Communication skills in technology reading technical information drawings

Syllabus

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Course Title: Communication skills in technology reading technical information drawings

Course Code: N/A

Course Followers:

Students of Mechatronics Department in 1st semester of 1st year

Course Meeting Times

Tutorials: 1 session / week, 2 hours / session

Practices: 1 session / week, 3 hours / session

Lecture: 1 Lecture/week, 1 hours /lecture

Course Introduction

Student will be required to extract the necessary information from the various drawings and related documents in order to establish and carry out the maintenance requirements and to make valid decisions about the quality and accuracy of the equipment being maintained. Their responsibilities will require them to comply with organizational policy and procedures for obtaining and using the drawings and related specifications. They will be expected to

report any problems with the use and interpretation of the drawings and specifications that they cannot personally resolve, or that are outside their permitted authority, to the relevant people. They will be expected to work with minimal supervision, taking personal responsibility for their own actions, and for the quality and accuracy of the work that they carry out. Their underpinning knowledge will provide a good understanding of the types of drawings and documents used within a maintenance environment, and will provide an informed approach to applying instructions and procedures. They will read and interpret the drawings and documents used and will know about the conventions, symbols and abbreviations, in adequate depth to provide a sound basis for carrying out the maintenance activities to the required specification.

Course Objectives

Candidates will be required to:

a) Demonstrate their ability to read and evaluate engineering design drawings;

b) Demonstrate their ability to apply the principles of plane and descriptive geometries to solve engineering problems;

c) Model, orthographically and in three dimensions, problem situations utilizing the

Most appropriate methods and techniques;

d) Produce neat, clear and proportional drawings consistent with recognized codes and conventions;

e) Produce computer-generated drawings using computer-aided design software

Learning Outcomes

By the end of this unit students will be able to:

1. Understand Extract and interpret the required information from the data, documentation or specifications.
2. Explain the meaning of the different symbols and abbreviations found on the documentation.
3. Use information extracted from Technical/Technological drawings and related documentation.
4. Apply Record and/or communicate technical data and information using approved methods

Prerequisites: N/A.

Textbooks

The course textbooks are:

1. Technical Writing Essentials, Introduction to Professional Communications in the Technical Fields, Suzan Last
2. Technical Communication Toolbox, University of Missouri Department of Civil Engineering
3. DOE FUNDAMENTALS HANDBOOK, ENGINEERING SYMBOLOGY, PRINTS, AND DRAWINGS, Volume 1 of 2
4. DOE FUNDAMENTALS HANDBOOK, ENGINEERING SYMBOLOGY, PRINTS, AND DRAWINGS, Volume 2 of 2
5. Simmons, Colin, and Dennis Maguire. Manual of engineering drawing: Technical product specification and documentation to British and International Standards. Butterworth-Heinemann, 2012.

6. Goetsch, David L., et al. Technical drawing. Albany/Boston: Delmar Publishers, 2000.

Labs (or Tutorials/Exercise, Workshop)

· Labs and practices will be conducted during the weeks shown in the schedule. Each lab assignment involves one or more accomplishments which must be checked off by an instructor in the lab. The instructor will be available for help and lab check-off during those weeks in which a lab is in progress.

· Students must successfully complete a series of lab assignment works throughout the course. The instructor will gather a collection of work that demonstrates evidence of a range of techniques in this course.

· Labs and practices assignments must be done on your own. Skipping the lab and submitting work copied from someone else is a serious breach of ethics, and will be handled by the Committee on Discipline.

· Labs and practices assignments will be graded on a scale of 0 to 3 (3: lab complete, works, good job on pre- and post-lab; 2: lab mostly complete, reasonable job on pre and post lab; 1: lab partially done, marginal to poor job on pre- and post-lab; 0: lab not done, poor job on pre- and post-lab).

Midterm Exam

· One midterm exam for testing the learning outcomes will be given in this term. The exam will take place few days after Lab #7 for a two-hour duration.

