

## **Biomedical Technology-Instruments Program**

### **KSU Mission**

1. Provide distinctive education
2. Produce creative research
3. Serve society and contribute in building the knowledge economy and community

### **CAMS Mission**

1. Producing qualified professionals with the ability to compete internationally in applied medical professions
2. Provide an environment that encourages learning and creativity
3. Produce scientific research that contributes in building the knowledge society

### **BMT Mission**

1. Offering a high-quality program.
2. Educate highly competent graduates in the field of biomedical technology.
3. To support the health care sector.

### **BMT Goals**

1. Offer an internationally competing biomedical technology program.
2. Prepare competent graduates to work in highly innovative biomedical technology environment.

## **BMT-I Program Educational Objectives (PEOs)**

1. Keeping the program in pace with the rapidly changing biomedical technologies.
2. Recruiting qualified teaching staff.
3. Providing adequate facilities.
4. Equipping students with the knowledge, skills, and tools required for biomedical technology profession.
5. Developing students' critical thinking skills to tackle professional issues.
6. Providing graduates with communication, information technology, and long-life learning skills.
7. Equipping graduates with professional responsibility and ethics.

## **ABET-ETAC SOs**

(SO1) an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline;

(SO2) an ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline;

(SO3) an ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;

(SO4) an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and

(SO5) an ability to function effectively as a member as well as a leader on technical teams.

## **ABET-ETAC a-k Students' Outcomes**

(a) an ability to select and apply the knowledge, techniques, skills, and modern tools of biomedical technology to include the application of circuit analysis, analog and digital electronics, microcomputers, biomechanics, biomedical instrumentation systems, and safety in the building, testing, operation, and maintenance of biomedical equipment.

(b) an ability to select and apply a knowledge of mathematics, chemistry, physics, and biological sciences, engineering, and technology to building, testing, operation, and maintenance of biomedical equipment and the ability to utilize statistics/probability, transform methods, discrete mathematics, or applied differential equations in support of biomedical systems.

(c) an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.

(d) an ability to analyze, design, and implement biomedical systems, components or processes for broadly-defined engineering technology problems appropriate to program educational objectives.

(e) an ability to function effectively as a member or leader on a technical team.

(f) an ability to identify, analyze, and solve broadly-defined biomedical technology problems.

(g) an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature.

(h) an understanding of the need for and an ability to engage in self-directed continuing professional development.

(i) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.

(j) a knowledge of the impact of engineering technology solutions in a societal and global context and an understanding of the clinical application of biomedical equipment.

(k) a commitment to quality, timeliness, and continuous improvement.

## NCAAA Students' Outcomes

<b>Four Domains</b>
<b>Knowledge</b>
<p>1.1. Recall knowledge in basic sciences.</p> <p>1.2. Acquire basic engineering sciences, techniques and skills related to the field of biomedical technology.</p> <p>1.3. Recognize the impact of biomedical technology solutions in community health and environmental contexts.</p> <p>1.4. Outline the knowledge of contemporary issues</p>
<b>Cognitive Skills</b>
<p>2.1. Analyze and interpret experimental data</p> <p>2.2. Identify and solve biomedical technology problems</p> <p>2.3. Design and implement biomedical systems or sub-systems.</p> <p>2.4. Evaluate the techniques and skills necessary in biomedical technology.</p>
<b>Interpersonal Skills &amp; Responsibility</b>
<p>3.1. Participate effectively in teamwork.</p> <p>3.2. Demonstrate professional and ethical responsibilities</p> <p>3.3. Demonstrate commitment to quality and continuous improvement.</p>
<b>Communication, Information Technology, Numerical Skills</b>
<p>4.1. Conduct technical written, oral, and graphical communications.</p> <p>4.2. Utilize specialized computer software and information technology.</p> <p>4.3. Use mathematical, numerical or simulation tools.</p>

<b>Three Domains</b>
<b>Knowledge and Understanding</b>
<p>K1. Recall knowledge in basic sciences.</p> <p>K2. Acquire basic engineering sciences, techniques and skills related to the field of biomedical technology.</p> <p>K3. Recognize the impact of biomedical technology solutions in community health and environmental contexts.</p> <p>K4. Outline the knowledge of contemporary issues</p>
<b>Skills</b>
<p>S1. Analyze and interpret experimental data</p> <p>S2. Identify and solve biomedical technology problems</p> <p>S3. Design and implement biomedical systems or sub-systems.</p> <p>S4. Evaluate the techniques and skills necessary in biomedical technology.</p> <p>S5. Conduct technical written, oral, and graphical communications.</p> <p>S6. Utilize specialized computer software and information technology.</p> <p>S7. Use mathematical, numerical or simulation tools.</p>
<b>Values, Autonomy and Responsibility</b>
<p>V1. Participate effectively in teamwork.</p> <p>V2. Demonstrate professional and ethical responsibilities</p> <p>V3. Demonstrate commitment to quality and continuous improvement.</p>