Northeastern

April 18, 2016

Ms. Lynn Mahaffie
Deputy Assistant Secretary
Office of Postsecondary Education
U.S. Department of Education
1900 K Street, NW
Washington, DC 20006

Via e-mail to experimentalsites@ed.gov

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Dear Deputy Assistant Secretary Mahaffie:

On behalf of Northeastern University—a global leader in cooperative education, online learning, and use-inspired research—and in partnership with General Electric (GE) and the American Council on Education (ACE), it is my pleasure to submit the attached questionnaire and related materials constituting the university's final application to participate in the Educational Quality through Innovative Partnerships (EQUIP) experiment under the Department of Education's Experimental Sites Initiative.

National Need for Credentialed Manufacturing Training

Over the past two decades, the United States has been significantly outpaced in higher education completion by its global competitors. The shortage of American workers ready and able to fill the jobs of the future—particularly in critical areas like manufacturing that require education and training beyond high school—has significant implications for the nation's economic competitiveness.

Beyond the need for new technical, analytical, and process performance competencies, the lack of a college degree can also be a barrier to advancement in the manufacturing field as major companies prioritize degree attainment in their hiring and promotion processes. While leading manufacturers invest heavily in the learning and development of their employees, this unaccredited learning rarely articulates within university degree programs.

To address the attainment gap, the nation must accelerate efforts to help millions more American workers secure a meaningful postsecondary credential. This requires higher education institutions to work more intentionally and collaboratively in designing customized credentialed programs that expressly meet employer needs.

Partnership Between Market Leaders

Through the EQUIP program, GE and Northeastern propose to create and jointly deliver an accelerated Bachelor's of Science in Advanced Manufacturing that combines the rigorous assessment of GE's professional manufacturing employment and on-the-job training and development, and Northeastern's curricula and experiential learning strategies. This innovative, personalized program will give non-traditional students credit for skills and competencies gained through on-the-job professional experience at a reduced cost and accelerated pace. Informed by and responsive to industry needs, the program will be scalable and replicable across sectors, laying the foundation for the construction of a new talent pipeline to power the 21st century economy.

Specifically, Northeastern will co-develop, course-map, curate, and credential GE's practical and experiential educational program to enable GE employees and others in the labor market who have not completed their bachelor's degrees but want to retool their skills to enhance their manufacturing competencies. An accelerated short-term certificate will be stackable into the Bachelor of Science in Advanced Manufacturing and other majors within Northeastern's Lowell Institute School, a STEM degree completion program.

In addition, Northeastern will provide customized wrap-around academic support services necessary to enable employees to complete their credential. Ultimately, this experiment will enable GE employees and others in the labor force to progress in their jobs and fill critical talent needs for manufacturers that are currently experiencing talent shortages, boosting completion and enhancing economic competitiveness.

Northeastern and GE will engage the American Council on Education, which has substantial experience certifying nontraditional employee training programs, as the Quality Assurance Entity for the program. Under the proposed program, GE employees and others in the labor force entering the program would be able to apply Title IV student aid (Pell, SEOG, and undergraduate Direct Subsidized and Unsubsidized Stafford Loans) to enroll in the program.

Thank you for the opportunity to submit this final application for the EQUIP experiment. We look forward to partnering with you on our shared goals of strengthening the federal investment in student aid, testing innovation, increasing completion, and improving student outcomes.

Sincerely,

[redacted]

Anthony R. Erwin
Associate Vice President for Enrollment and Dean, Student Financial Services

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April 18, 2016

Ms. Lynn Mahaffie
Deputy Assistant Secretary
Office of Postsecondary Education
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1900 K Street, NW
Washington, DC 20006

Dear Deputy Assistant Secretary Mahaffie:

As a recognized global leader in corporate learning and development, General Electric is excited to partner with Northeastern University under the Department of Education's EQUIP initiative to create an innovative, practical, affordable, and experiential national learning and development model to address the postsecondary attainment crisis and the labor market manufacturing skills gap.

This is not new terrain for us. Deeply committed to innovation and continuous learning for all employees, GE has spent decades developing and fine tuning employee training modules grounded in a "learn by doing" approach in areas including technical skills, leadership, and technology adoption approaches. It is critical that we find ways to incorporate new advanced manufacturing skills, process improvements, and business understanding capabilities into our production teams in the future. In a digital industrial world, the lines across areas of expertise are blurring and the traditional hierarchies are being replaced with multi-dimensional collaborative teams.

Through the EQUIP program, a vision of a highly integrated collective effort is being created. The tenets of this program are described here.

