Course Syllabus

WLDG1317 – Introduction to Layout and Fabrication

Catalog Description: A fundamental course in layout and fabrication related to the welding industry. Major emphasis on structural shapes and use in construction. Lecture Hrs = 3, Lab Hrs = 0

Prerequisite(s): WLDG 1423

Semester Credit Hours: 3
Lecture Hours per Week: 3
Lab Hours per Week: 0
Contact Hours per Semester: 48
State Approval Code: 4805080000

Course Subject/Catalog Number: WLDG 1317
Course Title: Introduction to Layout and Fabrication

Course Rationale:
The student will learn about basic weld joints, weld symbols, layout and fabrication of weldments. Emphasis on tape measure reading and welding math.

Instructional Goals and Purposes:
The purpose of this course is to provide the learners with a basic knowledge of welding joints, symbols and fabrication.

Learning Objectives:
After completing this course, the student should understand the codes, standards and cost of different types of welded joints.

Specific Course Objective:
Upon completion of this course, the student should be able to:

1. Understand the basics of joint design. SCANS (1ai, 1a, 1aii, 1aiii, 1av, 1bi, 1bii, 1biii, 1biv, 1b, 1ci, 1cii, 1ciii, 1cv, 1ci, 1cii, 1civ, 1cvi, 1cv, 1cvii, 1cviii, 1c, 1cii, 1ciii, 1civ, 1c, 1cii, 1ciii, 1cv, 1cvi, 2ai, 2a, 2aii, 2aiii, 2aiv, 2av, 2bi, 2bii, 2biii, 2biv, 2cv, 2c, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2ei, 2eii, 2eii, 2eiii)

2. Identify the major parts of a welding symbol. SCANS (1ai, 1a, 1aii, 1aiii, 1av, 1bi, 1bii, 1biii, 1biv, 1b, 1ci, 1cii, 1ciii, 1cv, 1ci, 1cii, 1ciii, 1cv, 1cvi, 2ai, 2a, 2aii, 2aiii, 2aiv, 2av, 2bi, 2bii, 2biii, 2biv, 2cv, 2c, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2ei, 2eii, 2eii, 2eiii)

3. Explain the parts of a groove preparation. SCANS (1ai, 1a, 1aii, 1aiii, 1av, 1bi, 1bii, 1biii, 1biv, 1b, 1ci, 1cii, 1ciii, 1cv, 1ci, 1cii, 1ciii, 1cv, 1cvi, 2ai, 2a, 2aii, 2aiii, 2aiv, 2av, 2bi, 2bii, 2biii, 2biv, 2cv, 2c, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2ei, 2eii, 2eii, 2eiii)

4. Describe how nondestructive test symbols are used. SCANS (1ai, 1a, 1aii, 1aiii, 1av, 1bi, 1bii, 1biii, 1biv, 1b, 1ci, 1cii, 1ciii, 1cv, 1ci, 1cii, 1ciii, 1cv, 1cvi, 2ai, 2a, 2aii, 2aiii, 2aiv, 2av, 2bi, 2bii, 2biii, 2biv, 2cv, 2c, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2ei, 2eii, 2eii, 2eiii)
5. List the five major types of joints.
   SCANS (1ai, 1aii, 1aiii, 1aiv, 1av, 1bi, 1bii, 1biii, 1bv, 1bvi, 1ci, 1cii, 1ciii, 1civ, 1cv, 2ai, 2aii, 2aiii, 1aiv, 2bi, 2bii, 2biii, 2bv, 2bvi, 2ci, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2eii, 2eiii)

6. List seven types of weld grooves.
   SCANS (1ai, 1aii, 1aiii, 1aiv, 1av, 1bi, 1bii, 1biii, 1bv, 1bvi, 1ci, 1cii, 1ciii, 1civ, 1cv, 2ai, 2aii, 2aiii, 1aiv, 2bi, 2bii, 2biii, 2bv, 2bvi, 2ci, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2eii, 2eiii)

7. Demonstrate ability to interpret blueprints
   SCANS (1ai, 1aii, 1aiii, 1aiv, 1av, 1bi, 1bii, 1biii, 1bv, 1bvi, 1ci, 1cii, 1ciii, 1civ, 1cv, 2ai, 2aii, 2aiii, 1aiv, 2bi, 2bii, 2biii, 2bv, 2bvi, 2ci, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2eii, 2eiii)

