Proposal: Bio Medical Technician

Item 1. Program Goals and Objectives

Student Learning Outcomes

1. Distinguish and list various medical imaging technologies.

2. Set up standard electrical measurement tools and differentiate the uses for calibration and troubleshooting of medical equipment.

3. Categorize biopotentials and electrodes as they relate to basic human anatomy and physiology systems.

4. Associate the applicable regulation with the regulating organizations.

5. Evaluate the data from basic preventive maintenance tests on the following equipment: multi-parameter physiological monitor, electrocardiogram (ECG) machine, blood pressure monitor, defibrillator, pulse oximeter, infusion pump, and electrosurgical unit.

Item 2. Catalog Description

The biomedical technology program trains students to troubleshoot and repair electronics based biomedical instruments and equipment. Course topics highlight three (3) primary fields of study: Electronic Fundamentals, Human Anatomy and biomedical instrumentation. Students study electronics at the component level and human biological processes as building blocks for understanding biomedical instrumentation function, operation and troubleshooting.

Item 3. Program Requirements

Certificate of Achievement: Bio Medical Technician

Requirements	Dept. Name/#	Name	Units	Sequence
Required Units = 45.5	AT 10	Technical Computer Applications	3	Year 1 fall
	EST 51	Direct Current Fundamentals of Electronics	3	Year 1 fall
	EST 53	Lab Safety Practices	2	Year 1 fall
	EST 55A	Digital Concepts	3	Year 1 fall
	EST 52	Alternating Current Fundamentals	3	Year 1 spring
	EST 60	A+ PC Maintenance and Repair	3	Year 1 spring
	EST 61	Networking Fundamentals	3	Year 1 spring
	EST 57A	Analog Communications	3	Year 1 spring
	EST 57B	Digital Communications	3	Year 2 fall
	EST 57C	Voice and Data Cabling	3	Year 2 fall
	EST 54	Integrated Devices	3	Year 2 fall
	EST 82A	Introduction to Robotics	3.5	Year 2 fall
	AT 40	Preparing for Employment Opportunities	3	Year 2 spring
	EST 84A	Introduction to Biomedical Electronics	3	Year 2 spring
	BIOL 5	Human Biology	4	Year 2 spring

Proposed Sequence:
Year 1, Fall = 11 units
Year 1, Spring = 12 units
Year 2 Fall = 12.5 units
Year 2, Spring = 10 units

TOTAL UNITS: 45.5 units

Item 4. Master Planning

The Bio Medical Certificate of Achievement will fulfill Fresno City College's mission by preparing students to work and for transfer. The Certificate meets industry requirements for employment in medical equipment sectors, as well as providing a first step towards completion of an associate degree for transfer, which will lead to a bachelor's degree. Labor Market projections indicate there will be an average of a 25% increase in the number of jobs for Bio Medical Technicians in the five related occupational categories between 2012 and 2022. Since this is a part of the Electrical Systems Technology program, these courses also add to the knowledge base of students interested in obtaining other positions in the electrical field as well.

Item 5. Enrollment and Completer Projections

		2013-2014		2014-2015	
CB01: Course Department Number	CB02: Course Title	Annual # Sections	Annual Enrollment Total	Annual # Sections	Annual Enrollment Total
AT 10	Technical Computer Applications	20	550	20	472
AT 40	Preparing for Employment Opportunities	8	213	9	169
BIOL 5	Human Biology	43	1345	62	1793
EST 51	Direct Current Fundamentals of Electronics	6	178	7	185
EST 52	Alternating Current Fundamentals	7	171	5	116
EST 53	Lab Safety Practices	2	78	4	115
EST 54	Integrated Devices	2	54	2	54
EST 55A	Digital Concepts	2	60	2	62
EST 57A	Analog Communications	1	29	1	37
EST 57B	Digital Communications	1	28	1	33
EST 57C	Voice and Data Cabling	1	32	2	43
EST 60	A+ PC Maintenance and Repair	4	91	4	67
EST 61	Networking Fundamentals	2	62	2	57
EST 82A	Introduction to Robotics	1	42	2	66
EST 84A	Introduction to Biomedical Electronics	0 New course	0	0 New course	0

Item 6. Place of Program in Curriculum/Similar Programs

Before completing this section, review the college's existing program inventory in the CCC Curriculum Inventory, then address the following questions:

a) Do any active inventory records need to be made inactive or changed in connection with the approval of the proposed program? If yes, please specify. No.

b) Does the program replace any existing program(s) on the college's inventory? Provide relevant details if this program is related to the termination or scaling down of another program(s). No.

c) What related programs are offered by the college? None

Item 7. Similar Programs at Other Colleges in Service Area

At this time there are no other colleges in the area that offer either a certificate or degree in Bio Medical Technology.

The Certificate was developed in consultation with an ad hoc advisory committee consisting of lead professionals in the field as well as organizational members who are responsible for the development and maintenance of the equipment that is utilized in the Bio Medical field.