

University of Louisville

New Academic Program Proposal Template

Certificate Programs

After approval of the Letter of Intent, certificate programs are to complete the New Academic Certificate Program Proposal template.

All forms are available at:

<http://louisville.edu/oapa/new-academic-program-approval-page/new-academic-program-approval>

Please ensure all questions are addressed clearly and completely to avoid unnecessary delays. Questions can be directed to the Office of Academic Planning and Accountability through the Program Approval Service Account (PROGAPPR@louisville.edu).

Send the following materials to the Program Approval Service Account (PROGAPPR@louisville.edu):

- Completed Proposal Template
- Proposed Program Curriculum (complete the table found in Appendix A of this proposal template)
- Course syllabi for any new course offerings
- SACSCOC Faculty Roster Form
- Gray Associates Program Evaluation System Regional Scorecard
- CV for Program Director/Coordinator
- Proposal Budget Form
- Letter of Support from the unit Dean
- Letter of Support from the UofL Libraries
- Letter(s) of Support from any units, departments, or internal or external entities that will be supporting the certificate program
- [Notice of Intent to Offer a Certificate Program Eligible for Financial Aid](#) (Stand-alone Certificates Only – See Section D.5) – Optional

The program approval process will not begin until all of the above documents are received. Please submit all materials listed above at the same time.

General Program Information	
Date:	04/13/2022
Program Name:	Six Sigma Graduate Certificate
Degree Level:	<u>Undergraduate:</u> _____ <u>Graduate</u> (select one of the following): Post-Baccalaureate <input checked="" type="checkbox"/> _____ Post-Master's _____ Post-Professional _____
Minimum and Maximum Number of Credit Hours required:	9
Accreditation or Licensure Requirements (if applicable):	n/a
CIP Code:	14.3501
Department and Department Chair:	Industrial Engineering; Pratik J. Parikh
School/College:	J.B. Speed School of Engineering
Program Director and Contact (if different); (please also include title):	Faisal Aqlan; Associate Professor of Industrial Engineering and Director of Engineering Management Programs
Is an approval letter from the Education Professional Standards Board (EPSB) required for this program? If so, attach a copy to this proposal.	No
Proposed Implementation Date for Program (semester and year):	Fall 2022
Program Length (1 semester, 1 year or Average time to Completion)	1 year
Anticipated Date for Granting First Degree:	May 2023
Identify whether the program is 100% online, 100% face-to-face, or a combination of the two:	100% online
If the program plans to offer the certificate program as a stand-alone credential eligible for Title IV Financial Aid – See Section D.5	Complete Notice of Intent Form - http://louisville.edu/oapa/gainful-employment-policy

A. Centrality to UofL's Mission and Strategic Plan

The certificate program is to adhere to the role and scope of the University of Louisville as set forth in its mission statement and as complemented by UofL's strategic plan.

1. Provide a brief description of the program (copy the abstract provided in the program's Letter of Intent here).

(250 words or less; program's purpose/focus, primary areas of study, intended audience, degree level, length of the program, goals/objectives, rationale for program, skills or knowledge that students will acquire, relationship of program to general field).

The Engineering Management (EM) program, part of the Industrial Engineering (IE) department, has been offering courses that can be applied towards an external Six Sigma Black Belt certification to current EM students starting in Fall 2020. This includes four courses for a total of nine credit hours: EM 613, EM 661, EM 684, and EM 685. In EM 684 and EM 685, students work on a Black Belt project as part of the curriculum. At the end of EM 685, students are eligible to take the Black Belt test offered through the Institute of Industrial and Systems Engineers (IISE), which is the professional engineering society for Industrial and Systems Engineers. If students are successful in their project and pass the test, they will then be Black Belt certified. The EM program would like to offer these four courses as a standalone graduate certificate to market it to people who desire to get a Six Sigma Graduate Certificate and be Black Belt certified to help with their careers. Once students successfully finish the four courses, they will earn a Six Sigma Graduate Certificate issued by University of Louisville (UofL). Students can also pursue the IISE Six Sigma Black Belt certification. Passing the IISE Six Sigma Black Belt test is not required to graduate with the UofL's Six Sigma certificate since this certificate is just preparing the student to take the test through IISE.

