

EN 452
Mechanical Drawing

1 Credit

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EN 452 Version: 3



Mechanical Drawing

Calendar Description

Pictorial drawings, geometrical constructions, orthographic, isometric and oblique drawing, sectioning and dimensioning are topics of study. The students are also exposed to the interpretation of industrial drawings including flow diagrams, piping drawings and charts.

Rationale

This course has been developed to fill the gap of Second Class Power Engineer's created by the generation of retiring power engineers.

Industry has shifted their focus from employing the lower level of certification of power engineers to the higher level of certification.

Upon successful completion of this program the student is eligible for a 9 month reduction in qualifying time granted by ABSA.

The six parts of the program are divided into 15 courses where the student has the option of registering for individual courses, Part A, Part B, or both Part A and Part B.

Prerequisites

EN 310, EN 320, EN 410, EN 420, or Third Class Power Engineer's Certificate of Competency.

Co-Requisites

None

Course Learning Outcomes

Upon successful completion of this course, the student will be able to

1. interpret the information provided in orthographic, isometric, and oblique projections.
2. draw the top, front and end orthographic views from the pictorial drawing provided.
3. construct an orthographic drawing with dimensioning and sectioning.
4. construct an orthographic drawing with an auxiliary view.

5. construct an orthographic drawing with the intersection of pipes.
6. construct an orthographic drawing with surface development.
7. construct an isometric or oblique pictorial drawing from the orthographic drawing provided.
8. interpret the information provided in process flow diagrams.
9. interpret the information provided in process and instrument drawings (P&IDs).
10. explain the use of isometric piping system and spool drawings in piping systems.

Resource Materials

Required Text:

Power Engineer Second Class (2015) B-1 Prime Movers. 2nd ed. Calgary, AB: PanGlobal Training Systems Ltd.

Recommended Material:

(Should be available in College Library Reference Material)

T. P. Olivio, & Dr. C. T. Olivio. *Basic Blueprint Reading & Sketching.* 9th ed. Delmar Cengage Learning.

H. G Beck. *Reeds Marine Engineering and Technology Volume 11, Engineering Drawings for Marine Engineers.* 2nd ed. Adlard Coles Nautical.

NOTE: Additional resource material are provided or accessed through D2L.

Conduct of Course

This course follows the syllabus as set out by the Standardization of Power Engineer's Examination Committee (SOPEEC) and the curriculum recommended by the Interprovincial Power Engineer Curriculum Committee (IPECC).

This course is delivered face to face and includes class lectures, group discussions, demonstrations, assignments and projects. Cutaway models and or actual equipment may be used to support demonstrations and instruction. Where applicable video clips may be used to support demonstrations and instruction. D2L is used as a support educational resource.

This course consists of one chapter. There are assignment questions, a Midterm Exam and a Final Exam.

Evaluation Procedures

Lakeland College is committed to the highest academic standards. Students are expected to be familiar with Lakeland College policies related to academic conduct and academic honesty and to abide by these policies.

The marking scheme for this course is:

Assignments	50%
Midterm Exam	20%
Final Exam	30%

The contents and date of the Midterm Exam is determined in class.

All questions are written and/or mechanical drawings.

A minimum grade of 65% is required to pass this course.

The final exam for this course will be part of a combined 2B1 Final Exam for the semester.

A minimum grade of 50% is required on the Final Exam to pass this course.

Students seeking a qualifying time reduction from ABSA must obtain a passing grade for each course in this program, and must satisfy the 80% attendance requirement.

Students may receive a certificate from Lakeland College without the attendance requirement, but they do not qualify for steam time reduction.

Grade Equivalents and Course Pass Requirements

A minimum grade of C+ (65%) is required to pass this course.

Letter	F	C+	B-	B	B+	A-	A	A+
Percent Range	0-64	65-69	70-74	75-79	80-84	85-89	90-94	95-100
Points	0.00	2.30	2.70	3.00	3.30	3.70	4.00	4.00

Attendance

In order to be successful in this course, it is recommended that students attend classes every day. Completion of this course for qualifying time reduction requires a minimum of 80% attendance in all classes. For special circumstance, please refer to the Student Handbook.

Tardiness is disruptive to the class. Each time a student is late for a class, it is counted as one hour absent.

Course Units/Topics

Mechanical Drawing

1. Industrial drawings (Process Flow; P & ID; Isometric Piping)
2. Orthographic drawings (Dimensions; Sections; Auxiliary views; Surface developments; Intersection of pipes)
3. Isometric and oblique pictorial drawings

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