

# WELDENG 4595 (Proposed): Topics in Welding Engineering

## Course Description

Theory and application of novel and hybrid welding processes.

**Prior Course Number:** 695

**Transcript Abbreviation:** TOP WLD ENG

**Grading Plan:** Letter Grade

**Course Deliveries:** Classroom

**Course Levels:** Undergrad

**Student Ranks:** Senior

**Course Offerings:** Spring

**Flex Scheduled Course:** Never

**Course Frequency:** Every Year

**Course Length:** 14 Week

**Credits:** 2.0

**Repeatable:** No

**Time Distribution:** 2.0 hr Lec, 0.5 hr Lab

**Expected out-of-class hours per week:** 3.5

**Graded Component:** Lecture

**Credit by Examination:** No

**Admission Condition:** No

**Off Campus:** Never

**Campus Locations:** Columbus

**Prerequisites and Co-requisites:** WE 4002 or graduate level standing.

**Exclusions:** Not open to students with credit for WE 695, "Theory and Application of Novel and Hybrid Welding Processes"

**Cross-Listings:**

**The course is required for this unit's degrees, majors, and/or minors:** No

**The course is a GEC:** No

**The course is an elective (for this or other units) or is a service course for other units:** Yes

**Subject/CIP Code:**

**Subsidy Level:**

## Programs

Abbreviation	Description
WELDENG	Welding Engineering

## Course Goals

Understanding of the novel and hybrid welding processes being developed by industry and research organizations
Understanding of the theory behind novel and hybrid welding processes, and possible industrial applications

## Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Novel and hybrid welding process details and equipment	14.0							

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Novel and hybrid welding process theories and industrial applications	14.0							

## Grades

Aspect	Percent
Midterm #1	30%
Midterm #2	30%
Participation in brainstorming and discussion boards	20%
Proposal	20%

## ABET-EAC Criterion 3 Outcomes

Course Contribution		College Outcome
***	a	An ability to apply knowledge of mathematics, science, and engineering.
	b	An ability to design and conduct experiments, as well as to analyze and interpret data.
	c	An ability to design a system, component, or process to meet desired needs.
	d	An ability to function on multi-disciplinary teams.
**	e	An ability to identify, formulate, and solve engineering problems.
	f	An understanding of professional and ethical responsibility.
	g	An ability to communicate effectively.
	h	The broad education necessary to understand the impact of engineering solutions in a global and societal context.
	i	A recognition of the need for, and an ability to engage in life-long learning.
	j	A knowledge of contemporary issues.
***	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## WELDENG ABET-EAC Criterion 9 Program Criteria Outcomes

Course Contribution		Program Outcome
***	l	an ability to select and design welding materials, processes and inspection techniques based on application, fabrication and service conditions
*	m	an ability to develop welding procedures that specify materials, processes and inspection requirements
	n	an ability to design welded structures and components to meet application requirements

Prepared by: David Phillips