2. Explain how the proposed program relates to the institutional mission and academic strategic plan.

UofL's 2019-2020 Plan highlights the strong commitment the University has to the State of Kentucky and its economic health. To support a sustainable economic growth, workforce development both in physical and digital forms are of critical importance. The 2019-2020 plan calls for UofL to be a great place to learn, work, and invest. Particularly, one principal notion under the "Great Place to Learn" is to engage students in meaningful experiential learning opportunities by creating high-quality, industry-focused, core-skills certification to help students succeed upon graduation. As such, it is envisioned that the development of a high quality, online Six Sigma graduate certificate will meet the goal of preparing workforce, both in physical and digital space, to help with the economic growth of the Commonwealth, while aligning with UofL's intent of it being a great place to learn.

At the unit level, the mission of the Speed School of Engineering (SSoE) is "to serve the University, the Commonwealth of Kentucky, and the engineering profession by providing high quality educational programs to all students; engaging in research and scholarship that will extend knowledge; and assisting the economic development of the regional, state and national economies through technology transfer." The Six Sigma Graduate Certificate serves the above mission by creating an opportunity for students and professionals to have access to a continuing education program. This will address the pressing needs for logistics planning, analytics, and management talents in the marketplace, particularly in the Commonwealth of Kentucky.

3. List the objectives of the proposed program.

Explain how the objectives support the university and unit mission, strategic priorities, and institutional and societal needs.

The objective of the proposed certification program is to deliver comprehensive knowledge and skills in process improvement, and help prepare students and professionals to meet the growing demand for Six Sigma Black Belt specialists. The certificate will provide a powerful set of credentials and tools to enhance problem-solving skills of the students and enable them to address

the modern challenges associated with what is being called the fourth industrial revolution. It will help organizations make their processes more efficient.

Definition and Importance of Six Sigma: Sigma, σ , is Greek letter representing the standard deviation of a population of data (i.e., variability). The term "Sigma" is often used as a scale for levels of "goodness" or quality (i.e., capability). Using this scale, "Six Sigma" equates to 3.4 defects per one million opportunities (DPMO). Six Sigma started as a defect reduction effort in manufacturing (Motorola and then GE) and was then applied to other business processes for the same purpose. It views all work as processes that can be defined, measured, analyzed, improved, and controlled. Processes require inputs and produce outputs. If you control the inputs, you will control the outputs. Six Sigma uses qualitative and quantitative tools to drive process improvement. Examples include statistical process control (SPC), control charts, failure mode and effect analysis, process mapping, etc. It is mainly based on DMAIC (Define, Measure, Analyze, Improve, and Control) methodology which defines the steps required to improve the process starting with defining the problem and ending with implementing the solutions. Six Sigma is viewed as a system for managing quality to achieve near-perfect business processes. Hence, the UofL Six Sigma Graduate Certificate will serve the societal needs of the Greater Louisville region as contributes to the regional and State economic development by contributing to workforce development and helping organizations to improve their business processes.

4. Clearly state the admission, retention, and degree completion standards designed to encourage high quality.

Please be clear and specific.

- Admissions requirements: Students will be required to possess a Bachelor's degree and have sufficient statistics (one semester of Introduction to Statistics) and math (one semester of Calculus I) for program admission. Both engineering and non-engineering majors would be considered. The minimum undergraduate GPA will be 2.75. Applicants with GPA below 2.75 may be considered for admission based on additional criteria including academic performance in math, science, and engineering courses completed in their bachelor's degree. GMAT/GRE scores will not be required.
- Graduation requirements: Students will be required to maintain a 3.0 GPA in order to graduate.

B. Program Quality and Student Success

1. What are the intended student learning outcomes of the proposed program?

The Six Sigma Graduate Certificate has the following learning outcomes:

- Student Learning Outcome 1 (SLO1): Graduates will demonstrate that they can take a broad view of Six Sigma projects by a project that they complete from conception to completion.
- Student Learning Outcome 2 (SLO2): Graduates will demonstrate that they can communicate effectively when explaining engineering research, tools, and projects.

