

Boston University, College of Engineering

ME 500 A1: QUANTUM DOTS FOR THE FUTURE OF TECHNOLOGY SPRING 2021

LECTURE: MW 12:20 PM – 2:05 PM, PHO 201

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In previous courses to date, we have taught the past. In this course, however, we will focus the future, and a textbook does not exist yet.

This course at its core covers current modern applications of quantum dots (QD). Classes will be informative and full of lively, thought-provoking discussion. Students are expected to attend all class meetings.

COURSE OUTLINE:

- I. Introduction of elementary quantum mechanics concepts and theory
- II. Properties of QD
- III. State-of-the-art applications, including but not limited to:
 - ablation of the right chambers during arrhythmia,
 - vert early detection of malignancy,
 - cancer surgery,
 - prosthesis communication with the brain,
 - solar panels huge increase in efficiency and durability,
 - quantum computing and its future,
 - 3D television development,
 - and application of QD to vaccine development.

Students are expected to attend and participate in all class meetings. There will no exams in this module. Final grades will be determined by attendance, participation, a report on a topic of the student's choice, and a 10-minute final presentation.