

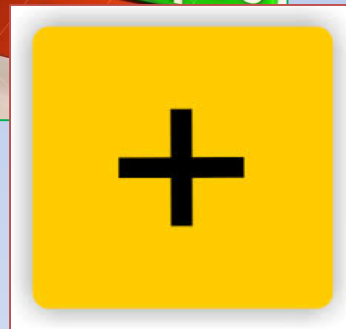
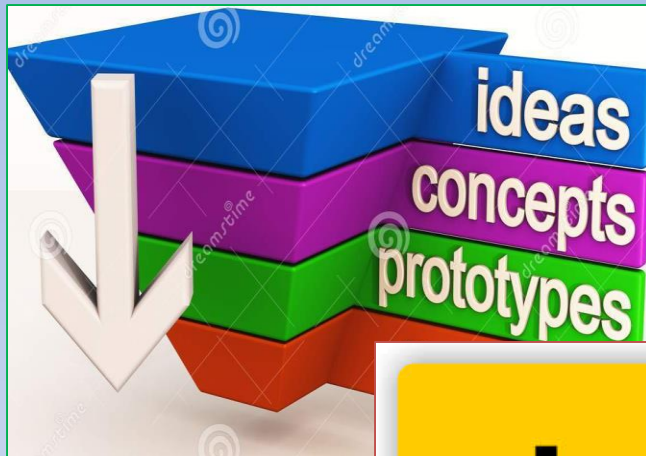


College of Engineering
GE106: Introduction to Engineering Design

Course Introduction and Overview

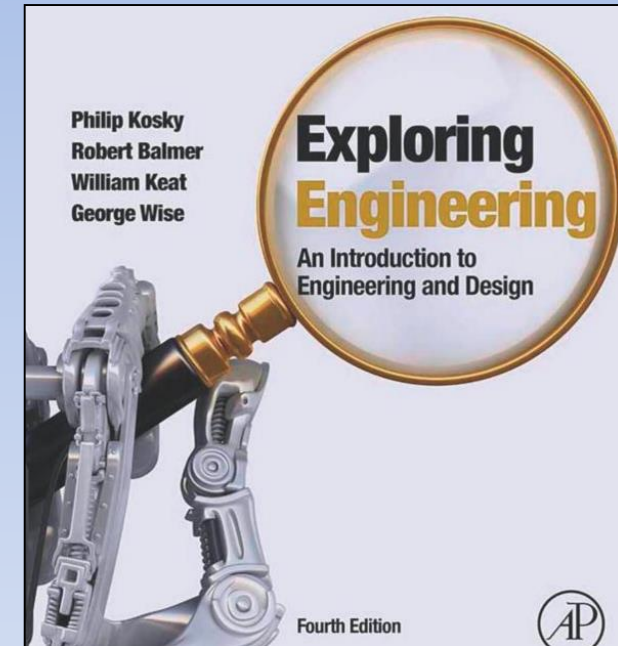
By

Matthew Amao



Basic Course Information

- **Credits: 3(1,1,2)**
- **Prerequisites: GE-104**
- **Session Codes: 76476, 76477, 76478**
- **Your Instructor: Dr. Abiodun 'Matthew' Amao**
- ***Class Text:* Exploring Engineering: An Introduction to Engineering and Design (4th Edition) by Philip Kosky, Robert T. Balmer, William D. Keat and George Weise**
- **Class Days and Times**
 - **Lectures : Mondays, 8:00-9:50 am**
 - **Tutorials : Mondays, 3:00-3:50 pm**
 - **Studios: Wednesdays, 8:00-9:50 am**



