

Overview of ExpEYES Junior

Spoken Tutorial Project

<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

Madhuri & Kaushik

IIT Bombay

28 July 2018



Learning Objectives



Learning Objectives

We will learn about,



Learning Objectives

We will learn about,

- **ExpEYES** webpage



Learning Objectives

We will learn about,

- **ExpEYES** webpage
- Different experiments using **ExpEYES junior** device



Learning Objectives

We will learn about,

- **ExpEYES** webpage
- Different experiments using **ExpEYES junior** device
- Content available in various tutorials in **ExpEYES** series



System Requirement



System Requirement

- **Ubuntu Linux OS v 16.04**



System Requirement

- **Ubuntu Linux OS v 16.04**
- **ExpEYES v 3.1.0**



System Requirement

- **Ubuntu Linux OS v 16.04**
- **ExpEYES v 3.1.0**
- **Firefox browser v 60.0**



Pre-requisites



Pre-requisites

- **Knowledge of basic high school Physics**



Important Links



Important Links

- <http://expeyes.in>



Important Links

- <http://expeyes.in>
- <http://expeyes.in/ejun.html>



Spoken Tutorials in ExpEYES



Spoken Tutorials in ExpEYES

- We will briefly go through the individual tutorials in this series



Spoken Tutorial: Introduction to ExpEYES Junior



Spoken Tutorial: Introduction to ExpEYES Junior

Explains,



Spoken Tutorial: Introduction to ExpEYES Junior

Explains,

- **About ExpEYES Junior device**



Spoken Tutorial: Introduction to ExpEYES Junior

Explains,

- **About ExpEYES Junior device**
- **Features**



Spoken Tutorial: Introduction to ExpEYES Junior

Explains,

- **About ExpEYES Junior device**
- **Features**
- **How to buy the device**



Spoken Tutorial: Introduction to ExpEYES Junior

Explains,

- **About ExpEYES Junior device**
- **Features**
- **How to buy the device**
- **Installation on different operating systems**



Spoken Tutorial: Panel Connections and Software Interface



Spoken Tutorial: Panel Connections and Software Interface

Explains,



Spoken Tutorial: Panel Connections and Software Interface

Explains,

- **Various terminals on the panel**



Spoken Tutorial: Panel Connections and Software Interface

Explains,

- **Various terminals on the panel**
- **Accessory set**



Spoken Tutorial: Panel Connections and Software Interface

Explains,

- **Various terminals on the panel**
- **Accessory set**
- **Software interface**



Spoken Tutorial: Communicating to ExpEYES using Python



Spoken Tutorial: Communicating to ExpEYES using Python

Explains how to,



Spoken Tutorial: Communicating to ExpEYES using Python

Explains how to,

- **Measure AC voltage using Python**



Spoken Tutorial: Communicating to ExpEYES using Python

Explains how to,

- **Measure AC voltage using Python**
- **Generate square and sine waves**



Spoken Tutorial: Communicating to ExpEYES using Python

Explains how to,

- **Measure AC voltage using Python**
- **Generate square and sine waves**
- **Measure capacitance and resistance using Python**



Spoken Tutorial: Conductivity of Ionic Solutions



Spoken Tutorial: Conductivity of Ionic Solutions

Explains how to,



Spoken Tutorial: Conductivity of Ionic Solutions

Explains how to,

- **Measure conductivity**



Spoken Tutorial: Conductivity of Ionic Solutions

Explains how to,

- **Measure conductivity**
- **Calculate resistance of ionic solutions**



Spoken Tutorial: Electro-Magnetism



Spoken Tutorial: Electro-Magnetism

Explains about,



Spoken Tutorial: Electro-Magnetism

Explains about,

- **Electro-magnetic induction**



Spoken Tutorial: Electro-Magnetism

Explains about,

- **Electro-magnetic induction**
- **Mutual induction of coils**



Spoken Tutorial: Electro-Magnetism

Explains about,

- **Electro-magnetic induction**
- **Mutual induction of coils**
- **Voltage induced by a rotating magnet**



Spoken Tutorial: Electro-Magnetism

Explains about,

- **Electro-magnetic induction**
- **Mutual induction of coils**
- **Voltage induced by a rotating magnet**
- **Resonance of driven pendulum**



Spoken Tutorial: Characteristics of Sound Waves



Spoken Tutorial: Characteristics of Sound Waves

Explains about,



Spoken Tutorial: Characteristics of Sound Waves

Explains about,

- **Frequency response and forced oscillations of a sound source**



Spoken Tutorial: Characteristics of Sound Waves

Explains about,

- **Frequency response and forced oscillations of a sound source**
- **Calculate velocity of sound**



Spoken Tutorial: Characteristics of Sound Waves

Explains about,

- **Frequency response and forced oscillations of a sound source**
- **Calculate velocity of sound**
- **Interference and beats of sound waves**



Spoken Tutorial: Steady State Response of Circuits



Spoken Tutorial: Steady State Response of Circuits

Explains how to,



Spoken Tutorial: Steady State Response of Circuits

Explains how to,

- **Calculate phase shift values**



Spoken Tutorial: Steady State Response of Circuits

Explains how to,

- **Calculate phase shift values**
- **AC phase shift in: RC, RL and LCR circuits**



Spoken Tutorial: Transient Response of Circuits



Spoken Tutorial: Transient Response of Circuits

Explains about,



Spoken Tutorial: Transient Response of Circuits

Explains about,

- **Transient response of RC, RL & LCR circuits**



Spoken Tutorial: Transient Response of Circuits

Explains about,

- **Transient response of RC, RL & LCR circuits**
- **Under damped discharge of LCR circuit**



Spoken Tutorial: Transient Response of Circuits

Explains about,

- **Transient response of RC, RL & LCR circuits**
- **Under damped discharge of LCR circuit**
- **RC integration and differentiation**



Spoken Tutorial: Diode Rectifier Transistor



Spoken Tutorial: Diode Rectifier Transistor

Explains about,



Spoken Tutorial: Diode Rectifier Transistor

Explains about,

- **PN junction diode**



Spoken Tutorial: Diode Rectifier Transistor

Explains about,

- PN junction diode
- **Diode as rectifier**



Spoken Tutorial: Diode Rectifier Transistor

Explains about,

- **PN junction diode**
- **Diode as rectifier**
- **Diode and LED IV characteristics**



Spoken Tutorial: Diode Rectifier Transistor

Explains about,

- **PN junction diode**
- **Diode as rectifier**
- **Diode and LED IV characteristics**
- **Transistor CE**



Summary

We have learnt about,

- **ExpEYES webpage**
- **Different experiments using ExpEYES junior device**
- **Content available in various tutorials in ExpEYES series**



Design and Development

- **ExpEYES Junior** is designed and developed by **PHOENIX** project of Inter-University Accelerator Centre, New Delhi



About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project



About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



Forum for specific questions

- Do you have questions in **THIS Spoken Tutorial?**
- Please visit <http://forums.spoken-tutorial.org>
- Choose the minute and second where you have the question
- Explain your question briefly
- Someone from our team will answer them



Forum for specific questions

- **The Spoken Tutorial forum is for specific questions on this tutorial**
- **Please do not post unrelated and general questions on them**
- **This will help reduce the clutter**
- **With less clutter, we can use this discussion as instructional material**



Acknowledgements

- Spoken Tutorial Project is a part of the Talk to a Teacher project
- It is supported by the National Mission on Education through ICT, MHRD, Government of India
- More information on this Mission is available at <http://spoken-tutorial.org/NMEICT-Intro>

