

Developing an E-Book and Other Interactive Instructional Materials for Technical Education in Vacuum Technology (NSF New-to-ATE Project #2000454)

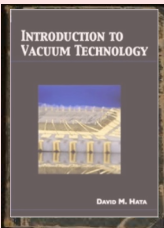
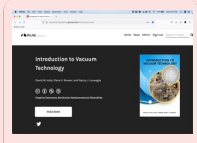
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Project Goal


Enhance the quantity and quality of vacuum technicians through the development of open-source resources such as E-book, laboratory manual, and instructor's guide supplemented by various interactive, visual and video content suitable for technician-level education.

Results and Developed Resources

1. Introduction to Vacuum Technology E-book

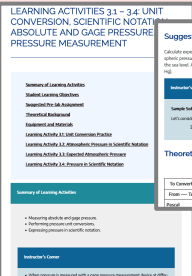




E-Book Link:




SCAN ME

2. Student Lab Manual and Instructor's Guide

Suggested Pre-lab Assignment

Calculate expected atmosphere pressure for your location using the fact that atmospheric pressure drops by about 1 inch of mercury for every 1000 feet of elevation above sea level. Assume that standard atmosphere pressure at 20 inches of mercury is 29.92 inHg.

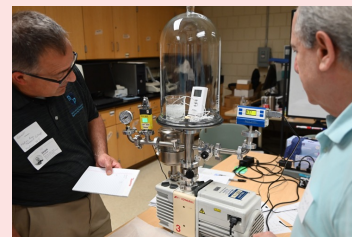


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3. Professional Development Workshop

Teaching Rough Vacuum Technology On-Site, Hands-On Professional Development Workshop, June 2023):

- ◆ 12 faculty participated in the professional development workshop's hands-on activities



- ◆ Workshop was so successful that MNT-EC is planning to fund **2 more rough vacuum workshops in Summer 2024** (stay tuned)



4. Dissemination

- ◆ OER Site (published): <https://milneopentextbooks.org/introduction-to-vacuum-technology/>
- ◆ Project Website: <https://ate.is/vacuum-tech>
- ◆ Industry (submitted): www.kurtlesker.com
- ◆ Professional Societies (submitted): <https://avs.org/>

INTRODUCTION TO VACUUM TECHNOLOGY



From SMEs Reviews:

*"I like that the book is able to define things in everyday language that would be approachable to someone new to vacuum tech that does not already have a four-year science or engineering degree."
 "The gas characteristics animations are cool and informative."*

From Student's Pilot Testing of e-book:

*"Well put together - excellent interactive components, informative videos. I wish more textbooks would follow this teaching method."
 "Very easy to use and read, read it through in its entirety to study for my final and the quizzes were a real help."*

From Professional development Workshop:

*"The equipment was first rate and there was every opportunity to take advantage of it."
 "The most effective part of the workshop was the personal interactions with the attendees and instructors."*

From Students' Pilot Testing of e-book:

*"Great technical clarity and graphics to help illustrate the content."
 "In my opinion this book has been more useful than many of the other textbooks I've used in recent time."*

Faculty Feedback:

"Easily readable by students at this level. Liked the animations and video links provided in the electronic text."



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