

# Sustainable Mobility Certificate

HURU School

30/08/2021

## Overview

HURU Schools' Certificate in Sustainable Mobility will provide you a good foundation to being a sought after Sustainable Mobility Professional or Engineer. Through dynamic student led lectures, practical work and group discussions and presentations, you will gain exposure to the latest mobility technologies in the Global and Local markets. The course will equip you with concepts and Sustainable Mobility principles with a focus on today's cutting edge mobility industry.

## Course Objectives

- to understand the fundamental difference between engines and motors
- to understand the fundamental parts and evolution of engines
- to understand the fundamental parts and evolution of motors
- to have a detailed comparison on different types of vehicles, from Traditional Gasoline, Hybrid, Plug-in hybrid vehicles ( PHEV), Natural gas (NAV), Liquified petroleum gas (PHEV), Battery electric vehicles (BEV) and Pure Electric Vehicles (EV).
- to understand traditional energy sources: Petrol, Gasoline and Diesel
- to understand modern energy sources: Natural Gas, Liquid Petroleum Gas and Battery Power
- to think creatively about sustainable mobility options and applications available in Kenya and in the World
- to have a review of possible actions, Solutions and Policies geared towards Sustainable Mobility

## Instructors

### Main Instructors:

Name: Duncan Mwangi

Days: Monday, Wednesday and Friday every week

Time: 7:00 pm - 8:30 pm (East African Time)

### General information and Support:

info@huruschool.org

## **Admission Information:**

admissions@huruschool.org

## **Finance Information:**

finance@huruschool.org

## **Academic Information:**

academic@huruschool.org

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smobility@huruschool.org

## **Course Duration:**

- 2 Months (1 Month blended classroom and 1 Month for supervised individual projects)

## **Learning Outcomes**

Throughout the semester, students will learn to:

- Think about the practical implication of the skills they will acquire.
- Envision and execute impactful practical sustainable mobility projects.
- Prepare professional sustainable mobility presentations.

## **Text:**

There will be no course textbook; instead we will rely heavily on local case studies and internet resources.

## **Grading:**

Students will be evaluated based on presentation and analysis of the class project

- Stand Ups - 15% - 5 Stand ups - 3 marks each
- Assignments - 10%
- Group/individual proposals - 10%
- Group/individual final presentation - 20%
- Individual reports - 30%
- Attendance - 15%

## **Class project:**

You will work individually or in groups to design and propose a sustainable mobility project. Students will be required to present this project, inculcate instructor feedback, carry out the project to completion and turn in a 2 paged document for their final project.

## **Course outline:**

### **Week 1: MOBILITY TECHNOLOGY**

Day 1

- Difference between Engines and Motors

Day 2

- Classical Combustion Engine
- Modern Combustion Engine
- Modern Diagnosis and Repair Tools

Day 3

- Classical Motors
- Modern Motors
- Modern Diagnosis and Repair Tools

### **Week 2: MOBILITY SYSTEMS**

Day 1

- Classical Internal Combustion Engine
- Hybrid

Day 2

- Plug-in hybrid vehicles ( PHEV)
- Natural gas vehicles (NAV)
- Liquefied petroleum gas vehicles (PHEV)

Day 3

- Battery electric vehicles (BEV)
- Pure Electric Vehicles (EV).

## **Week 3: MOBILITY ENERGY SYSTEMS**

Day 1

- Gasoline/Petrol
- Diesel
- Kerosene

Day 2

- Natural Gas
- LPG

Day 3

- Battery Power

## **Week 4: SUSTAINABLE MOBILITY**

Day 1

- Motorcycles

Day 2

- Bicycles
- Walking

Day 3

- Carbon Emissions and Sustainability
- Sustainable mobility opportunities and jobs

## **Week 5: LOCAL MOBILITY & POLICY**

Day 1

- Locally Available Sustainable Mobility options
- International and Local policy for Sustainable Mobility

Day 2

- Projects guidance

Day 3

- Project Day

## **Week 6: PROJECT WEEK**

Day 1

- Project Implementation

Day 2

- Projects Deadline

Day 3

- Project Presentations

## **Week 6: GRADING WEEK**

## **Week 7: GRADUATION WEEK**

Welcome to a unique learning experience at HURU!