2. Describe how each program-level student learning outcome will be assessed (including when data will be collected and how assessment results will be used to improve the program.

For SLO1, students will complete a Six Sigma project in EM 685 that shows their ability to lead a project successfully. The skills include Design, Measure, Analyze, Improve, and Control (DMAIC) approach implementation, statistical analysis, and use of Six Sigma tools.

- For Define, students should be able to provide a compelling business case appropriately scoped, complete with project goals, and linked to a strategic plan.
- For Measure, students will collect process performance data for primary and secondary metrics to gain insight and understanding into root causes and to establish performance baselines.
- For Analyze, students will analyze and establish optimal performance settings and verify root causes.
- For Improve, students will identify and implement process improvement solutions.
- For Control, students will establish and deploy a control plan to ensure that gains in performance are maintained.

SLO2 will be measured by a discussion board assignment that is given weekly in classes where students discuss engineering research, tools, and projects. This measure will look at the EM 613, Operations Management, discussion board.

The data for the two outcomes will be collected annually. Success will be defined as observing 80% or more of students achieving 80% or higher score on the assignments. Results of the analysis will be used by the program director and department chair to glean additional program improvements.

3. For each learning outcomes, provide direct indicators (and indirect, where possible) of achievement of the outcome, target(s) for the outcome, and frequency of data collection.

For SLO1, the direct indicator of achievement of the outcome will be based on the assessment of the Six Sigma project assigned by the course instructor. In this project, students will choose some of the methods learned in the class to show how they would use the methods to improve a given process. Students will deliver their report in the following format:

Written report (7-10 pages)

- Cover Page (not included in total page count)
- Executive summary (no more than 500 words, on its own page)
- Single space, 1" margins, 11 or 12 font, Calibri or Times New Roman preferred.
- Please submit in a pdf or .docx format.
- Supporting Material
 - Analysis using what you have learned in this class
 - Discussion
 - Conclusion

Assessment will consist of 3 components:

- 15% Grammar, spelling, and format
- 70% Analysis using what students learned in the class
- 15% Executive Summary, Discussion, and Conclusion

For SLO2, the following are two items the students will be evaluated upon:

1. Describe or show an example of how you can use one or a combination of the concepts that you are learning this week in your work or personal life.
2. Respond to at least one classmate's post, giving feedback on their example

100% - Original post describes and/or shows an example adequately from a concept learned this week and responds to a classmate with great feedback

85% - Original post describes and/or shows an example adequately from a concept learned this week and responds to a classmate with minimal feedback

70% - Original post describes and/or shows an example minimally from a concept learned this week and responds to a classmate with great feedback

60% - Original post describes and/or shows an example minimally from a concept learned this week and responds to a classmate with minimal feedback

50% - Only one post

Target: 80% of students achieve a 80% or better.

Frequency of data collection: every year.

4. Course Delivery Methods.

Please answer the following:

- a) Will this be a 100% distance learning program? Yes No
- b) Will this program utilize alternative learning formats (e.g., distance learning, technology-enhanced instruction, evening/weekend classes, accelerated courses)? Yes No

If yes, please check all that apply below.

- Distance Learning
- Courses that combine various modes of interaction, such as face-to-face, videoconferencing, audio-conferencing, mail, telephone, fax, e-mail, interactive television, or World Wide Web
- Technology-enhanced instruction
- Evening/weekend/early morning classes
- Accelerated courses
- Instruction at nontraditional locations, such as employer worksite
- Courses with multiple entry, exit, and reentry points
- Courses with "rolling" entrance and completion times, based on self-pacing
- Modularized courses

5. Is there a specialized accrediting agency related to this program? Yes No

a. If yes, please identify the agency.

b. If yes, will the program seek accreditation?

n/a

6. Describe the library resources available to support this program.

Please also submit a letter of support from the UofL Libraries.

Access to the qualitative and quantitative library resources must be appropriate for the proposed program and should meet recognized standards for study at a particular level or in a particular field where such standards are available.

