PROPOSED PROGRAM SUMMARY

Institution: University of Louisville
Program Name: Applied Engineering
Degree Destination: Bachelor of Science

CIP Code: 15.000
Credit Hours: 120
Implementation Date: 8/1/2024

Program Description

The industrial base within Kentucky is rapidly expanding, and the University of Louisville's new program in Applied Engineering will help meet the increasing workforce demand in this area. The Applied Engineering program will fill the gap between two-year technician programs and the traditional four-year engineering degree. Positions open to graduates of applied engineering programs appeal to students with a keen interest in application-based engineering projects and less interest in the theoretical aspects of engineering.

Students in the Applied Engineering program will choose between tracks in Mechatronics and Management. The courses for tracks will be offered in eight-week sessions, providing some flexibility for students. This flexibility is deliberate, given the requirement for students to complete a co-op requirement of 2,000 hours of work experience (e.g., one year of full-time work). This requirement ensures that students graduate with full-time work experience.

As a result of this program, graduates will be able to:

- Identify applied engineering problems, determine appropriate methodologies to address them, and effectively communicate findings.
- Solve problems, develop solutions, and demonstrate those solutions within relevant professional, technical, legal, and economic considerations.
- Manage projects, collaborate within a team, and apply technical and professional competencies to solve applied engineering problems.

The program is also designed with a specific transfer point after the second year to create a seamless transfer experience for students from KCTCS colleges. Adult learners will use their prior work experience to count towards the co-op requirement, either in part or in full.

Connection to Other Programs

The Applied Engineering program at the University of Louisville will complement similar programs across the state, such as the ones at Morehead State University and Murray State University. Given the extent of the hiring needs, no one institution can completely meet the anticipated workforce demand.

The program at Murray State University focuses on manufacturing. The program at Morehead State University focuses on engineering in electronics and computer engineering, mechanical and manufacturing engineering, and construction management. In contrast, the Applied Engineering program at the University of Louisville will focus on robotics, automation and mechatronics, electric vehicle batteries, and surveying, analyzing and interpreting data from mapping the Earth's surface (geomatics).

Student Demand

Initial estimates of enrollment are:
Year 1 – 60
Year 2 – 103
Year 3 – 141

Year 4 – 178
Year 5 – 181

Employment Demand

Over the next 10 years, Kentucky's employment needs are anticipated to increase 2-3% each year. Projections are that over the next 10 years, there will be 1,600 annual job openings in engineering for bachelor's-level engineers, despite Kentucky's universities graduating fewer than 1,400 each year, indicating an existing gap between job demand and graduate supply. The gap will only get wider as the demand for these jobs grows and enrollment in traditional engineering programs declines.

Kentucky's industrial base is rapidly expanding. Employer partners such as GE Appliances, FORTNA, and BlueOval SK have all communicated their need to hire employees with applied engineering skills. Common careers for graduates of Applied Engineering programs involve product development, manufacturing, product testing, technical sales, and field service. Students graduating from the Applied Engineering program will be prepared to enter the workforce immediately.

Budget

Despite some start-up costs, this budget achieves and maintains a revenue-positive status over a five-year period, allowing for future program growth through diversification and specialization in different industry-recognized pathways. Revenue will come from student credit hours and external donations.

Projected Revenue over Next Five Years ($):	$ 4,682,487
Projected Expenses over Next Five Years ($):	$ 4,392,380