

Assignment 5.7: Presentation in Bioengineering

Complete the following:

Research a new or interesting technology, project, or research in the field of Bioengineering (BioE).

Prepare and present a 2 to 3 min. presentation on a project you find.

Include:

- Description of what you researched.
- How it relates to BioE.
- Why it is of interest to you.
- How it has been or will be used (application).
- How it might help society.

Rubric:

- Project/Technology description. Should be clear, complete (4)
- Relationship to BioE. Should be a clear, well explained relationship (4)
- Why project/technology is of interest to you.(4)
- Description of the how the project/technology will be used (4)
- Benefit to society. If benefits are not obvious, explore the possible benefits (4)

Resources

- Biomedical Engineering Society <http://www.bmes.org/>
- Engineering in Medicine and Biology Society <http://www.embs.org/>
- American Institute for Medical and Biological Engineering <http://aimbe.org/>
- Bioengineering, University of Utah <http://www.bioen.utah.edu/>
- American Institute of Medical and Biological Engineering (www.aimbe.org)
- American Society of Mechanical Engineers, Bioengineering Division (<http://divisions.asme.org/bed/>)
- Howard Hughes Medical Institute (www.hhmi.org)
- IEEE Engineering in Medicine and Biology Society (<http://129.94.131.101/embs/>)

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- Institute of Biological Engineering (www.ibeweb.org)
- Institute of Biomedical Science (www.ibms.org)
- International Federation for Medical & Biological Engineering (www.ifmbe.org)
- International Society for Bioengineering and the Skin (www.i-s-b-s.org)
- The Canadian Medical & Biological Engineering Society (www.cmbes.ca)
- The Merck Genome Research Institute (www.mgri.org)
- Whitaker Foundation (www.whitaker.org)

Biomedical Engineering Project examples

- Artificial organs (hearing aids, cardiac pacemakers, artificial kidneys and hearts, blood oxygenators, synthetic blood vessels, joints, arms, and legs).
- Automated patient monitoring (during surgery or in intensive care, healthy persons in unusual environments, such as astronauts in space or underwater divers at great depth).
- Blood chemistry sensors (potassium, sodium, O₂, CO₂, and pH).
- Advanced therapeutic and surgical devices (laser system for eye surgery, automated delivery of insulin, etc.).
- Application of expert systems and artificial intelligence to clinical decision making (computer-based systems for diagnosing diseases).
- Design of optimal clinical laboratories (computerized analyzer for blood samples, cardiac catheterization laboratory, etc.).
- Medical imaging systems (ultrasound, computer assisted tomography, magnetic resonance imaging, positron emission tomography, etc.).
- Computer modeling of physiologic systems (blood pressure control, renal function, visual and auditory nervous circuits, etc.).
- Biomaterials design (mechanical, transport and biocompatibility properties of implantable artificial materials).
- Biomechanics of injury and wound healing (gait analysis, application of growth factors, etc.).
- Sports medicine (rehabilitation, external support devices, etc.).
- Source: Biomedical Engineering Society, www.bmes.org

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