No additional specialized library resources are required for the Six Sigma certificate program as the library already possesses sufficient resources to support the certificate. A letter from UofL Libraries is attached.

C. Program Demand/Unnecessary Duplication

1. Provide the projected enrollment and graduation numbers for the first five years.

The EM courses for the Six Sigma Graduate Certificate are currently offered online to EM students as follows: EM 613 (3 credits) is offered in Fall, Spring and Summer; EM 661 (3 credits) is offered in Fall, Spring, and Summer; EM 684/5 (1.5 credits each) is offered in Fall and Spring. Currently, there is a space for an average of 13 more students per year in these EM courses. Hence, we plan to enroll 13 new students into the Six Sigma Graduate Certificate each year. Even though students can start the program any semester (Fall, Spring, or Summer), we will assume that a cohort of 13 new students will start in the Fall semester and 10 of the 13 will complete the program and receive the Certificate while 3 students may drop out before finishing the program. These projected 13 students are new part-time students who are only taking the Certificate hours. We assume there is no revenue from the 3 students who may drop. If we see a significant increase in the enrollment for EM program and/or Six Sigma Certificate, we will open new sections of the courses.

Table 1. Projected degrees conferred and headcount enrollment

Academic Year	Degrees Conferred	Headcount Enrollment (Fall term)
2022-2023	10	13
2023-2024	10	13
2024-2025	10	13
2025-2026	10	13
2026-2027	10	13

2. Indicate any efforts to address student educational and workforce needs or to maximize student success, for both traditional and non-traditional students.

Include any data on student demand; career opportunities at the regional, state, and national levels; and any changes or trends in the discipline(s) that necessitate a new program.

Six Sigma certification is currently being implemented as part of the EM program and multiple students have received the Black Belt certification from IISE. Students in the online graduate certificate will not be expected to concurrently enroll in a parent degree program, but are additional students who either recently received their undergraduate degree, or are already in industry and are getting this graduate certificate for professional career growth. The overall growth trend for Six Sigma skill set in the next 10 years is positive. The table below shows statistics of employer demand information for Six Sigma process improvement positions.

Table 2. Recent statistics for Six Sigma positions

Type of Job	State Avg Wage	State # of openings (Annual)	State Growth Projections (%)	Regional Avg Wage	Regional # of openings (Annual)	Regional Growth Projections (%)	National Avg Wage	National # of openings	National Growth Projections (%)
Management Analysts	\$77,780	1,020	18.78%	\$84,753	4,564	16.39%	\$95,560	99,900	13.5%
Business Operations Specialists	\$69,010	921	9.29%	\$70,633	5,745	9.00%	\$80,220	119,600	6.3%
Industrial Engineers	\$80,480	727	0.69%	\$80,877	2,619	9.36%	\$93,660	22,600	8.3%
Transportation, Storage, and Distribution Managers	\$89,480	283	15.28%	\$94,357	994	10.79%	\$103,320	11,400	5.6%
Production Managers	\$98,790	302	7.82%	\$104,477	1,558	5.37%	\$115,110	13,800	0.70%

Data gathered from the Bureau of Labor Statistics' [Occupational Outlook Handbook](#) and [Occupational Employment Statistics](#); and the Projections Managing Partnership's [State Occupational Projections](#) (2016-2026). Please note that national projections are for the period of 2016-2026.

3. Specify/highlight any distinctive qualities of the proposed program.

UofL is a Qualified Training Provider (QTP) by IISE and the EM program pays a fixed fee of \$1,700 to IISE each year. The UofL Six Sigma Graduate Certificate will prepare students to receive IISE Six Sigma Black Belt certification while taking nine credit hours that can be used toward a college degree. IISE is one of the most credible organizations that offer Six Sigma certifications; it has granted many individuals with this Certificate who have since taken leadership roles in their companies helping them to improve their processes and cut cost. The courses in the Certificate (also part of the EM program) are 8-week long and offered online 100% asynchronous. There are multiple entry points throughout the year. Program participants do not have to be Six Sigma Green Belt certified to enroll in the program and receive the IISE Six Sigma Black Belt Certificate.

