GUIDANCE NOTES CONCERNING
THE USE OF LASER POINTERS

HEALTH AND SAFETY UNIT
Laser pointers are small battery operated devices which emit a thin powerful beam of light for distances of about 100 meters or more, and are intended for use by teachers and lecturers as hand held pointers. The beams themselves are invisible but appear as brilliant spots when they hit a screen or other surface. When considering the safety implications of the laser beam an important parameter is the amount of power in the beam divided by the cross-sectional area of the beam. This is called the irradiance and is usually quoted in watts per square metre or W/m\(^2\). The pointers are cheap and readily available from certain shops and market stalls.

Although there have been no reported incidents of permanent injury in the UK, there have been reports of incidents concerning the misuse of pointers by persons deliberately targeting people such as footballers, bus, taxi drivers and fire fighters. There have also been reports of people using the pointers in discos and night-clubs. The laser beams have caused temporary eye irritation or blurring of sight. In addition, there have been several instances of MMU Security staff being targeted whilst on patrol and in one case from a car on Oxford Road. Misuse of laser pointers can lead to prosecution for common assault and more serious charges if this leads to serious injury to eyesight or a motoring accident.

The degree of adverse effect on the eyes depends on the power of the beam and the duration of exposure. By law all laser devices have to carry a label with a warning symbol and power classification. This can range from the weakest class 1 such as those used as bar code readers at supermarket checkouts to class 4 which can cut through metal and require very stringent regulation.

Laser pointers sold in the UK should be classified in accordance with the current British Standard (BS EN 60825) on laser safety. This document specifies requirements for the manufacturers of laser products to ensure that the risk of accidental exposure is minimised through the use of engineering control features and product labelling, and by specifying minimum requirements for the supply of product information to allow for its safe use.

The British Standard also provides advice on the use of lasers for demonstrations, displays and exhibition and states that only Class 1 or Class 2 devices should be used in unsupervised areas unless under the control of experienced well-trained operators.

The Health Protection Agency has examined several laser pointers currently available to the general public in order to assess their laser class and many laser pointers which are either unlabelled or labelled as class 2 lasers have been found to be Class 3R or class 3B devices when measured. Green laser pointers have given a particular cause for concern and many of these cause afterimages in people viewing the beam on a projection screen. Because of the way the green beam is generated, there may also be additional invisible laser beams emitted.
Direct ocular exposure close to a class 3b lasers is always hazardous and will cause damage to the eye.

The risk of a permanent eye injury from a laser pointer is small; however, a transient eye exposure from a laser will cause a bright flash, a dazzling effect, which is likely to cause distraction and temporary loss of vision in the affected eye and possible after-images. Recovery from these effects will vary for different individuals. Medical attention should only be sought if after-images persist for hours, or if a disturbance in reading vision is suddenly apparent.

Conclusions

1. The Health Protection Agency considers the professional use of a Class 1 or Class 2 laser pointer as a training aid in the workplace to be justified and regards these Classes of laser product as being generally adequate for such use.

2. Only members of staff and postgraduate students undertaking teaching or presentations should be permitted to use laser pointers. They should be aware of the hazards and exercise caution insuring that they do not direct pointers towards any person within the range of the beam.

3. Staff and students who do not meet the above criteria must not be permitted to use laser pointers on University premises.

4. It is not possible to recommend particular laser pointers since even pointers from reputable sources may be incorrectly labelled according to European standards. When purchasing a laser pointer, however, the following points should be considered:

- The pointer should be classified either Class 1 or Class 2 in accordance with the requirements of the current British Standard (BS EN 60825).

- It should carry with it sufficient accompanying information to enable the user to operate the product in a safe manner.

- The pointer should be labelled as either a Class 1 Laser Product or a Class 2 Laser Product and in the latter case should also state “Do not stare into beam”.

4. Anyone who suspects that he/she has been assaulted by a laser pointer should report it and arrange to seek prompt medical attention if it is suspected that the eyes have been affected. If possible the device involved should be confiscated, both to prevent further misuse, and to find the label to ascertain its classification. This information may assist medical staff. An incident report form should be completed and forwarded to the Health and Safety Unit in All Saints.