

Fundamentals and Applications of Sheet Metal Forming

(1.5-day course)



FUNDAMENTALS OF SHEET METAL FORMING (DAY ONE)

Fundamentals of Sheet Metal Forming provides an introduction to fundamental aspects of sheet metal forming. All attendees will learn about common sheet metal stamping practices and fundamentals of material formability, lubrication, forming equipment and tooling in detail. This course is beneficial for designers, engineers, and managers who have roles and responsibilities in material formability/qualification, tooling design/maintenance, stamping quality check/process control, and purchasing of stamping/equipment/tooling.

COURSE TOPICS

The course covers the following topics:

1. Sheet Metal Forming - Introduction
2. Formability and Testing Methods
3. Friction and Lubrication
4. Tool Wear, Materials, Coatings and Treatments
5. Press Equipment – Mechanical, Hydraulic and Servomotor presses
6. Forming Dies, Cushion Systems, and Sensors
7. Quality Issues of Stampings – Springback, Wrinkle, and Fracture
8. Modeling and Simulation for Forming Process
9. Demonstration for Testing and Establishing the Forming Limit Curve

This course will start at 1 PM and end at 5 PM (including 30-minute lunchtime in the classroom) in order to provide sufficient time for instruction and discussion. All attendees will receive certification in the course and have an opportunity to take the next level course, Applications of Sheet Metal Forming.

APPLICATIONS OF SHEET METAL FORMING (DAY TWO)

Applications of Sheet Metal Forming introduces various industrial applications of sheet metal forming. Attendees will learn about basic forming applications such as blanking, bending, flanging, and deep drawing, as well as more advanced forming applications like hot stamping, warm forming, sheet/tube hydroforming, and incremental sheet forming. This course is beneficial for designers, engineers, and managers involved in new product development, stamping process engineering, tooling design/maintenance, stamping quality check/process control, and purchasing of stamping/equipment/tooling.



COURSE TOPICS

The course covers the following topics:

1. Blanking and Trimming
2. Bending, Flanging and Hemming
3. Drawing Round and Rectangular Parts
4. Forming of Advanced High Strength Steels
5. Hot Stamping
6. Warm Forming of Aluminum Alloys
7. Hydroforming of Sheet/Tube
8. Incremental Sheet Forming - Spinning, Shear Forming and Flow Forming
9. Demonstration for Deep Drawing and Effects of Blank Holder Force

This course will start at 8 AM and end at 5 PM (including 30-minute lunchtime in the classroom) in order to provide sufficient time for instruction and discussion. All attendees will receive certification in this advanced course.

INSTRUCTOR



Hyunok Kim is currently the Director of the EWI Forming Center. His technical expertise includes cold/hot forming technology, tribology in metal forming processes, and forming test / formability analysis / process simulations. Hyunok is an Ohio-certified Professional Engineer (PE) and also actively involved in teaching undergraduate and graduate students as an Adjunct Professor and instructor at The OSU College of Engineering. Hyunok received his M.S. at University of Michigan, and Ph.D. at The

Ohio State University in metal forming and manufacturing areas. Since joining EWI, he has contributed in consulting with small to large- sized metal forming companies, material suppliers, and various OEMs of automotive, heavy manufacturing and shipbuilding in various countries over 10 years. He is also actively networking with the metal forming industry to develop practical training courses for engineers and designers. He has authored and co-authored more than 50 technical papers and books on topics related to manufacturing and metal forming.

Visit ewi.org/ewi-forming-center or contact events@ewi.org for more information.

****Note: These courses may be taken together or independently of each other.***