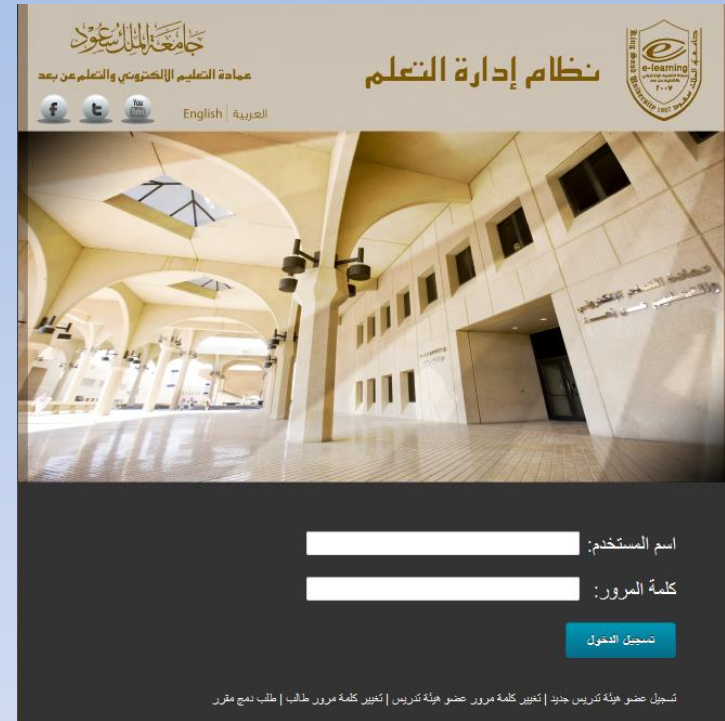
Course Instruction Styles

- **Lecture** : “Normal” Classes
- **Studios**: Design project
classroom activities
practicing various skills
intensive discussions
group dynamics
- **Tutorials**: Help with
homework assignments and
exams
Solving problems



Course Resources

- Your Instructor
 - Office number **2B-77**
 - Office hours (see outline)
 - Email: **aamao@ksu.edu.sa**
- Your teaching assistant
- Lecture slides
- Studio slides
- Course materials on website (<http://fac.ksu.edu.sa/aamao>)
- Class textbook
- University Library
- The Internet (Use of Search Engines)

