

Howard University
Department of Electrical and Computer Engineering

EECE401 Senior Design 1 (3 crs)
W 1:10 - 4:00pm LKD 1002

Catalog Description:	Fundamentals of design principles and process for engineering problem solving which include problem formulation, design requirement, solution generation, solution implementation, and solution evaluation in team environments.
Pre-req:	Senior Status
Instructor:	Dr. Charles Kim 202-806-4821 ckim@howard.edu
Office Hours:	TRF 1400 - 1600
Text:	No Textbook is required.
References:	<ol style="list-style-type: none">1. <u>Becoming a Technical Professional</u>, by Vern Johnson and Reid Bailey, published by Kendal/Hunt Publishing Co. 3rd Edition. ISBN 13:978-0-7575-2765-4.2. <u>Design for Electrical and Computer Engineers</u>, by Salt and Rothery. Wiley publication3. <u>Design for Electrical and Computer Engineering</u>, 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. Emphasis of this course is the first part of the design process: problem formulation with design requirement and proposal writing/presentation based on the problem formulation. Also a new framework for faculty-student team research, vertically integrated projects (VIP), is introduced and applied by which the students in the class work together with a faculty advisor, graduate students, and other students in different disciplines and different levels.
Topics:	<ol style="list-style-type: none">1. Engineering Design Overview2. Problem Formulation3. Functional and Design Requirements4. Art and Science of Creativity5. Soft Skills – communication ethics, social impact, and sustainability6. Project Management7. Rules, regulations, standards, and constraints to comply
Class Schedule:	August: Introduction to the Class September: Engineering Design Process; Project Team Introduction and Selection October: Team Works in and out of class November: Presentations on the progress December: Final Exam
Grading:	Individual Grading (I): Attendance (10%), Individual works (10%), and Final Exam (10%) Group Grading (G): Team activities (20%), Team Assignment (20%), and Faculty Advisor’s Grade on Team Works and Participation (30%) Grading by Peers: Peer evaluation (P): $0.0 \leq P \leq 1.0$ <u>Overall Grade:</u> $I + 0.6*G + 0.4*G*P$

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. Minimum Competence-*Must be able to apply standard, regulation, and restriction to the selected design project.*

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

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 can be reached at (202) 238-2420.

Howard University takes sexual assault, dating violence, domestic violence, stalking and sexual harassment seriously. If a student reveals that he or she needs assistance with any of these issues, all Responsible Employees, which includes faculty, are required to share this information with the University Title IX Office (806-2550) or a student can be referred for confidential services to the Interpersonal Violence Prevention Program (IVPP) (238-2382) or University Counseling Services (806-6870). For more information about these services, please go to www.CampusSafetyFirst.Howard.Edu