4. Does the proposed program serve a different student population (e.g., students in a different geographic area, non-traditional students, etc.) from existing programs?

If yes, please explain.

The certification program will be open to students and working professionals given that they satisfy the admission requirements. Students enrolled in the MEng in Engineering Management program are currently the only population of students with access to all of the courses within the Certificate, and they are not currently awarded a University Certificate for completion. The Six Sigma Graduate Certificate will serve a multitude of students who are currently finishing bachelor's degree and

professionals who already hold a bachelor's degree, and work in field that utilize Six Sigma methodologies. These fields include (but are not limited to): Logistics, Distribution, Production, Healthcare, Banking, Entertainment, and many more. There is also an opportunity to offer the Six Sigma Graduate Certificate to local manufacturing companies and we already started discussing this with some companies (e.g., PACCAR). The ability of students to complete the Certificate in a 100% online format will expand the geographic reach and provide access to new geographic markets not currently served.

5. Will this program replace or enhance any existing program(s) or tracks, concentrations, or specializations within an existing program? Yes No

If so, please specify.

In addition to drawing a large number of external Certificate-seeking students and professionals, this Certificate will provide an additional Academic Credential to students currently enrolled in the MEng in Engineering Management program, who complete this set of courses.

6. How will the program support or be supported by other programs and/or units within the institution? Please also describe potential for collaboration with other programs within the institution.

The Six Sigma Graduate Certificate will be supported by the EM program and the IE department. The IE department is currently hiring a coordinator to help Aqlan with his NSF grants and this coordinator will also support the Six Sigma Graduate Certificate. While any UofL or non-UofL student can apply for admission to our program, we will explore collaboration with UofL's College of Business who, we believe, would benefit from this Certificate.

7. Describe the proposed program's relationship with programs at other institutions or external organizations (if applicable).

The students in this Certificate will have an opportunity to complete a Six Sigma process improvement project and take a test to earn their Black Belt certification through IISE. An individual who is Six Sigma Black Belt certified can explain Six Sigma philosophies, principles, and tools and be able to apply them to real-world process improvement projects as well as demonstrate team leadership.

D. Cost

1. Will this program require additional resources? Yes No

If so, please provide a brief summary of new or additional resources that will be needed to implement this program over the next five years. Document the expected cost/expenditures in the table below.

The proposed Certificate program will require additional administrative and marketing support resources. It is expected that the program will require a director with a \$10,000 annual stipend (to pay paid as supplemental pay in the summer), \$5,000 for staff support, and a marketing budget of \$15,000 per year. The director will oversee the program, review and approve student applications, schedule the courses, coordinate with course instructors and IISE, serve as a mentor for student Six Sigma projects, and review and approve graduation Certificate. The staff member will help the director with the program and keep track of the certification credits by student identity. The marketing budget will cover 150 leads (\$100 per lead on average for graduate Certificates as provided by Delphi Center). On average, the conversion rate from leads to application is 12% and from application to enrollment is 76%. This means 150 leads will result in 13 enrollments. These estimates are based on what we currently have in the EM Online program. The expenses will occur at least one semester after the program starts. If needed, an upfront expense of \$15,000 for marketing will be covered by the EM or IE budget as initial start-up funds before there is tuition-share revenue to cover these costs. Both the director stipend and marketing expenses will include an escalation factor of 3%.

All courses are already being taught in the existing EM program and there is no cost for course development or offering. The tables below show how the Certificate will generate additional revenue while incurring administrative and marketing costs. We assume that 10 out of the 13 enrolled students will finish the Certificate while 3 may drop out before finishing the program. Hence, we only count the tuition from the 10 students who finish the program. The program is expected to generate about \$67,680 per year in marginal revenue for UofL (10 students * 9 credit hours per year * \$752 per credit hour). SSoE expects to retain 75% of graduate tuition. The tuition will include an escalation factor of 3%. Assuming the students will take 3 credits in Fall, 3 credits in Spring, and 3 credits in Summer, the tuition revenue per term will be 33% of the annual revenue. As a contingency plan, for the case that tuition-share enrollment is less than projected, we are including 3% of the tuition revenue as expense allowance.

