

**NEW YORK CITY COLLEGE OF TECHNOLOGY**  
**The City University of New York**

**DEPARTMENT:** Electrical and Telecommunications  
Engineering Technology

**SUBJECT CODE** EET2251/ET452  
**AND TITLE:** Electric Machines Laboratory

**COURSE DESCRIPTION:** Experiments are performed to enhance the understanding of the principles of operation of machines studied in EET2150/ET322, to develop proficiency in wiring the machines and associated controls, in checking circuitry, in using power test equipment and report writing.

**PREREQUISITE:** EET2150/ET322

**TEXTBOOK:** Department Laboratory Manual

**COURSE OBJECTIVES/  
COURSE OUTCOMES:** Upon completion of this course the student will possess a working knowledge of the construction, operation and wiring of the following machines, as well as writing reports of their laboratory efforts

1. DC Motors and Generators. (ABET Criteria 2a, 2b, 2c, 2d, 2e, 2f, 2h, 2i)
2. AC Motors and Alternators, both single and three phase. (ABET Criteria 2a, 2b, 2c, 2d, 2e, 2f, 2h, 2i)
3. Single and Three Phase Transformers. (ABET Criteria 2a, 2b, 2c, 2d, 2e, 2f, 2h, 2i)

**TOPICS:** Topics include the relationships between the magnetic field/ electrical generation and mechanical motion of electrical machines. Safety is also emphasized in the operation of this machinery

**LAB HOURS:** 3

**CREDITS:** 1

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**GRADING POLICY:** ET1202/ET205

Laboratory Reports	50%
Midterm Exam:	20%
Final Exam	30%

<u>Letter Grade</u>	<u>Numerical Grade Ranges</u>	<u>Quality</u>
A	93-100	4.0
A-	90-92.9	3.7
B+	87-89.9	3.3
B	83-86.9	3.0
B-	80-82.9	2.7
C+	77-79.9	2.3
C	70-76.9	2.0
D	60-69.9	1.0
F	59.9 and below	0.0

## **WEEKLY SCHEDULE**

<b>WEEK</b>	<b>TOPIC or Experiment</b>
1	Course requirements, Grading Method, Lab Report format and requirements, Lab safety, Working in the Laboratory group
2	Magnetization curve of the DC Generator
3	Efficiency of a DC Shunt Motor by the Stray Power Method
4	Shunt and Compound Generators
5	Shunt and Compound Motors
6	Dynamometer test of a DC Series Motor
7	Mid Term Examination
8	Ward Leonard Method of speed control
9	Efficiency and Regulation of a Single Phase Transformer
10	Poly-Phase Transformer Connections
11	Poly-Phase Transformer Connections Cont'd
12	Squirrel-Cage Induction Motor
13	Three phase Alternator Regulation
14	Review
15	Final Exam