Howard University
Department of Electrical and Computer Engineering

EECE401 Senior Design 1
W 1:10 - 4:00pm LKD3121

Catalog Description:
3crs. Fundamentals of design principles and engineering applications, design methodologies with analysis, synthesis and evaluations. the impact of engineering economy, ethics, and alternative solutions will be discussed .

Pre-req:
Senior Status (Definition: A student who has taken course credits of 97 hours or more.)

Instructor and Coordinator:
Dr. Charles Kim
202-806-4821

Office Hours:
TR 10 - 12 & by appointment

Text:
No Textbook is required.

References:
1. Becoming a Technical Professional, by Vern Johnson and Reid Bailey, published by Kendal/Hunt Publishing Co. 3rd Edition. ISBN 13:978-0-7575-2765-4.
2. Design for Electrical and Computer Engineers, by Salt and Rothery. Wiley publication
3. Design for Electrical and Computer Engineering, by Ford and Coulston. McGraw-Hill

Goals:
This course introduces the engineering design principles, "applying technical knowledge to meet people's needs," and the process of design to meet the needs. Also, students learn how to become an effective team member and an effective communicator by practice. Most of all, the main goal of the course is to give students the design experience.

Topics:
1. Engineering Design Overview
2. Problem Formulation
3. Problem Solving
4. Solution Implementation
5. The Art and Science of Creativity
6. Project Management
7. Soft Skills - communication, ethics, social impact, sustainability
8. Applying a design process to meet a set of needs
9. Design

Grading Policy:
1. Individual Grading (by instructor) (I):
   Attendance (10%), Presentations + Others (10%), Final Exam (10%)
2. Group Grading (by instructor and advisor) (G):
   Assignments (10%), Project Progress (30%), Team Presentations (20%), Project Binder (10%)
3. Grading by Peers: Peer evaluation (P): $0.0 <= P <= 1.0$
4. Overall Grade**:** $I + 0.6*G + 0.4*G*P$

Course Grade:

100 - 90	A
89 - 80	B
79 - 70	C
69 - 60	D
59 <	F

Safety/Ethics: Safety and professional ethics are emphasized in this course. See "safety manual."

ABET category Content: Engineering Science 1.0
Engineering Design: 2.0

Learning Outcomes:

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability. *Must be able to apply standard, regulation, and restriction to the selected design project.*

(g) Students should obtain an ability to communicate effectively, *Must be able to present progresses and proposals with confidence in oral and written media.*

(j) Students should obtain knowledge of contemporary issues. *Must understand the issues and their impact to engineering and engineering design so that the design carries the impacts as restrictions.*

SPECIAL NOTE:

Howard University is committed to providing an educational environment that is accessible to all students. In accordance with this policy, students in need of accommodations due to a disability should contact the Office of the Dean for Special Student Services for verification and determination of reasonable accommodations as soon as possible after admission to the University, or at the beginning of each semester. The Dean of the Office of Special Student Services, Dr. Barbara Williams, can be reached at (202) 238-2420.

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A few words of advice:

1. Project topics will be provided for team-based projects
2. Previous failures are from:
    (a) Lack of hands-on skills
    (b) Lack of Microprocessor and interface with sensors
    (c) Poor time management
    (d) Shaky team dynamics
3, Previous successes are from:
    (a) Good team dynamics
    (b) Initiatives and willingness
    (c) Frequent meetings and gatherings
    (d) String background in implementation and experimentation skills