



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

UNIVERSITY COLLEGE OF ENGINEERING, VIZIANAGARAM

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



ECENTRA

A TWO-DAY NATIONAL LEVEL TECHNICAL SYMPOSIUM

E-BIKE DESIGNING



ABOUT THE WORKSHOP :-

An Electric Bicycle(E-BIKE), also known as an e-bike or booster bike, is a bicycle with an integrated electric motor which can be used for propulsion. There are a great variety of e-bikes available worldwide, from e-bikes that only have a small motor to assist the rider's pedal-power (i.e pedelecs) to somewhat more powerful e-bikes which tend closer to moped-style functionality: all, however, retain the ability to be pedalled by the rider and are therefore not electric motorcycles. E-bikes use rechargeable batteries and the lighter varieties can travel up to 25 to 32 km/h (16 to 20 mph), depending on the laws of the country in which they are sold, while the more high-powered varieties can often do in excess of 45 km/h (28 mph).

PREREQUISITES :-

- Basics of electric motors.
- Basics of mechanical designing technology.

DAY 1

SESSION 1

- Introduction.
- Motor Selection.
- Stator.
- Rotor.
- Battery Selection.
- Controller Selection.
- Key Electrical Characteristics of E-Bike Controller.
- Sensing Mechanisms.

SESSION 2

- Hardware Blocks
- Voltage Regulating Circuit
- Battery Voltage Detect
- Hand bar Voltage Detection
- Feedback Current Detection
- Overcurrent Detection and System Overcurrent Protection Circuit

DAY 2

SESSION 3

- Brake Mechanism
- Hall Sensor Position Detection
- P2PWMOUT Register Configuration During Non-Synchronous Rectification Mode
- Power MOSFET and Integrated Driver Circuit
- Microcontroller
- Other functions

SESSION 4

- Frame Designing
- Battery & Motor Power & Current Calculation
- Methods to increase the efficiency of the battery
- Balancing of the System

- Centre of Height & Roll Centre Calculation
- Traction & Motor power relation

WORKSHOP DETAILS

WORKSHOP FEE :-

- 800/- per person.
- Each team should have 5 members (4000/- per team).

LAPTOP NEEDED :-

Each team should carry their laptop and the software will be provided at the time of workshop.

LEARNING OUTCOMES

- Get knowledge about e bike
- Know about interfacing of sensors with microcontrollers
- Design your own e bike

CO-ORDINATORS

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