Highly qualified, experienced Northeastern and GE faculty will collaborate as specialists in support of nontraditional learners to unbundle the traditional university faculty role. Northeastern will provide course instruction, coaching, and support while GE will assess learner performance via the program's performance-based assessments and experiential learning engagements.

In addition, GE expert manufacturing practitioners will preside over experiential activities and on-the-job training opportunities that promote and ensure mastery of program competencies within authentic work environments. Courses that support these activities will be delivered online and led by Northeastern faculty. The proportion of Northeastern coursework and GE-led activities a learner encounters will vary from one semester to the next as participating learners prioritize and select from among program elements and incorporate workplace realities.

Beyond their place-based engagement, learners will also have opportunity to interact and collaborate with each other, with faculty, and with GE expert manufacturing practitioners via an online program community. And throughout the entire process, a dedicated Northeastern career coach will academically advise and professionally guide each learner. Coaches will work with program participants from enrollment through graduation via phone-based and digital communication.

In this way, the program will establish an important talent pipeline for GE as the company elects to hire or promote the program's most qualified and capable graduates. At the same time, because GE is a global manufacturing leader, members of the general public who graduate from the program but are not hired by GE will be well prepared to assume manufacturing positions elsewhere.

This vision and the elements for success will be continually evaluated, challenged, and refined to meet the needs of an ever changing industry and workforce. We strongly believe our joint proposal and approach offers a scalable, replicable program that will increase economic mobility, boost credentialed completion, and help create a talent pipeline versed in the literacies of the future. GE has a decades-long relationship in working with Northeastern through talent recruitment in the co-op program, to graduate hires, to GE coursework that leads to advanced Northeastern degrees. As GE drives itself as a digital-industrial leader, now headquartered in Boston, we look to be at the center of this dynamic ecosystem, including advancing our relationship with Northeastern in partnerships such as this. We look forward to making a meaningful contribution to an issue of critical industrial and national importance.

Thank you for your consideration.

Sincerely,

[redacted]

Christine Furstoss

Founded in 1885
NEW ENGLAND ASSOCIATION OF SCHOOLS & COLLEGES, INC.
COMMISSION ON INSTITUTIONS OF HIGHER EDUCATION

April 12, 2016

To Whom It May Concern:

Staff of the Commission on Institutions of Higher Education of NEASC have been in communication with officials of Northeastern University as they develop an EQUIP proposal for the University to offer in conjunction with General Electric (GE) a new and custom-developed accelerated bachelor's degree completion program that blends GE training and work experience with the University's undergraduate degree completion programming, via its Lowell Institute School. We understand that American Council on Education (ACE) will serve as the QAE on this proposal.

On behalf of the Commission, I am writing to assure you that the Commission will consider the proposal from the Northeastern University as a substantive change.

Sincerely,

[redacted]

Barbara Brittingham
President

BB/bec

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The General Electric (GE) / Northeastern University
Experiential Pathway to Advanced Manufacturing Careers and University Degrees
An Application for the Educational Quality through Innovative Partnerships (EQUIP) Experiment under the Department of Education's Experimental Sites Initiative

PROGRAM FOCUS AND DESCRIPTION (Section A)

Background: GE and Northeastern - A Compelling Partnership Between Market Leaders to Address Critical Workforce Opportunity

As the U.S. economy has been transformed by the forces of technology and globalization, significant talent gaps have emerged in critical areas, including manufacturing. As The White House and industry leaders have acknowledged, growing and sustaining the competitiveness of the U.S. manufacturing sector - which accounts for 70% of all private-sector R&D spending - will require innovation in developing a workforce with fluency in emerging technologies and skills.

General Electric (GE) is one of the single largest and most diversified companies in the U.S. economy and is today positioned as the world's "Digital Industrial Company." GE seeks to transform industry with software-defined machines and solutions that are connected, responsive, and predictive. Deeply committed to innovation, GE is also a recognized leader in corporate learning and development. In GE's commitment to continuous learning for all employees, GE has developed training modules grounded in a "learn by doing" approach in areas including technical skills, leadership, and technology adoption approaches.

Companies such as GE struggle to attract, grow, and retain talent who possess the required portfolio of technological knowledge and skills and the ability to apply their expertise across myriad complex situations. This ability to apply competencies is critically important in manufacturing roles where workplace processes and inspections rapidly and continually evolve to keep pace with the technological advances in designs. The reality of today's manufacturing environments is that the quality of product design relies more heavily on the manufacturing process, or is a "product of the process."

