

**College of Engineering and Architecture**  
**COURSE SYLLABUS**

**1. Course number and name**

EECE401 Senior Design I

**2. Credits and contact hours**

3 credits and 3 hours per week (M: 1:10 – 4:00 pm)

**3. Instructor name**

Dr. Charles Kim (202-806-4821; ckim@howard.edu; 3014 LKD)

**4. Text book, title, author, and year**

Text: 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.

Ref: (a) Design for Electrical and Computer Engineers, by Salt and Rothery. Wiley publication.

(b) Design for Electrical and Computer Engineering, by Ford and Coulston. McGraw-Hill

**5. Specific course information**

- a. brief description of the content of the course: The course 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.
- b. prerequisites or co-requisites: Senior Standing
- c. indicate whether a required, elective, or selected elective course in the program: A required course for Electrical Engineering Program and Computer Engineering program.

**6. Specific goals for the course**

- a. Specific Course Learning Objectives of Instruction: The student will be able to understand the steps of engineering design process; team playing in inter-disciplinary team environments; formulation and solving engineering problems; become a good technical communicator; and be aware of contemporary issues related with engineering design.
- b. ABET student outcomes addressed by the course: (c) The 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; (d) The ability to function on multi-disciplinary teams; (e) The ability to identify, formulate, and solve engineering problems; (g) The ability to Ability to communicate; (i) Recognizes the need for Life-long learning; and (j) The knowledge of contemporary issues

**7. Brief list of topics to be covered**

- a. Engineering Design Overview
- b. Problem Formulation
- c. Functional and Design Requirements
- d. Art and Science of Creativity
- e. Soft Skills – communication ethics, social impact, and sustainability
- f. Project Management
- g. Rules, regulations, standards, and constraints to comply