



PR No. 1000028258 (Rfx No. 6100001234)

Detailed Technical Specifications for Optics and Spectroscopy Education Lab Kit

Specifications:

This tender invites the bid from supplier for upgradation of undergraduate and master students' optics and spectroscopy experimental kits. It is expected to receive a proper technical manual, possible lab exercise notes and data collected from such kits as part of supply.

Warranty: Minimum 1 year from the date of installation.

Following experimental educational kits would be needed. Each kit has its own individual annexure with a list of components which would be needed to prepare these setup to demonstrate the targeted experiments.

(1). Optical microscopy educational kit x 2

This kit should be able to demonstrate the following experiments for education laboratory (check annexure 1):

- Optical Imaging Basics
- Köhler Illumination
- Abbe Theory of Image Formation
- Contrast Methods
- Fluorescence Microscopy
- Spectra and Filters

(2) Fourier Optics Educational Kit x 2

This kit should be able to demonstrate the following experiments for education laboratory (check annexure 2):

- Understand the Principles of Fourier Optics Using a 4f Optical Setup
- Manipulate Images of 14 Chrome-on-Glass Micro structured Patterns
- Investigate Formation and Manipulation of Images in the Context of a Microscope
- Demonstrate Various Image Processing Techniques

(3) Time-Resolved Absorption Spectroscopy Educational Kit x 2

This kit should be able to demonstrate the following experiments for education laboratory (check annexure 3):

- Build a Transmission-Based Setup for Nanosecond Time-Resolved Absorption Spectroscopy
- Explore the Effect of the Pump Beam Focusing Lens on the Transient Absorption Signal
- Determine the Decay Time of an Excited State Population

- Investigate the Influence of Concentration and the Presence of Additional Species on the Decay Time
- Optional Experiments for Exploring Data Deconvolution, Laser Pulse Width Influence on Transient Absorption Signal, and Beam Focus Optimization

(4) Quantum Cryptography Analogy Demonstration Kit x 2

This kit should be able to demonstrate the following experiments for education laboratory (check annexure 4):

- Learn How Information Can Be Encrypted and Sent Using the Polarization of Light
- Generate an Encryption Key that Allows for Private Communication
- Encrypt, Transmit, and Decrypt a Secret Message
- Examine How an Eavesdropper Causes Errors in Transmission that Can Be Detected
- Demonstrate the Steps of the BB84 Encryption Protocol