



## CSIR Integrated Skill Initiative

*Online professional training programme*  
on  
*Alloy Design and Thermo-mechanical Processing*  
**(ADTP-2021)**

Organized  
by

CSIR-NML, Jamshedpur

November 22, 2021 to November 25, 2021

Last date of registration: November 16, 2021  
(confirmation by office or by payment)

Course Coordinators: Dr. G. K. Mandal/Dr. V. C. Srivastava

### **Program Schedule**

Theme	Time (Hrs)	Programme
Day-1: 22-11-2021 (Monday)		
Alloy design & thermo-mechanical processing fundamental	9:00 - 9:30	<b>Inaugural Programme</b>
		<b>Technical Programme</b>
	9:30 - 10:45	<b>Materials and process selection</b>  Dr. V. C Srivastava, Sr. Pr. Scientist
	11:00 - 12:15	<b>Alloy design fundamentals</b>  Dr. G. K. Mandal, Pr. Scientist
	14:15 - 15:45	<b>Fundamental of thermo-mechanical processing -1</b> <i>(Recovery, recrystallization, grain growth)</i> <b>Fundamental of thermo-mechanical processing -2</b> <i>(CCT/TTT/Phase transformation kinetics)</i>  Dr. S. G. Ghosh Chowdhury, Chief Scientist
	16:00 - 16:30	<b>Role of texture on material properties</b>  Dr. M. M. Humane, Sr. Pr. Scientist



<b>Day-2: 23-11-2021 (Tuesday)</b>		
<b>Thermo-mechanical processing of ferrous, non-ferrous and high entropy alloys</b>	9:30 - 11:00	<p><b>Forming processes</b> (Rolling/forging/ Extrusion/ Wire, rod and tube drawing/sheet metal forming/Hot stamping, and other processes) Mr. A.P. Murugesan, Pr. Scientist (9:30-10:15) Dr. Atanu Das, Sr. Scientist (10:15-11:00)</p>
	11:15 - 12:15	<p><b>Thermo-mechanical processing of non-ferrous alloys (Avanish/KLS)</b>  Dr. Minal Shah, Sr. Scientist (Al &amp; Mg; 11:15-11:45) Dr. Sumanta Pradhan, Scientist (Ni &amp; Cu; 11:45-12:15)</p>
	14:30 - 15:30	<p><b>Thermo-mechanical processing of special steels (Biraj/Minal/Gaurav)</b>  Mr. Biraj Sahoo, Sr. Scientist (Light weight &amp; Electrical; 14:30-15:00) Mr. Gaurav Bansal, Scientist (Q&amp;P, Medium Mn &amp; DP; 15:00-15:30)</p>
	15:45 - 17:00	<p><b>Concept of High Entropy Alloys and related thermo-mechanical processing</b>  Dr. Pinaki Bhattacharjee, Professor, Department of Materials Science and Engineering, IITH</p>
<b>Day-3: 24-10-2021 (Wednesday)</b>		
<b>Computational approaches and demonstration of thermodynamic software packages</b>	9:30 – 10:45	<p><b>Alloy design based on computational approaches</b> Prof. Shubhabrata Dutta, SRM Institute of Sci. &amp; Tech.</p>
	11:00 - 12:30	<p><b>Material and process design based on Thermodynamic (CALPHAD) approaches</b>  Mr. Snehashish Tripathy, Sr. Scientist</p>
	14:30 - 16:30	<p><b>Introduction to thermodynamic software package ThermoCalc</b> <b>Demonstration of ThermoCalc/Dictra/TC Prisma for alloy design</b>  Dr. G. K. Mandal, Pr. Scientist/Mr. Snehashish Tripathy, Sr. Scientist/Dr. Ashok K., Sr. Scientist</p>



<b>Day-4: 25-10-2021 (Thursday)</b>		
<b>AM materials &amp; Gleeble thermo-mechanical simulator</b>	<b>9:30 - 10:45</b>	<b>Alloy design and post processing of AM materials</b>  Dr. V. C Srivastava, Sr. Pr. Scientist
	<b>11:00 - 12:30</b>	<b>Introduction to Gleeble and industrial application of physical simulation in thermo-mechanical processing</b> <i>(Rolling and forging simulation)</i>  Dr. Subrata Mukherjee, Head, Mat. Characterization, R&D, TSL
	<b>14:00 - 15:30</b>	<b>Demonstration of Gleeble thermo-mechanical simulator (CCT, HAZ simulation, etc) and case studies</b>  Dr. Rajinikanth, Pr. Scientist/Mr. A.P. Murugesan, Sr. Scientist, Mr. Tipu Kumar, Sr. Tech. Officer
	<b>15:45 - 16:30</b>	<b>Feedback and concluding session</b>