

## **Title: Enhancement of Student Enrolment at Albany State University through Four Year Engineering Technology Program**

### **H. Budget Narratives**

#### **1. Personnel (\$267,680)**

**Dr. Arun Saha**, Associate Professor of Physics (of Chemistry and Forensic Science Department) will work as the Project Director. He will develop the curriculum of four year engineering program. He will monitor the program and make improvements when necessary. During the school year, he will visit school sites and contact schools/school districts to recruit students and teachers for summer institute and workshop. During the summer, Dr. Saha will devote two summer month to conduct the summer institute and will receive 22.2% of academic salary \$57,845 which is \$12,842. During spring and fall, Dr. Saha will engage in afterschool tutoring for engineering courses and will receive \$3000 for spring and \$3,000 for fall as supplemental compensation. Altogether Dr. Saha will receive \$18,842 for year one. So for 5 year, the amount is **\$94,210**.

**Dr. Kwaichow Chan** Professor of Physics (of Chemistry and Forensic Science Department) will work as co-Project Director and will provide his expertise to run and conduct all activities. Dr. Chan will devote two summer month and will receive 22.2% of academic salary \$84,207 which is \$18,694. During spring, Dr. Chan will get release time. \$10,000 is requested for his release time. Total salary for Dr. Chan is requested is \$28,694 for year one. So for 5 years, Dr. Chan will receive  $5 \times \$28,694 = \mathbf{\$143,470}$ .

**Dr. Liqiu Zheng**, Assistant Professor of Physics (of Chemistry and Forensic Science Department) will work as the Co-Project Director. She will work with the PI to identify specific standards-based laboratory activities that will support content and pedagogical knowledge. She will serve as the liaison to the schools and be a part of the team that visits each participant at the school sites. Dr. Zheng will engage in afterschool tutoring for engineering courses and will receive \$3,000 for spring and \$3,000 for fall as supplemental compensation. So for 5 year, the amount is **\$30,000**.

Requested total salary = **\$94,210 + \$143,470 + \$30,000 = \$267,680.**

## **2. Fringe (\$7,714)**

Fringe benefit for Dr. Saha =  $\$12842 \times 24.46\% = \$3,141$ . Fringe benefit for Dr. Chan =  $18,694 \times 24.46\% = \$4,573$ . Fringe benefit for Dr. Zheng = 0

Total fringe benefit =  $\$3,141 + \$4,573 + 0 = \mathbf{\$7,714}$

## **3. Support Personnel (\$9,000)**

A part time office secretary will be needed during the summer time to communicate with schools and record participant information. Office secretary will work 20 hours per week for 6 weeks at \$15/hour. Cost is  $20 \text{ hour/week} \times 6 \text{ weeks} \times \$15/\text{hour} = \$1,800$  for one year.

Cost for 5 year =  $5 \times \$1,800 = \mathbf{\$9,000}$ .

## **4. Participant Costs (\$57,500)**

- Fifteen students will be selected from local schools to participate in the STEM summer institute. Each student will be provided one scientific calculator of latest model. Cost for this is estimated \$1500 for one year. For five year, this cost is \$7,500
- 10 engineering students will receive \$500/semester for involvement in STEM project. For 5 years, student stipend will be  $10 \times \$500/\text{semester} \times 2 \text{ semester} \times 5 = \$50,000$ .

Total participant cost =  $\$7,500 + \$50,000 = \mathbf{\$57,500}$

## **5. Travel (\$27,500)**

Project Director and Co Project Directors will attend faculty development workshop or conferences once in a year. Cost of attending conferences is estimated \$5,000 including registration, lodging and boarding for year one. For 5 years, this cost will be  $5 \times \$4,000 = \$20,000$ . Apart from this, Project Director will need to travel to the vendor companies to get trained on the latest equipment required for the engineering

labs. Estimated travel cost for this training is \$1500/year. For 5 years, this cost is \$7,500

**Total travel cost = \$20,000 + \$7,500 = \$27,500**

## **6. Additional Costs (\$12,500)**

Food: Lunch box will be available for student participants for (2 weeks or) 10 days during the STEM summer institute activities. Food cost for 10 days are estimated (15 participant × \$10/ participant × 10 days =) \$1,500 for year one. For 5 years, this cost will be **\$7,500**. Apart from that, Albany State University will arrange various competitions under this project. Light refreshments will be provided to the participants. Estimated cost for this refreshment item will be **\$5,000** for 5 years.

## **7. Materials and Supplies (\$278,352)**

According to the check sheets in Appendix 1 and 2, there are seven new courses have to be developed. Among those seven new courses, four of those are associated with laboratory components which have to be developed too.

Cost of Electrical Machine Lab = \$7,852 (10 License, Including training & Installation)

Cost of Microwave Engineering Lab = \$100,000 for Vector Network Analyzer + \$10,000 for circuit/pattern printing machine + \$3,000 for HFSS simulation software License + \$1,500 for materials and supplies

Cost of Fiber Optics – \$20,000

Cost of Data Acquisition Lab - \$3,000

Cost of Microcontroller Lab - \$2,000

Cost of Operating System lab - \$2,000

Senior Project cost - \$5,000

Cost for 7 computers (workstations) = \$21,000

Total Cost = \$154,352.

Cost for Year 1 = \$175,352

Cost for Year 2 = \$10,000

Cost for Year 3 = \$10,000

Cost for Year 4 = \$10,000

Cost for Year 5 = \$10,000

Total cost related to curriculum development = **\$215,352**

For STEM Engineering Competition, the following costs are anticipated. CNC milling machine \$20,000, Laser cutter \$8,000, Rover components \$10,000, other small equipment (Drones, etc) \$10,000. Total cost for STEM project \$20,000 + \$8,000 + \$10,000 + \$10,000 = **\$48,000.**

For community engagement activities, materials for bridge building and Lego robot for 8 schools are estimated \$3,000/year. For 5 years, this cost will be **\$15,000.**

## **I. Budget Summary**

All of the above line items in the budget narratives are summarized below.

<b>Item</b>	<b>Cost</b>
<b>1. Personnel</b>	<b>\$267,680</b>
<b>2. Fringe benefit</b>	<b>\$7,714</b>
<b>2. Support Personnel</b>	<b>\$9,000</b>
<b>3. Participant Costs</b>	<b>\$57,500</b>
<b>4. Travel</b>	<b>\$27,500</b>
<b>5. Additional Costs</b>	<b>\$12,500</b>
<b>6. Materials and Supplies</b>	<b>\$278,352</b>
<b>Total</b>	<b>\$660,246</b>