· Students have to demonstrate that the learning outcomes from Lab #1 to Lab#7 have been achieved.

Final Exam

· A two-hour final exam will be given during the end-of-term exam week.

· Students have to demonstrate that the learning outcomes from Lab activities after the midterm exam had been achieved.

Calendar

The calendar provides information on the course's lab (Lab #), and exam (E) sessions.

SES #	TOPICS	KEY DATES
Lab and practice #1	Introduction to communication skills Ways of communicating Importance of gathering data from drawings	Lab and practice report #1 in
Lab and practice #2	Types of drawings Anatomy of a Drawing Mechanical and electrical drawings Examples of data that can be extracted from drawings	Lab and practice report #1 out Lab and practice report #2 in
Lab and practice #3	Introduction to the types of drawings, views, and perspectives Piping and Instrument Drawings (P&IDs) Electrical Single Lines and Schematics Electronic Diagrams and Schematics	Lab and practice report #2 out Lab and practice report #3 in
Lab and practice #4	Fabrication, Construction, and Architectural Drawings Drawing Format	Lab and practice report #3 out Lab and practice report

SES #	TOPICS	KEY DATES
	Views and Perspectives	#4 in
Lab and practice #5	Projections	Lab and practice report #4 out Lab and practice report #5 in
Lab and practice #6	Projection of Lines	Lab and practice report #5 out Lab and practice report #6 in
Lab and practice #7	Planes, Intersection of Solids	Lab and practice report #6 out Lab and practice report #7 in
E1	Midterm Exam	
Lab and practice #8	Solids in contact	Lab and practice report #7 out Lab and practice report #8 in

SES #	TOPICS	KEY DATES
Lab and practice #9	Graphical Statics	Lab and practice report #8 out Lab and practice report #9 in
Lab and practice #10	Layout and Presentation, Orthographic Projection	Lab and practice report #9 out Lab and practice report #10 in
Lab and practice #11	Dimensioning and tolerances	Lab and practice report #10 out Lab and practice report #11 in
Lab and practice #12	Symbols	Lab and practice report #11 out Lab and practice report #12 in
Lab and practice	Freehand sketches	Lab and practice report #12 out

SES #	TOPICS	KEY DATES
#13		Lab and practice report #13 in
E2	Final Exam	

Grading (or Assessment) Policy

Initial grading will be based on the following weighting:

ACTIVITIES	PERCENTAGES
Labs (performance & reports)	60%
Midterm Exam (Practice)	20%
Final Exam (Practice)	20%

- Lab assignments will be graded on a scale of 0 to 3

  i) 3: lab complete, works, good job on pre- and post-lab;

  ii) 2: lab mostly complete, reasonable job on pre and post lab;

  iii) 1: lab partially done, marginal to poor job on pre- and post-lab;

  iv) 0: lab not done, poor job on pre- and post-lab.

- Midterm & Final Exam will be grade on a scale of 0 to 3 according to the degree of achievement in each learning outcome.

  i) 3: complete achievement in learning outcome;

  ii) 2: mostly complete, reasonable achievement in learning outcome;

  iii) 1: partially done, marginal to poor achievement in learning outcome;

iv) 0: not done, poor achievement in learning outcome.

NO.	LEARNING OUTCOME	ASSESSMENT CRITERIA
1	Understand Extract and interpret the required information from the data, documentation or specifications.	• Lab experiments • Sketches • Reports • Discussions
2	Explain the meaning of the different symbols and abbreviations found on the documentation.	• Lab experiments • Sketches • Reports • Discussions
3	Use information extracted from Technical/Technological drawings and related documentation.	• Lab experiments • Sketches • Reports • Discussions
4	Apply Record and/or communicate technical data and information using approved methods	• Lab experiments • Sketches • Reports • Discussions

· This will be followed by considerable discussion among the entire teaching staff to factor in your diligence on the labs, and your participation in class and labs. This discussion can affect your letter grade for the course, particularly if your initial grade is on a letter-grade boundary.