Table 3. Project revenue retained by SSoE from the Six Sigma Graduate Certificate

	Year 1	Year 2	Year 3	Year 4	Year 5	Five-year total
Revenue (from tuition)	\$50,760	\$52,282.8	\$53,851.3	\$55,466.8	\$57,130.8	\$269,491.7

Table 4. Annual expenses for the Six Sigma Graduate Certificate

	Year 1	Year 2	Year 3	Year 4	Year 5	Five-year total
Expenses	\$30,000.0	\$30,900.0	\$31,827.0	\$32,781.8	\$33,765.4	\$159,274.2
Expense Allowance (3%)	\$1,522.8	\$1,615.5	\$1,568.5	\$1,664.0	\$1,713.9	\$8,084.7
Total Expenses	\$31,522.8	\$32,515.5	\$33,395.5	\$34,445.8	\$35,479.3	\$167,358.9

2. Complete the SACS Faculty Roster Form found at the link below and submit it with this proposal.

Found at:

<http://louisville.edu/oapa/new-academic-program-approval-page/new-academic-program-approval>

Also submit a copy of the program director's CV.

3. Are new or additional faculty needed? Yes No

- a) If yes, please explain, indicating the number and role of each new faculty member and whether they will be part-time or full-time. Specify if graduate assistants are included in the additional faculty resources needed.
- b) If new faculty are needed, please provide a plan to ensure that appropriate faculty resources are available, either within the institution or externally, to support the program.
- c) What is the projected faculty/student ratio for the program?

No additional faculty will be needed for the Certificate program as all the courses are already being taught in the EM program and there is a space to add more students to these courses. The anticipated faculty/student ratio is expected one faculty member for every 25 students. This is the expected class size for both EM and Six Sigma Graduate Certificate students.

4. Will this program impact existing programs and/or organizational units within UofL? Yes No

If so, please describe the impact.

(examples: reallocation of resources, faculty or staff reassigned, changes to other programs and/or course offerings, reduction or increase in students served, any other possible impact).

The Six sigma Graduate Certificate will create opportunities for students and professionals to have access to a continuing education program. We expect the Certificate will increase enrollment in the EM program as students who complete the Certificate can take six more EM courses to receive the masters degree. This also applies to other graduate programs in engineering and business (e.g., MSIE, MBA) that may count these courses for students.

- **Complete the New Program Budget Spreadsheet.**

Found at:

<http://louisville.edu/oapa/new-academic-program-approval-page/new-academic-program-approval>

Notes for completing the Budget Spreadsheet:

- Provide an estimate of the level of new and existing resources that will be required to implement and sustain the program.
- Any existing resources reallocated to support this new offering should be estimated as an “internal reallocation” in both the Funding Sources and Expenses sections of the budget.
- Any new resources for which the unit/department plans to allocate funding should be listed as “allocation” in both the Funding Sources and Expenses sections of the budget.
- The program proposal is to be developed without the expectation of tuition-sharing or recovery agreements with the Provost. This approach ensures that the “cost” of operating the program is somewhat reflective of reality.

- For every place you add numbers (in both the Funding Sources and Expenses spreadsheet) provide a written explanation for the numbers, including how they were calculated. The CPE system won't let us submit the proposal without explanations for the budget numbers.
- The budget for the proposed program is to be in alignment with the latest budget assumptions (provided below as of 10/7/19) from the Budget Model Workgroup.

Undergraduate*

70% (net of mandatory student fees) of resident per credit hour tuition rate (i.e., the listed rate on the bursar's website) charged to undergraduate students is allocated to the academic unit where the instruction takes place. Every credit hour is treated the same under the model.

Graduate/Professional*

Graduate: 75% (net of mandatory student fees) of tuition revenue allocated according to a student's home academic program.

Professional: 85% of tuition revenues generated from professional degree (law, dentistry, medicine) programs allocated to the student's home academic program. For purposes of the budget model, doctoral programs fall in the Professional category.

