

### 3<sup>rd</sup> Year Medical Equipment Class Projects 2007-2008

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Consider the following medical devices:

1. Patient monitor
2. Ventilator
3. Hemodialysis machine
4. DC shock defibrillator
5. Heart lung machine
6. Electrosurgical unit (ESU)
7. Pacemaker
8. Ultrasound imaging
9. Fetal Doppler
10. X-ray imaging
11. Computed tomography (CT)
12. Positron emission tomography (PET)
13. Magnetic resonance imaging (MRI)
14. Lithotripsy
15. Gamma knife
16. Radiotherapy dose planning
17. Radiation oncology dosimetry
18. Hearing aid
19. Bone mineral densitometry (BMD)
20. Sterilizer

1. Describe clearly the theory of operation of each. The expected number of pages per device is around two to three pages in English. Also, provide a summary of the theory of operation for each device in one page in Arabic.
2. Describe their operation in clinical use (i.e., how the clinician uses them).
3. After a site visit, provide your comments about the problems facing the use and maintenance of each of these devices in the local environment. Please provide a picture of your group with the device whenever possible.
4. Provide your comments about the technology used in each and your possible suggestions / innovations in their respective areas.

**Notes:**

1. You are required to submit this project in two parts: the first is due March 1, 2008, while the second part is due three weeks after your second term finals are over (June 2008). You can divide the list of equipment between these two parts as you prefer (the two parts must cover all of them).
2. Each part will amount to 12.5 points in your grade.
3. Number of students in the group should include around 10 students and with a maximum of 15.
4. You are required to submit the project in electronic format (on a CD). The project output should include a report and a 20 minute presentation for each group to be given during the oral examination of the group. No modifications to the report or the presentation will be allowed after the deadline.