

Chapter:6

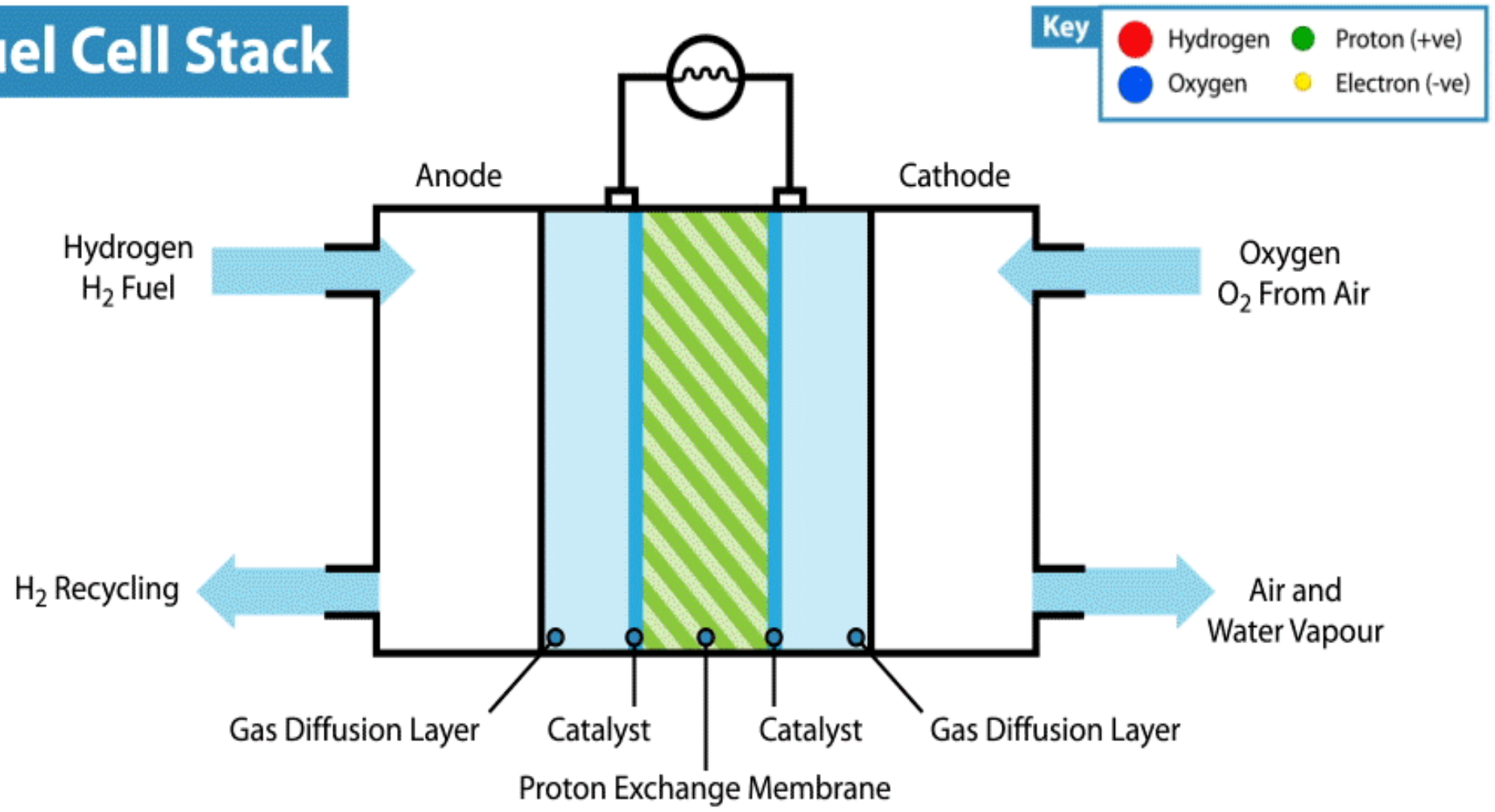
(Fuel Cell)

Lecture-1

Introduction:

- A fuel cell uses the chemical energy of hydrogen or other fuels to cleanly and efficiently produce electricity. If hydrogen is the fuel, the only products are electricity, water, and heat. Fuel cells are unique in terms of the variety of their potential applications; they can use a wide range of fuels and feedstock's and can provide power for systems as large as a utility power station and as small as a laptop computer.

Fuel Cell Stack



How Fuel Cells Work:

- Fuel cells work like batteries, but they do not run down or need recharging. They produce electricity and heat as long as fuel is supplied. A fuel cell consists of two electrodes—a negative electrode (or anode) and a positive electrode (or cathode)—sandwiched around an electrolyte. A fuel, such as hydrogen, is fed to the anode, and air is fed to the cathode. In a hydrogen fuel cell, a catalyst at the anode separates hydrogen molecules into protons and electrons, which take different paths to the cathode. The electrons go through an external circuit, creating a flow of electricity. The protons migrate through the electrolyte to the cathode, where they unite with oxygen and the electrons to produce water and heat. Learn more about:

Parts of a fuel cell

- **Fuel cell systems**
- **Types of fuel cells.**
- **View the Hydrogen and Fuel Cell Technologies Office's fuel cell animation to see how a fuel cell operates.**