*These definitions of the Budget Model are as of 10/7/19 and are subject to change.

Note that there are three tabs to the Budget spreadsheet.

Funding Sources tab:

- Indicate funding to be supplied by the unit (include direct funding & In-kind support):
- Internal allocation and reallocation are those estimated dollars needed to fund the start-up and support the new academic program – typically defined as faculty, administrative/staff, and operational expenses.
- When calculating funding, consider the impact on current faculty workloads.
- Include the expected tuition revenue generated by anticipated student enrollment.
- If the program will use existing faculty or other existing resources, the amount of funding represented by those resources are to be listed in the Funding Sources table as reallocation of funds.
- If reallocation of “existing” funds are included in the Funding spreadsheet, the numbers should also be reflected in the Expenses spreadsheet.
- If the unit has allocated funds for any new expenses in the Funding Sources spreadsheet, the numbers should also be added to the Expenses spreadsheet.

Expenses tab:

- You do not have to estimate classroom space unless you believe that existing space is not sufficient to support the academic program.
- Any expenses identified as “existing” funds in the expenses spreadsheet should also be added to the Funding Sources spreadsheet as either internal reallocation or internal allocation.

Funding Source/Expenses Combined tab:

- This spreadsheet will pre-populate based upon the numbers entered into the Funding Sources and Expenses spreadsheets. The goal is to have more funding than expenses.

5. Financial Aid for Certificate Programs

Does the unit plan to offer this program as a stand-alone certificate eligible for Title IV Financial Aid?

Yes No

If yes, please review the following information:

Effective July 1, 2020, University of Louisville (UofL) students enrolled (half-time or more) in stand-alone certificate programs designated as financial aid eligible can be awarded funds. In order for a UofL certificate program to be deemed eligible for Title IV federal aid, it must:

- be one academic year in duration;
- be at least 24 credit hours for undergraduate certificates; be at least 9 credit hours for graduate certificates; and
- prepare students for gainful employment in a recognized occupation.

Academic units offering certificate programs must certify these credentials as Title IV eligible programs by submitting a [Notice of Intent to Offer a Certificate Program Eligible for Financial Aid](#).

See the Gainful Employment Policy website for the intent form and other information -

<http://louisville.edu/oapa/gainful-employment-policy>

Appendix A Program Curriculum

In the table below, provide the program curriculum and any options; indicate total number of credit hours required for degree completion.

- Include full course names and course descriptions.
- Where they exist you should report actual course numbers, titles, and descriptions in the course template. If the program has no specific course numbers required under a particular heading, provide a description of the type of course(s) required in the “course title” column and the number or range of credit hours required.
- Provide a copy of the course syllabus for any new courses developed.

Prefix & Number	Course Title	Course Description	Credits	Required?	New	Existing	Revised	Offered Online?
EM 613	Operations Management	Concepts in strategic planning, quality management, operations research, facility design, supply chain and logistics, forecasting, inventory control, resource planning, and scheduling. Emphasis is on appropriate analytical and computer-based techniques.	3	Yes	No	Yes	No	Yes
EM 661	Statistics II	The principles and techniques of advanced statistics, including multiple linear regression, multi-factor analysis of variance, experimental design, nonparametric statistics, & quality control.	3	Yes	No	Yes	No	Yes
EM 684	Process Improvement Applications I	In this course, students will learn the process improvement methodologies of six sigma. Emphasis will be placed on the quantitative and qualitative tools covered in EM 613 (IE 240 equivalent) and EM 661 (IE 563 equivalent) and how to use these tools within framework of the DMAIC process of six sigma. Students will complete the Define Phase of DMAIC.	1.5	Yes	No	Yes	No	Yes
EM 685	Process Improvement Applications II	In this course, students will apply the tools learned in EM 684 to complete a project. Students entering the class will have already completed the Define phase of DMAIC and in this class, will complete Measure, Analyze, Improve, Implement, and Control. At the end of the class, students have the option of taking an exam (for an additional fee) to obtain their Six Sigma Black Belt Certification.	1.5	Yes	No	Yes	No	Yes
TOTAL CREDITS			9					