8. Lay out a welding project.
   SCANS (1ai, 1aii, 1aiii, 1aiv, 1av, 1bi, 1bii, 1biii, 1bv, 1bvi, 1ci, 1cii, 1ciii, 1civ, 1cv, 2ai, 2aii, 2aiii, 1aiv, 2bi, 2bii, 2biii, 2bv, 2bvi, 2ci, 2cii, 2ciii, 2civ, 2di, 2dii, 2diii, 2ei, 2eii, 2eiii)

Grading Policy:
Your Grade will be determined from:

1. Assignments (10%)
2. Lab work (30%)
3. Quiz's (10%)
4. Attendance (20%)
5. Exams (30%)

Textbook and Supplies Requirement:

1. Pen and Pencil
2. Notebook
4. Welding hood
5. Welding gloves
6. Safety Glasses
7. Boots
8. Welding shirt
9. Pliers
Secretary of Labor's Commission on Achieving Necessary Skills (SCANS)

1. BASIC SKILL COMPETENCIES

A. Basic Skills
   i. Reading: Locate, understand and interpret written information in prose and in documents such as manuals, graphs and schedules.
   ii. Writing: Communicate thoughts, ideas, information and messages in writing, and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
   iii. Arithmetic & Mathematical Operations: Perform basic computations and approach practical problems by choosing appropriately from a variety of mathematical techniques.
   iv. Listening: Receive, attend to, interpret, and respond to verbal messages and other cues.
   v. Speaking: Organize ideas and communicate orally.

B. Thinking Skills
   i. Creative Thinking: Generate new ideas.
   ii. Decision Making: Specify goals and constraints generate alternatives, consider risks and evaluate and choose the best alternative.
   iii. Problem Solving: Recognize problems and devise and implement plan of action.
   iv. Visualize ("Seeing Things in the Mind's Eye"): Organize and process symbols, pictures, graphs, objects, and other information.
   v. Knowing how to learn: use efficient learning techniques to acquire and apply new knowledge and skills
   vi. Reasoning: Discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.

C. Personal Qualities
   i. Responsibility: Exert a high level of effort and persevere toward goal attainment.
   ii. Self-Esteem: Believe in one's own self-worth and maintain a positive view of oneself.
   iii. Sociability: Demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
   v. Integrity & Honesty: Choose ethical courses of action.
2. WORKPLACE COMPETENCIES

A. Resources:
   i. Time: Select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
   ii. Money: Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
   iii. Material & Facilities: Acquire, store, allocate, and use materials or space efficiently.
   iv. Human Resources: Assess skills and distribute work accordingly, evaluate performance and provide feedback.

B. Interpersonal Skills:
   i. Participate as Member of a Team: Contribute to group effort.
   ii. Teach Others New Skills.
   iii. Serve Clients/ Customers: Work to satisfy customers’ expectations.
   iv. Exercise Leadership: Communicate ideas to justify position, persuade & convince others, responsibly challenge existing procedures & policies.
   v. Negotiate: Work toward agreements involving exchange of resources, resolve divergent interests.
   vi. Work with Diversity: Work well with men and women from diverse backgrounds.

C. Information:
   i. Acquire and Evaluate Information.
   ii. Organize and Maintain Information.
   iii. Interpret and Communicate Information.
   iv. Use computers to process information.

D. Systems:
   i. Understand Systems: Know how social, organizational and technological systems work and operate effectively with them.
   ii. Monitor & Correct Performance: Distinguish trends, predict impacts on system operations, and diagnose deviations in systems’ performance.
   iii. Improve or Design Systems: Suggest modifications to existing systems and develop new or alternative systems to improve performance.

E. Technology
   i. Select Technology: Choose procedures, tools or equipment including computers and related technologies.
   ii. Apply Technologies to Task: Understand overall intent and proper procedures for setup and operation of equipment.
   iii. Maintain and Troubleshoot Equipment: Prevent, identify, or solve problems with equipment, including computers and other technologies.