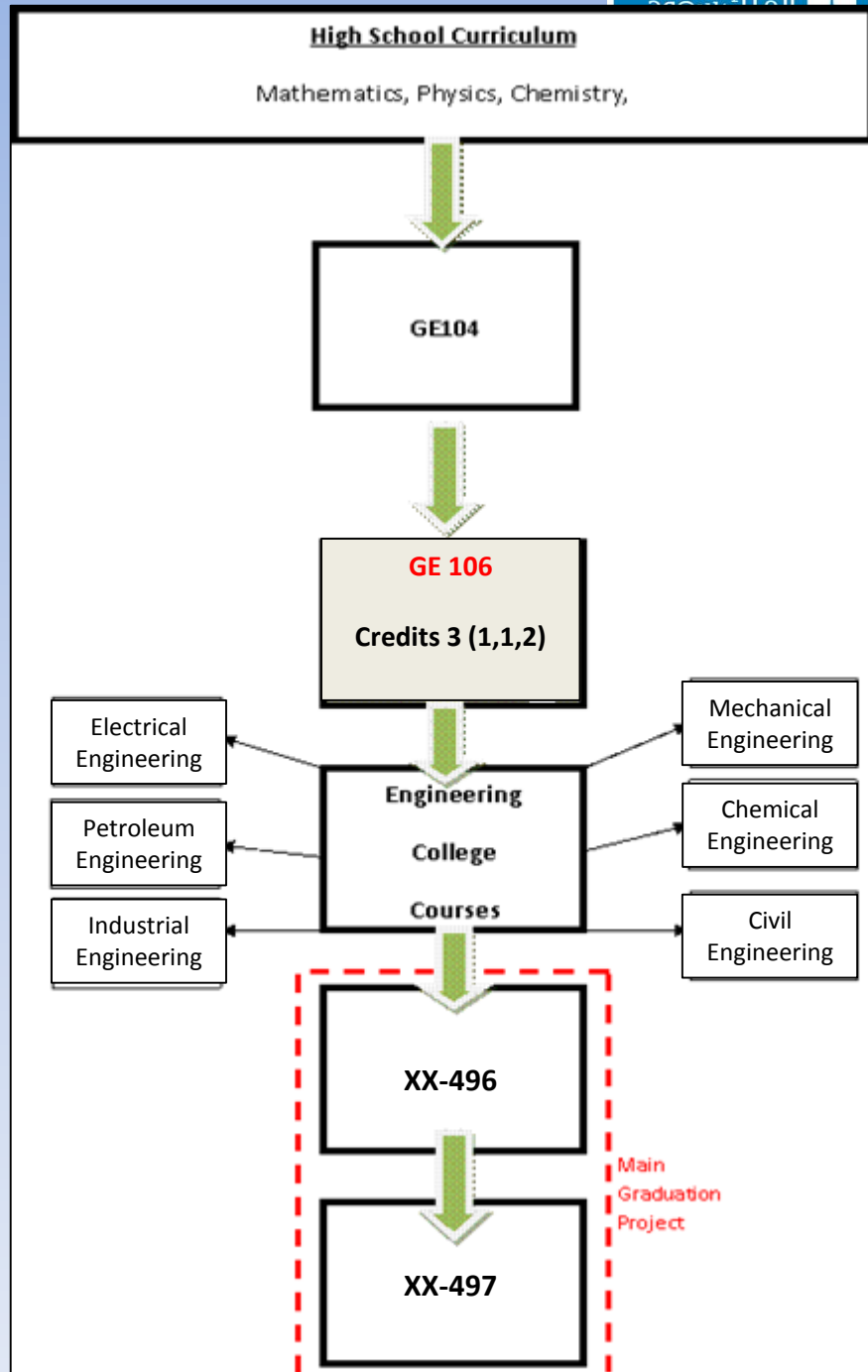


GE-106 Connection to Other Courses in COE Curriculum

Engineering Specializations requiring GE106:

- Mechanical Engineering
- Electrical Engineering
- Petroleum and Gas Engineering
- Civil Engineering
- Chemical Engineering
- Industrial Engineering

GE 106 provides the basics for the final year project and gives the necessary skills required to an engineering student



Course Objectives

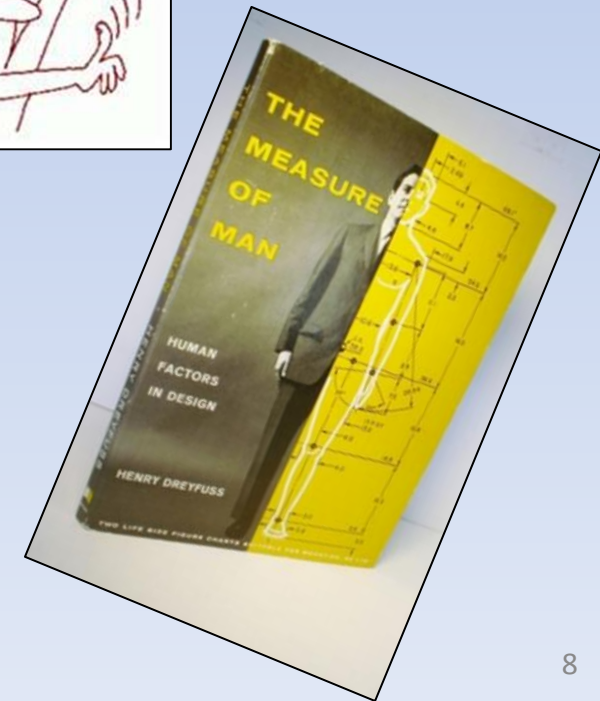
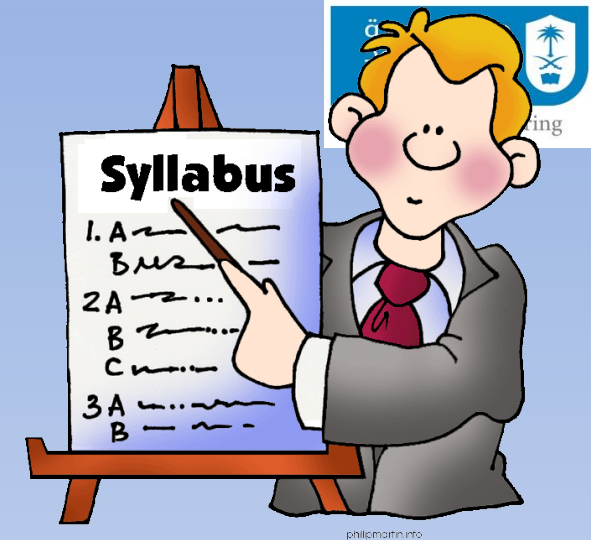
- **Formally expose** students to the **engineering field**.
- Help students to grasp the value of professionalism, ethics, safety, intellectual property, environment, and human factors.



