

COURSE OVERVIEW ME0840
Roll Pass Design and Mill Operation

Course Title

Roll Pass Design and Mill Operation

Course Reference

ME0840

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Date/Venue



Session(s)	Date	Venue
1	February 08-12, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai UAE
2	May 10-14, 2025	Safir Meeting Room, Divan Istanbul, Turkey
3	October 25-29, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai UAE
4	December 06-10, 2025	Safir Meeting Room, Divan Istanbul, Turkey

Course Objectives



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.



This course is designed to provide participants with a detailed and up-to-date overview of roll pass design and mill operation. It covers the hot rolling concepts and the metallurgy of rolling for ferrous and non-ferrous metals; the different elements of roll pass design according to power, torque and separating force calculations; the development and use of spreadsheet for roll pass design calculation; rolling mill arrangements, mill layouts and various equipment considerations; and the characteristics of flat pass design, its types of flat products and their tolerances.



During this interactive course, participants will learn the aspects of rounds, rod pass designs and rolling sequences; the various types of angles, several angle products and their tolerances; the products, tolerances and sequence of beams and channels; and the several guiding and troubleshooting techniques in roll pass design and mill operation.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply proper techniques, tools and procedures on roll pass design and mill operation
- Review and update knowledge on hot rolling concepts and the metallurgy of rolling for ferrous and non-ferrous metals
- Determine the different elements of roll pass design according to power, torque, and separating force calculations
- Use a spreadsheet for roll pass design calculation
- Evaluate rolling mill arrangements and mill layouts including various equipment considerations
- Identify the characteristics of flat pass design through its types of flat products and their tolerances
- Recognize the aspects of rounds and rod pass designs and become acquainted with round rolling sequences
- Characterize the various types of angles as well as several angle products and their tolerances
- Enhance knowledge on beams and channels through their products, tolerances, and sequences
- Apply several guiding and troubleshooting techniques in roll pass design and mill operation

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

Who Should Attend

The course covers systematic techniques and methodologies on roll pass design and mill operation for roll pass designers, mill engineers, guide and set-up shop personnel, mill operators and mill management personnel who are interested or involved in the hot rolling of steel.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:-

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology’s courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant’s involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant’s CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Mark Schweitzer is an **International Expert in Rolling Mill & Steel Manufacturing** with over **25 years** of extensive experience in the industry. His expertise mainly covers the **design, manufacturing, process monitoring & engineering, power & load calculations, process audit & review, maintenance** and the **training** required for **steelmaking & the operation of rolling mills**. Currently, he is the **Managing Director of Falcata Inc. (DBA Capital Rolls)** wherein he spearheads the **major operations in steelmaking & providing rolls and guide to rolling mills**. At the same time, he is also the **President and Principle Engineer of Schweitzer Rolling Technology Inc.** that offers **design & process engineering** and provides **training programs** for existing and new ferrous and non-ferrous rolling mills.

With his **lengthy experience and indisputable expertise**, Mr. Schweitzer has built-up a formidable reputation in the **design, inspection, process engineering in steel manufacturing** and the **installation & maintenance of rolling mills**. Much earlier in his career life, he has worked with numerous international companies such as the **Morgan Construction Company, Quad Engineering and Steel of West Virginia** with prime positions such as a **Roll Pass Chief Engineer, Pass Design Services Manager, Roll Designer, Process Engineer, Project Manager, Pass Designer, CAM Programmer and CAD Draftsman** as well as a **Writer** and an **AutoCAD Instructor** in the University. Moreover, he has successfully handled numerous projects such as the **FEM simulation & analysis for Steel Dynamics**, a **Mill audit and Roll pass review for US Steel**, the **design, power and load calculations and setup sheets for Jindal Steel West**, the **design and simulation for Bayou Steel, Smorgon Steel, Atlantic Steel, Ameristeel, Franklin Industries, Steel Dynamics & Nucor Steel** and the **layout, design, power and load calculations for Arkansas Steel, Sheffield Steel, North Star Steel, Birmingham Steel and Ameri-Forge**.

Mr. Schweitzer has a **Bachelor** degree. He is a well-respected member of the **Association for Iron and Steel Technology (AIST)** and the **Arbeitsgemeinschaft Internationaler Kalibreure und Walzwerksingenieure (AIKW)**. Further, he is **Certified Instructor/Trainer**, a **Certified Master Roll Designer** and even heads the **Certification Review Board** for the **Institute of Roll Design (IRD)**.

Course Fee

Dubai	US\$ 10,000 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	US\$ 10,000 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 1030	Hot Rolling Concepts <i>The Metallurgy of Rolling • Plastic Deformation • Average Reduction and Elongation</i>
1030 – 1045	<i>Break</i>
1045 – 1130	Hot Rolling Concepts (cont'd) <i>Bite Angle Calculations and Limitations • Mass Flow • Introduction to Using a Spreadsheet for Roll Pass Design Calculation</i>
1130 – 1230	Roll Pass Design <i>Billet to Product • Rolling Plan • Breakdown Sequences</i>
1230 – 1245	<i>Break</i>
1245 – 1420	Roll Pass Design (cont'd) <i>Spread • Power, Torque and Separating Force Calculations • Creating and Using Power Curves</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 1030	Mill Layouts & Equipment Considerations <i>Historical Mill Arrangements • Reheating</i>
1030 – 1045	<i>Break</i>
1045 – 1130	Mill Layouts & Equipment Considerations (cont'd) <i>Rolling Mill Arrangements • Finishing Considerations</i>
1130 – 1230	Mill Layouts & Equipment Considerations (cont'd) <i>Mill Layouts • Continuous Mills</i>
1230 – 1245	<i>Break</i>
1245 – 1420	Mill Layouts & Equipment Considerations (cont'd) <i>Cross-Country Mills</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 – 1030	Flat Pass Design <i>Types of Flat Products and their Tolerances • Development of Spreadsheet for Calculation</i>
1030 – 1045	Break
1045 – 1130	Flat Pass Design (cont'd) <i>Flat Rolling Sequences • Developing & Using a Spreadsheet for Calculation</i>
1130 – 1230	Flat Pass Design (cont'd) <i>Example Flat Pass Design • Using a Spreadsheet for Calculation</i>
1230 – 1245	Break
1245 – 1420	Round & Rod Pass Design <i>Types of Round Products and their Tolerances • Round Rolling Sequences</i>
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 1030	Round & Rod Pass Design (cont'd) <i>Example Round Pass Design • Finishing Block Rolling</i>
1030 – 1045	Break
1045 – 1130	Angles <i>Angle Products and their Tolerances</i>
1130 – 1230	Angles (cont'd) <i>Angle Rolling Sequences</i>
1230 – 1245	Break
1245 – 1420	Angles (cont'd) <i>Example Angle Pass Design</i>
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 1030	Beams & Channels <i>Beam Products and their Tolerances • Beam Rolling Sequences • Example Beam Pass Design</i>
1030 – 1045	Break
1045 – 1130	Beams & Channels (cont'd) <i>Channel Products and their Tolerances • Channel Rolling Sequences • Example Channel Pass Design</i>
1130 – 1230	Guiding <i>Basic Guiding • Static Guides • Roller Guides • Shape Guiding</i>
1230 – 1245	Break
1245 – 1345	Troubleshooting <i>Defect Cause and Effects • Product Tolerances • Production</i>
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org