



Physical Principles in Welding Processes II

WELDENG 4002

Credit Hours:

4.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Lab

Course Description:

Study of the application of physical principles in engineering of non-arc welding processes and equipment.

Prerequisites and Co-requisites:

Prereq: 2001 or 3001, and enrollment in the WeldEng-BS major or MatScEn-BS major; or permission of instructor.

Course Goals / Objectives:

- Understanding of major Resistance Welding processes, weld parameters, equipment, and applications
 - Understanding of the fundamentals and theory of Resistance Welding
 - Understanding of the fundamentals and theory of Solid-State Welding
 - Ability to describe and understand the major Solid-State Welding processes, weld parameters, equipment, and industrial applications
 - Understanding of the fundamentals and theory of High Energy Density welding processes
 - Ability to describe and understand Laser and Electron Beam welding processes, weld parameters, equipment, and industrial applications
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Course Topics:

- Fundamentals of Resistance Welding processes
 - Equipment, parameters, and applications for Resistance Welding processes
 - Laboratory experiments - Resistance Welding
 - Fundamentals of Solid-State Welding processes
 - Equipment, parameters, and application of Solid-State Welding processes
 - Fundamentals of Laser and Electron Beam Welding processes
 - Equipment, parameters, and application of Laser and Electron Beam Welding processes.
 - Laboratory experiments - Solid-State Welding
 - Laboratory experiments - Laser Welding
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Designation:

Required