



## **Jig, Fixture and Gage Design**

**Course Code:** 28243  
**Credits:** 3  
**Course Type:** Theoretical  
**Prerequisites:** Machine Design 1  
**Course Length:** 51 hours

### **Outlines:**

#### **1. Basic Types and Functions of Jig and Fixtures**

- a. Purpose of Tool Design
- b. Types and Functions of Jigs and Fixtures
- c. Supporting and Locating Principles
- d. Clamping and Workholding Principles
- e. Basic Construction Principles

#### **2. Designing and Constructing Jigs and Fixtures**

- a. Template Jigs
- b. Vise-Held and Plate Fixtures
- c. Plate Jigs
- d. Angle-Plate Jigs and Fixtures
- e. Channel and Box Jigs
- f. Vise-Jaw Jigs and Fixtures

#### **3. Specialized Workholding Topics**

- a. Power Workholding
- b. Modular Fixturing
- c. Welding and Inspection Tooling
- d. Low-Cost Jigs and Fixtures

#### **4. Tool Design for Inspection and Gaging**

- a. Gaging Principles
- b. Gage Wear Allowance
- c. Gage Materials
- d. Gaging Policy
- e. Gage Measurement
- f. Gages Types

### **References:**

- 1- "Tool Design" , 2<sup>nd</sup>. Ed., H. W. Pollack, Prentic-Hall Int. Ed., New Jersey, 1988.
2. "Fundamental of Tool Design", SME Publication 4<sup>th</sup> ed., 1998.
3. "Tool Design", 3<sup>rd</sup> ed., Tata Mc Graw-Hill, 1973.
4. "Handbook of Jig & Fixture Design", SME Publication, 1989.
5. "Low-Cost Jigs, Fixtures & Gages for Limited Production", W.E.Boyes, SME, 1986.