Roll Pass Design and Mill Operation Course
Toronto, Ontario, Canada
June 1st to 4th, 2020

Schweitzer Engineering and Rolling Technology, is offering a four-day Roll Pass and Mill Operations training course. During this time, we will cover the basics of metal deformation, the rolling of steel, and Roll Pass Design concepts. The course will provide the participants with the theoretical knowledge, practical skills, and confidence to deal with day-to-day roll pass, quality, and production issues.
Engineers and mill operators typically learn their craft in the mill from the more experienced workers. Rarely does the opportunity arise for the ability to step back and analyze the rolling process without the pressure of the production environment. This course offers that chance. We will study the roll pass design, equipment, and methods used in the production of hot rolled steel.

Course Objectives:

Upon the successful completion of the course, participants will be able to:

- Develop a good understanding of roll pass design and mill operation
- Become familiar with the hot rolling concepts and the metallurgy of rolling for ferrous and non-ferrous metals
- Determine the different elements of roll pass design and be able to calculate power, torque, and separating force
- Determine optimal rolling mill arrangements, layouts, and equipment
- Become aware of the characteristics of flat pass design, 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
- Understand beam, channel, and rail pass designs and associated products, tolerances, and rolling sequences
- Apply troubleshooting techniques in roll pass design and mill operation

Training Methodology:

The format for this course will include both lecture and practical instruction. In the lecture-style portion, we will study the scientific, metallurgical, and mathematical aspects of hot rolling while in the "hands-on" portion, we will answer specific questions related to steel production and create solutions for actual mill problems. The schedule is flexible and time will be available to address actual issues from the mills represented.

This interactive training course includes the following training methodologies as a percentage of total course hours:

70%	Lectures
20%	Workshops, Group Work and Practical Exercises
10%	Videos and Software

Course Outline:

I. Hot Rolling Concepts
- a.The metallurgy of rolling
- b.Plastic deformation
- c.Average reduction and elongation
- d.Bite angle calculations and limitations
- e.Mass flow

II. Roll Pass Design
- a.Billet to product
- b.Rolling plan
- c.Breakdown sequences
- d.Spread
- e.Power, torque, and separating force calculations
- f.Creating and using power curves

III. Mill Layouts and Equipment Considerations
- a.Historical mill arrangements
- b.Reheating
- c.Rolling mill arrangements
- d.Finishing considerations
- e.Mill layouts
- f.Continuous mills
- g.Cross-country mills

IV. Flat Pass Design
- a.Types of flat products and their tolerances
- b.Flat rolling sequences
- c.Example flat pass design

V. Rounds and Rod Pass Designs
- a.Types of round products and their tolerances
- b.Round rolling sequences
- c.Example round pass design
- d.Finishing block rolling

VI. Angles
- a.Angle products and their tolerances
- b.Angle rolling sequences
- c.Example angle pass design

VII. Beams and Channels
- a.Beam products and their tolerances
- b.Beam rolling sequences
- c.Example Beam pass design
- d.Channel products and their tolerances
- e.Channel rolling sequences
- f.Example channel pass design

VIII. Guiding
- a.Basic guiding
- b.Static guides
- c.Roller guides
- d.Shape guiding

IX. Troubleshooting
   a.Defect cause and effects
   b.Product tolerances
   c.Production

The above outline is only a suggested guideline for the subjects to be presented. The actual course content will be tailored to suit the needs of the participants.

Location:

The course will be held at the Ryerson University's International Living Learning Centre, 240 Jarvis Street, Room 212, Toronto, Ontario Continental breakfast, lunch, and coffee breaks will be provided. A welcome dinner on Monday night and a farewell lunch on Friday are also included in the course cost. Lodging, transportation, and other meals are the responsibility of the participants. It is advised that room reservations be made as far in advance as possible.

Who should attend:

This course is ideal for iron and steel industry production personnel such as managers, engineers, superintendents, supervisors, foremen and senior technicians. The course has been developed for those interested or involved in the hot rolling of steel. Typical participants will include roll pass designers, mill engineers, guide and set-up shop personnel, mill operators, and mill management personnel.

Results:

A workforce with a better understanding of the metallurgy of steel and the rolling process will translate directly to improved mill performance. The chance to make contact and discuss these issues with peers from other mills is an important component of the learning process. It is a revelation to many that other facilities wrestle with the same issues. The prospect of finding a solution to a pressing problem during the course discussion is a priceless investment.

Course Instructors

Mr. Mark Schweitzer BA, MBA, MRD is an International Expert in Rolling Mill and Steel Manufacturing with over 30 years of extensive experience in the industry. His expertise encompasses roll pass design, manufacturing and process engineering, training, and the design and operation of rolling mills. Currently, Mr. Schweitzer is the Managing Director of Capital Rolls which provides rolls and guides to rolling mills. At the same time, he is the President of Schweitzer Rolling Technology. Inc. offering roll pass design, process engineering, and training programs for ferrous and non-ferrous rolling mills. He has successfully executed numerous projects for all major steel companies. These include Steel Dynamics, US Steel, Jindal Steel, Bayou Steel, Smorgon Steel, Gerdau, Franklin Industries, and Nucor Steel.

With his lengthy experience and indisputable expertise, Mr. Schweitzer has built up a formidable reputation in his design, inspection, process engineering in steel manufacturing, the installation and maintenance of rolling mills. Earlier in his career life, he has worked for numerous international companies such as Steel of West Virginia, Morgan Construction Company, and others, fulfilling challenging roles as Operations Engineer, Chief Process Engineer, Pass Design Services Manager, and Chief Engineer, Roll Pass.

Mr. Schweitzer is a well-respected member of the Association for Iron and Steel Technology (AIST), the Arbeitsgemeinshaft Internationaler Kalibreure und Walzwerksingenieure (AIKW). Mr. Schweitzer is a Certified Master Roll Designer (MRD) and is a member of the Certification Review Board for the Institute of Roll Design (IRD).

Dr. Jalal Biglou, Ph. D., P. Eng., is a highly respected steel industry professional with a wide array of expertise in Rolling and Processing of long and flat products. Over the last 18 years, he has managed numerous projects in the areas of rolling process development, plant and equipment design, procurement, and trouble shooting for clients in all continents. He has developed Rolling and Ferrous Metallurgy courses and thought to industry professionals. He is currently the CEO of Schweitzer Rolling Technology Inc., conducting process engineering and development, project management, and training.

Fees:

The price for the training course as described above: $2,950 USD

Payment Schedule:

Please see course registration form. Course fees are accepted with registration. For registrations made with a purchase order, an invoice for the course fees will be issued 30 days before the course. Payment is due net 30 days after receipt of invoice.

Cancellation policy:

The following cancellation schedule is provided. Please note that substitutions are accepted at any time. Cancellation must be received in writing by:

After May 15, 2020: forfeiture of 15% fee paid
After May 25, 2020: forfeiture of 50% fee paid

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