Dirty Dozen to Optimize Your Powder Coating <span>■</span>			
	<b>C132:</b> Test for the Best - Best Practices and Measurement Methods for Quality <span>■</span>			
LEAN	<b>NEW! F136:</b> Lean Principle: Science of Lean Culture and Case Studies <span>■</span>			
MANAGEMENT	<b>F137:</b> Making Better Decisions as a Business Leader & Tools for Management Success <span>■</span>	<b>NEW! F147:</b> Financing to Enable Growth & Achieve Project Improvement <span>■</span>		
SMART MANUFACTURING	<b>NEW! F139:</b> Smart Manufacturing to Successfully Implement the Trifecta; All in Real Time <span>■</span>			
WORKFORCE DEVELOPMENT	<b>NEW! F221:</b> How to Win With Personalities & Team Engagement <span>■</span>			
WELDING				
CAREER PATH WORKSHOPS	<b>W20:</b> Starting a Welding Inspection Business		8:00 AM	10:00 AM
	<b>W21:</b> Becoming a Certified Welding Accredited Test Facility for Testing Certified Welders		8:00 AM	11:00 AM
PROFESSIONAL PROGRAM	<b>W26: Session 17:</b> High Energy Processes		8:00 AM	12:00 PM
	<b>Session 18:</b> Industrial Technology II		8:00 AM	12:00 PM

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EXPERIENCE LEVELS

Use this key along with the Schedule-at-a-Glance to find the education level that meets your needs.

- **Basic** – Recommended for the attendee who is new to the industry or needs a refresher on the topic.
- **Intermediate** – Designed for the attendee who already has a basic understanding of the subject matter.
- **Advanced** – For the attendee with several years of experience who is seeking more in-depth information.

