

# Introduction to Biomedical Engineering

Why? Who?  
What? Where?



## Why Biomedical Engineering?

Biomedical engineers try to answer medically challenging questions by designing and developing new equipments and procedures. They use various software and hardware tools to resolve medical and health-related issues.

## Who should be a Biomedical Engineer?

Any student who has:

- Interest in human biology
- Analytical, logical and creative skills
- Mathematical skills
- Innovative skills
- Problem solving skills
- Good communication skills

## Specialisations within Biomedical Engineering:

- Bio-Materials
- Medical Imaging
- Bio-Mechanics
- Orthopedics Surgery
- Genetic Engineering
- Bio-Instrumentation
- Cellular and Tissue Engineering
- Clinical Engineering
- Bio Medical Electronics
- Biomechanical Engineering



**Did you know?** Willem Kolff, a biomedical engineer and physician, designed the early artificial hearts and the first kidney dialysis machine. His latest work is on a portable artificial lung!

## Upcoming Specialisations within Biomedical Engineering:

- Neural Engineering
- Bio Nanotechnology
- Bio Mechatronics

## Best colleges for Biomedical Engineering in: India

- All India Institute of Medical Studies- New Delhi
- IT-BHU-Varanasi
- Jadavpur University-Kolkata

## USA

- John Hopkins University
- Georgia Institute of Technology
- University of California-San Diego

## UK

- University of Sheffield
- University College of London
- University of Southampton

## Singapore

- National University of Singapore
- Nanyang Technological University

## Canada

- University of Calgary
- University of Toronto
- McGill University

# Discover the Career Options Right for You

## 1 Initial Options



### What are your career ideas?

If you haven't already given it a thought, then base it on influences from:

- Parents, family and friends
- Passion towards a subject
- Personal experiences
- Media and internet

Univariety probes and provides answers

### Initial Options

Go to step 2

### Instructions

- Follow this process, one at a time, to finalise career choices
- If the answer is 'No' at any stage then start from stage 1
- Do in-depth self research
- Complete details of this process and the questions around a 'Typical Day' Test are at [www.univariety.com/courses](http://www.univariety.com/courses)

## 2 Hypothesis



### Do you like it?

Remember the activities from the past which gave you joy and happiness. Does this career option similarly excite you?

### Initial Hypothesis



### Can you do it?

- Do you know how long it takes to get the degree?
- Do you like the subjects which you will study?
- Can you perform to get through to good colleges?
- Do you have the financial resources to support the degree?

### Final Hypothesis

Go to step 3

## 3 Validation



### Do you want it?

Do you like the:

- Nature of work you will do?
- Type of people you will deal with?
- Physical and mental effort required?
- The challenge it poses?



### Will it fulfill your and your family's ambitions?

Will this give you a good:

- Lifestyle?
- Time with family and friends?
- Salary and money potential?
- Possibility of being famous?

### Validated Hypothesis

Go to step 4

## 4 Finalisation



### 'Typical Day' Test?

*"If you want to know the road ahead, then ask someone who has travelled it."*

- Ancient Chinese Proverb

Here, we ask you to identify 2 - 3 people who have the same career that you have chosen and brought to this stage. Observe and ask questions to understand the 'typical life' in that career



## Decision

### Tools

- Discussion within the family and friends
- Univariety Website – Career Section
- Sessions with Univariety Counsellors
- Internet, books and other media