



IMAGING PARTNERSHIP
EDUCATION
Exploring Education Through Imaging

Designing Pinhole Cameras Overview

Imaging Partnership is pleased to offer small innovation workshops. The workshops aim to support and advise students and teachers on how to use the subject of optics (photography) and produce tangible working models into areas that have enterprise opportunities for schools as a whole.

The main areas that we look at include:

- Optical Design Engineering

Optical engineering is the field of study that focuses on applications of optics. Optical engineers design components of optical instruments such as lenses, microscopes, telescopes, and other equipment that utilizes the properties of light. Other devices include optical sensors and measurement systems, lasers, fiber optic communication systems, optical disc systems (e.g. CD, DVD), etc.

Our workshops will focus on our 'optical engineers' (students) designing and building small devices that make light do something useful. However, they also must know what is practical in terms of available technology, materials, costs, design methods, etc so they will only be using utilizing resources that will be available to them whilst at school.

- Aerospace Engineering

Aerospace engineering is the primary branch of engineering concerned with the research, design, development, construction, testing, science and technology of aircraft and spacecraft. It is divided into two major and overlapping branches: aeronautical engineering and astronautical engineering. Aeronautics deals with aircraft that operate in Earth's atmosphere, and astronautics deals with spacecraft that operate outside the Earth's atmosphere.

Our workshops will focus on the aerospace engineering discipline around the school environment and investigate their characteristics and behaviors, surfaces and other properties.

- Medical Engineering

Hospitals use an increasingly wide range of medical equipment in order to deliver healthcare services; this ranges from simple devices such as nebulisers to deliver treatment for respiratory patients through to sophisticated radiotherapy linear accelerators for cancer treatments and other cutting edge technologies.

Our 'medical engineers' (students) also get involved with the entire equipment lifecycle, including the acceptance testing of new equipment, introducing it into service, advising on the correct use of equipment, addressing patient safety issues and safely disposing of old devices. Areas such as medical healthcare imaging, photonics and camera technology innovations for Spine Surgery are discussed.

Medical engineering is a really exciting and varied role where you will use your photography expertise in electronic or mechanical engineering to undertake these activities and perhaps become involved in modifying or constructing equipment as well.

Students will develop their communication and team working skills as well as being confident with photography technology and systems/processes. In addition to this, leadership skills will be undertaken by students to ensure effective service design and delivery.

- Cinematography Lenses

Cinematography is the art or science of motion picture photography. It is the technique of film photography, including both the shooting and development of the film. The cinematographer could also be referred to as the film director's main visual collaborator.

Our cinematography lens design sessions are designed to meet the needs of student's interest in the wider subject of cinematography and to undertake group practical sessions whereby they collaborate on making / designing lenses systems themselves. This begins with practical exercises on making a pinhole camera and developing prototypes from there.