Welcome Note  (By Farouk Merhebi – EHSRM Director)

Dear Readers,

The agreement between AUB and SUKLEEN to launch the Red and Blue recycling campaign on Campus was recently signed. Red and Blue cardboard and plastic bins were distributed in 14 buildings on Campus as part of phase 1 of this agreement. The AUB Environmental Club is leading the awareness raising activities in the selected buildings. Moreover, 3 new REVA machines will be installed soon in OSB cafeteria, Boustani Hall and Penrose Hall to improve recycling. These machines will be offered by atria, an averda company, as part of the Green Mediterranean Initiative (GMI) project financed by the European Union.

EHSRM and the Continuing Education Centre will be offering a four-day “Health & Safety in Healthcare Centers” training course from March 3-6, 2015. The course targets workers in healthcare settings especially those with supervisory and managerial responsibilities such as line managers, head of departments, nurses, and persons delivering education and training.

To improve incident reporting, EHSRM is coordinating with IT department at AUBMC to develop an online incident reporting platform to allow online follow up on incidents by the involved stakeholders and improve data collection and analysis. EHSRM acquired LAEC licenses for the nuclear medicine and oncology departments and coordinated with LAEC the work conducted for the identification, conditioning, packaging, and proper storage of very old long lived radioactive sources stored at DTS.

Article of the Month

LASER is an acronym for Light Amplification by Stimulated Emission of Radiation, and consists of light in the visible, infrared or ultraviolet regions of the electromagnetic spectrum which was intentionally amplified. Therefore, LASER radiation is man-made.

LASER radiation is characterized by being monochromatic (emitted in one specific frequency), spatially coherent (allowing the maintenance of a narrow beam over distance), and temporally coherent (allowing the maintenance of same amplitude for long distances).

LASER producing equipment are classified according to the power of the LASER emitted as Class 1, Class 1M, Class 2, Class 2M, Class 3R, Class 3B, and Class 4 (refer to the adjacent table). Exposure to class 3B or Class 4 LASER, either directly or by reflection, represents a health hazard (eye damage or skin burns) and a physical hazard (fire or electrical), and therefore several administrative and engineering controls, as well as personal protective equipment are needed during their use. The institution’s LASER Safety Officer is responsible for evaluating the hazards associated with each LASER producing equipment and defining the protective measures needed.

LASER producing equipment are used for a variety of purposes starting from the simple LASER pointers, barcode scanners and DVD players, to medical applications in dermatology, ophthalmology, dentistry, and surgery (coagulation, cutting, kidney stone treatment, ...), to industrial applications like welding and cutting. For comparison, the power of a LASER emitted by a LASER pointer is 1-5mW (0.001-0.005W) while the power of surgical LASERs is 30-100W and that of industrial LASERs is 100-3000W.

The main LASER safety measures to be taken are to define the Hazard Zone within which special measures are needed during the operation of the LASER producing equipment. Measures include conspicuously posting the area with a LASER safety sign (refer to the adjacent figure), providing all individuals present in the controlled area with LASER safety goggles, and equipping the area with a blower to remove the fumes that are produced during the application of LASER on human tissues as these fumes contain airborne hazardous substances. In the medical applications, caution must be taken and proper planning with the Anesthesia department is required to avoid fire hazards if flammable anesthetic gases were used during surgeries.

The selection of LASER safety goggles is a crucial task, as each type of LASER requires a specific type of eyewear depending on the wavelength of the light produced and its power. Always refer to the Manufacturer’s requirements or to the LASER Safety Officer to define the proper eyewear for a specific LASER producing equipment.
How Damaging is LASER to your eyes?

As far as LASER damage is concerned, the eye is the most sensitive organ. Depending on the wavelength of the LASER used, and its power, different parts of the eye might be affected, in case no precautions were taken.

LASER producing equipment operating in the Ultraviolet region (100 nm—380 nm) or in the mid and far Infrared regions (1,400 nm to 10,000 nm) would damage the cornea or the eye lens.

LASER producing equipment operating in the visible and infrared A spectrum (380 nm—1,400 nm) would damage the retina, as the LASER emitted travels through the cornea, gets intensified by the lens and reaches the retina.

Answers to “Think Safe”

1. False. There is no such thing as “multi-purpose” LASER safety goggles; each LASER wavelength requires a special eyewear. In fact, goggles that might provide near 100% protection against one wavelength might be transparent to others.

2. False. The skin might also be affected by LASER radiation which might cause burns depending on the LASER power.

3. True. Exposing dry material such as towels or surgical pads to high power LASER might lead to a fire. It is recommended to use wet pads around the surgical area whenever LASER is used.