COURSE: Modern and Robotic Joining Technologies of Conventional and Advanced Structural Materials
Contact person: Boris Ljubenkov, boris.ljubenkov@fesb.hr

Main topics:
• Conventional and Advanced Structural Materials – features, properties, joinability and industrial applications
• Overview of Contemporary Joining Technologies - principle of operation, features and industrial applications
• Basics of Robotic Joining Technologies - typical configurations and basic elements and industrial applications
• Laboratory Demonstrations and Hands on - Demonstration of Robotic Electric Arc Welding of Steels and Light alloys; Off-line Robotic Welding Program and on-line Robotic Welding Mode

Programme structure:
• course in 5 successive days (20 hours in total) – from Monday to Friday
• 4 h per day (3 h of lectures + 1 h of exercises or practical demonstrations)

Important dates:
Course dates: 02/09/2019 – 06/09/2019
Deadline for application: 01/09/2019
Confirmation of the course: 15/09/2019
Payment due by: 24/09/2019

Price of the course: 300 € (tax included)

Programme plan:
Day 1
INSIGHT in CONVENTIONAL and ADVANCED STRUCTURAL MATERIALS
Metallic Materials: Steels, Aluminium Alloys, Stainless Steels, Titanium and Titanium Alloys, Nickel Alloys, Magnesium and Copper and their Alloys
Composite Materials: MMC, PMC, CMC, Layered and Sandwich Composites. Functionally Graded Materials

Day 2 and Day 3
OVERVIEW OF SELECTED MODERN JOINING TECHNOLOGIES
Fusion and solid state welding processes - Electric arc welding, High energy beam welding processes, Friction

Programme lecturers:
Nikša Krnić, Ph. D. Assoc. Prof.
Associated Professor at the University of Split, Faculty of Electrical Engineering, Mechanical Engineering and naval Architecture, Dept. of Production Engineering, Welding Laboratory, 21000 Split, CROATIA
Domagoj Kojundžić, M. Eng. Mech. Eng,
Teaching/research assistant at the University of Split, Faculty of Electrical Engineering, Mechanical Engineering and naval Architecture, Dept. of Production Engineering, Welding Laboratory, 21000 Split, CROATIA
Technician and candidates for Master Degree in Mech.
Stir Welding, Micro Welding; Arc Brazing; Adhesive Joining, Hybrid Joining Technologies, Mechanical fastening.

**Day 4 and Day 5**

**BASICS OF ROBOTIC JOINING TECHNOLOGIES**

Robotic Welding Systems, On-line and off-line programming,

Welding Sensors and Control, Arc Welding, Additive Layer Manufacturing, Robotic welding solutions for Laser Beam Welding, Hybrid Laser – Arc Welding, Resistance welding,

Friction Stir Welding and Production of Layered Composite Materials.

Presentations of student-trainee’s works

Eng. on FESB with adequate knowledge and experience in related subject.

**Nikša Krnić, Ph. D. Assoc. Prof.**

Associated Professor at the University of Split, Faculty of Electrical Engineering, Mechanical Engineering and naval Architecture, Dept. of Production Engineering, Welding Laboratory, 21000 Split, CROATIA

**Domagoj Kojundžić, M. Eng. Mech. Eng,**

Teaching/research assistant at the University of Split, Faculty of Electrical Engineering, Mechanical Engineering and naval Architecture, Dept. of Production Engineering, Welding Laboratory, 21000 Split, CROATIA

Technician and candidates for Master Degree in Mech. Eng. on FESB with adequate knowledge and experience in related subject.