Introduction to BME, Rehabilitation Engineering

Presented

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Introduction

We understand biomedical engineering to involve the application of engineering science and technology to problems arising in medicine and biology. In principle, the intersection of each engineering discipline (i.e., electrical, mechanical, chemical, etc.) with each discipline in medicine (i.e., cardiology, pathology, neurology, etc.) or biology (i.e., biochemistry, pharmacology, molecular biology, cell biology, etc.) is a potential area of biomedical engineering application.

The physiology section describes the major organ systems of the human body (the cardiovascular, endocrine, nervous, visual, auditory, gastrointestinal, and respiratory systems الاجهزة الهضمي والتنفسي والسمعي والبصري و العصبي والغدد الصماء و القلب و الاوعية الدموية

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The following table shows some subjects that will be studied deeply in biomedical engineering department and the names of lecturers that will give summery for each subject:

Proposed Syllabus for Introduction to BME / one hour per week

Week	Subject	Lecturer
1	Physiology System	د انفال ضياء الدين
2	Prostheses and Artificial Organs	د انفال ضياء الدين
3	Medical Intelligence	د انفال ضياء الدين
4	Artificial Intelligence	د انتصار عبد المجيد
5	Biomechanics	د كريم محسن
6	Biomaterial Classification	د زياد شهاب أحمد
7	Biomedical Sensors	د زياد شهاب احمد
8	Midexamination	امتحان نصف فصلي
9	Signal Analysis	د شهد عماد
10	Medical Instrumentation	ا خالد سالم شبيب
11	Image Devices	د زياد شهاب احمد

12	Tissue Engineering	م م ام سلمة بشير
13	Rehabilitation Engineering	د علي حسين عتيوي
14	Human Performance Engineering	د علي حسين عتيوي
15	Clinical Engineering	م م ام سلمة بشير

Reference

Biomedical Engineering Handbook, Volume one, Second Edition by JOSEPH D. BRONZINO, 2000

What is the field of biomedical engineering?
Biomedical engineers focus on advances in technology and medicine to develop new devices and equipment for improving human health. For example, they might design software to run medical equipment or computer simulations to test new drug therapies.
Is biomedical engineering related to mechanical engineering?
In short, biomechanical engineering is the combined use of mechanical engineering principals and biological knowledge to better understand how these areas intersect and how they can be used together to potentially improve peoples' quality of life.
Who is a famous bioengineer?
Some notable figures in the history of biomedical engineering and their contributions include John Charnley (artificial hip replacement). Graeme Clarke (cochlear implant .زراعة قوقعة الاذن

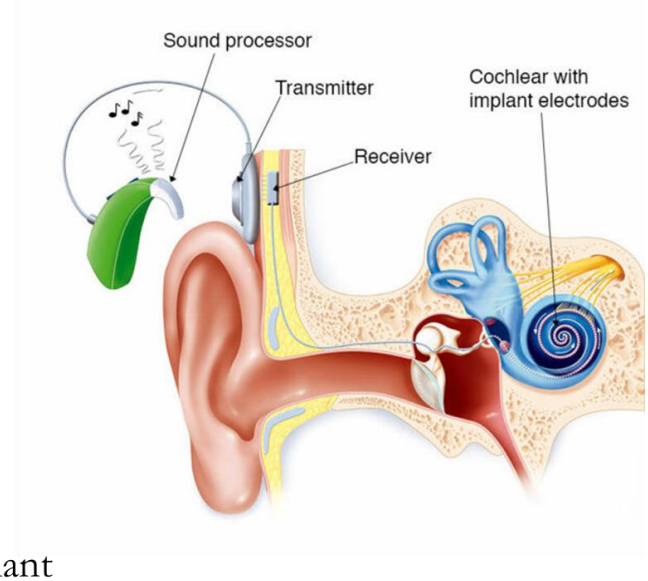




Total Hip Replacement

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Cochlear Implant

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Which country is best for bioengineering?

- Biomedical Engineering in Ireland.
- Biomedical Engineering in Lebanon.
- Biomedical Engineering in Belgium.
- Biomedical Engineering in UK.
- Biomedical Engineering in Australia.
- Biomedical Engineering in Canada.
- Biomedical Engineering in Lithuania.
- Biomedical Engineering in Sweden

Rehabilitation Engineering

What is biomedical engineering rehabilitation?

Rehabilitation Bioengineering uses principles from biomechanics to develop healthcare solutions and assistive medical devices to treat individuals with disabilities and to assist in the healing of physical and cognitive functions lost due to disease or injury.

What kind of job is rehabilitation?

Rehabilitation is a wide career that includes counseling and treatment assistance for those recovering from illnesses, diseases and other issues effecting daily living.

Learning about the many rehabilitation careers can help you choose the best position for you.

Rehabilitation engineering is the application of science and technology to ameliorate the handicaps of individuals with disabilities

What is the main purpose of rehabilitation?

Rehabilitation is care that can help you get back, keep, or improve abilities that you need for daily life. These abilities may be physical, mental, and/or cognitive (thinking and learning). You may have lost them because of a disease or injury, or as a side effect from a medical treatment.

What are the methods of rehabilitation?

Rehabilitation Methods and Therapies

- Manual therapy.
- Physiotherapeutic movement therapy.العلاج الطبيعي بالحركه
- Physical therapy (cryotherapyالعلاج بالتبريد, ultrasound therapy العلاج بالموجات فوق الصوتية, thermotherapyالعلاج الحراري, electrotherapyالعلاج الكهربائي)
- Hydrotherapy.المعالجة المائية

- Myofascial instrumental therapy العلاج بأستخدام اللفافة العضلية.

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Myofascial instrumental therapy

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Proprioceptive re-educationاعادة تثقيف الحس العميق.

- Structural osteopathy تقويم العظام الهيكلية.
- Taping معالجة باللفاف





Taping

Taping is commonly used as an adjunct or temporary technique.[1] Athletes often make use of taping as a protective mechanism in the presence of an existing injury.

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What does a rehabilitation engineer do?







Rehabilitation engineers design and build devices and systems to meet a wide range of needs that can assist individuals with mobility, communication, hearing, vision and cognition. These tools help people with day-to-day activities related to employment, independent living and education.

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What are the six types of rehabilitation?

Here are a few of the most common facility types where rehabilitation services are provided:

- Hospital rehabilitation. ...
- Inpatient rehabilitationاعادة تأهيل المرضى الداخليين.
- Outpatient rehabilitation.
- Ongoing Maintenanceاعادة التأهيل المستمرة.
- Physical Therapy. ...
- Occupational Therapyمعالجة بالانشغال. ...
- Speech/Swallowing Therapyعلاج النطق/ البلع.
- Balance Therapy.







Balance Therapy

Balance therapy is also known as vestibular النظام الدهليزيrehabilitation therapy. It uses exercises to help you improve symptoms of balance disorders and reduce your risk of falling.

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