- Introduce the design process, problem-solving skills, and practices dealing with open-ended problems.
- Enforce the skills in teamwork, group dynamics, critical thinking, planning, scheduling, and written/oral communications through the design project.

Course Outline

- An Overview of Engineering Design
- The Engineering Profession
- Engineering Need Analysis
- Problem Formulation
- Creativity in Design : Thinking Outside the box
- Human Factors Engineering
- Concepts Generation and Evaluation
- Intellectual Property – Legal Factors
- Engineering Ethics



Course Learning Outcomes

1. Knowledge

- Ability to use the engineering **design process** to carry out a project.
- Ability to prepare a **need-assessment**, define and formulate the problem, consider the problem constraints, and specify a deliverable for a project.
- Ability to solve open-ended design problems, cope with decision making and satisfy **competing objectives**.
- Ability to **synthesize** gathered information to solve open-ended problems.
- Ability to conceptualize **alternative concepts**, evaluate and select preferred alternative, and implement the preferred design using engineering tools.
- Understand the importance of professional and **ethical responsibility**.
- Understand ethics, environmental and **legal issue**.

Course Learning Outcomes

2. Cognitive Skills

- Ability to apply design heuristic of recognition of the problem, problem definition, design criteria, and **design constraints**.
- Ability to apply creative techniques to **generate alternative solutions** (concepts).
- Ability to apply procedures to evaluate the solutions and **select the "best" solution**, decide on a course of action and implement the selected solution.
- Ability to synthesize and critically judge the relevant gathered information to **solve open-ended problems**.
- Ability to **exercise professional and ethical responsibility** in carrying out the design project.
- Ability to **consider human factors and legal factors** in the design problems.

3. Interpersonal Skills

- Ability to take the **responsibility** to solve given assignments on your own and submit the solution on time.
- Ability to engage and **work effectively in teams** with full group interaction during the work on the design project, exercise full responsibility in holding team meetings, distributing tasks, leadership and team dynamics.



- Ability to **manage the time** between self study, solving assignments, carrying out the design project activities, and submitting project reports.
- Ability to find out the **proper action** when confronted with engineering ethical problems.

Grading and Assessment Matrix

Course Grading & Evaluation Matrix	
Component	Percentage (%)
Homework & Quiz	15
Tutorials	10
Project Report	10
Project Presentation	15
Project Poster	5
Log book	5
Total Course Work	60
Final Examination	40
Total	100

Required From Students

- Attendance **ON TIME!!!**
- Assignments submitted on time
- **Contributing to all open classroom discussions**
- Quizzes
- Design Project
 - Studios
 - Teamwork
 - Meeting Logs Retention (**logbook**)
 - Project Report
 - Joint Presentation
- Final Exam

A+

A+

**Work Hard and
Enjoy the Course**

Produce Results Not Excuses!



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