As GE continues to drive Digital into its operations and factories, new skill sets will be required of the workforce. GE's manufacturing workers will need deep technical knowledge of the product, an understanding of the digital footprint of the product they are creating, and the ability to help predict future process performance. They will need the skills of analysis and the ability to communicate effectively and appropriately with others. And although the breadth of competencies required for such roles will be less than those needed from a person working in research or as a member of a detailed design team, the essential competencies required of GE's

manufacturing workers will exceed those required today. This is true of GE's environment and it will be true as other leading manufacturers follow suit.

Beyond the need for new technical, analytical, and process performance competencies, the lack of a college degree can be also be a barrier to advancement in this field as GE and other major companies value degree attainment in their hiring and promotion processes. GE and other leading manufacturers also invest heavily in the learning and development of their employees. Yet this informal learning rarely articulates within university degree programs. The current pipeline of students enrolled in traditional college/university-based programs is generally not interested in a manufacturing career path. That pipeline is thus insufficient to meet GE's growing demand as it evolves its manufacturing processes and adds talent to keep pace with growth and natural attrition (e.g., as the most experienced members of its current workforce retire).

Program Description

GE and Northeastern University will create and jointly deliver an accelerated, advanced manufacturing bachelor's degree program that combines the rigorous assessment of professional manufacturing experience, continuous on-the-job training and development, and Northeastern curricula and experiential learning strategies to:

a. award university credit for real-world manufacturing expertise, employer-sponsored training, on-the-job accomplishments and development, and industry-specific licensure and certification that students may have obtained over the course of their training;

a. scaffold, integrate, and extend such experiences within Northeastern's established faculty, course, experiential learning, and learner support infrastructure;

b. credential the resulting learning and experience at the level of a bachelor's degree within three years for all learners.

The program will feature and deploy:

a. *Rigorous assessment methods* to ensure learner mastery of essential manufacturing concepts, practices, and realities;

b. *New, custom developed disciplinary core and major curricula* that reflect the state of the art in manufacturing at GE and similar, large manufacturing employers;

c. *A robust suite of experiential learning offerings* positioned throughout the entire program to allow participants the chance to apply program competencies and be evaluated within authentic manufacturing environments;

d. *Highly qualified, experienced Northeastern and GE faculty who will collaborate as specialists* in support of learners to unbundle the traditional university faculty role. The former will provide course instruction, coaching, and support while the latter will assess learner performance via the program's performance-based assessments and experiential learning engagements;

e. *Ongoing, personalized career coaching for every learner* that includes access to a manufacturing practitioners *Expert Network* for co-curricular mentoring and affinity.

The program will be available to GE's existing manufacturing employees consistent with the company's commitment to continuous learning and advancement opportunities for all members of its workforce. It will also be available to qualified members of the general public. In this way, the program will establish an important talent pipeline for GE as it will elect to hire and/or promote the program's most qualified and capable graduates.

Because GE is a global manufacturing leader, members of the general public who graduate from the program but are not hired by GE will be well prepared to assume manufacturing positions elsewhere. All program participants and graduates will be well-supported by Northeastern's nationally recognized best-in-class career services resources and teams.

Credential

Program graduates will earn a *Bachelor's of Science in Advanced Manufacturing* from Northeastern University as well as relevant industry certifications. As GE and Northeastern jointly develop the program, we see an opportunity to potentially create a new industry certification with significant job market value based on the participation of additional firms and industry experts.

Outcomes

Specific program outcomes will be monitored, achieved, and demonstrated through ongoing assessment of learner performance. While actively enrolled, the following key performance indicators will be used to evaluate learner and program performance: course-specific completion and learner satisfaction rates; learners' satisfactory academic progress to degree completion; and ongoing persistence and learner retention rates.

The performance of program graduates will be assessed via each learner's job advancement or job placement results and via annual employer surveys to determine the job readiness and success of program graduates as compared with employees served by other

universities/programs.

Academic Structure

Structure
Program participants can expect to complete the entire bachelor's degree program in three years or less, depending upon how much prior college credit they possess at entry. Learners will be continuously enrolled with a blend of on-the-job and Northeastern course commitments equivalent to a full-time slate of study. For the purposes of university registration, record keeping, and calculating satisfactory academic progress, enrollment will occur within Northeastern's standard semester schedule.

Program Design
Program competencies and specific learning outcomes will align with the state of the art in manufacturing at GE and within similar manufacturing employers. A program council, to consist of GE experts, Northeastern faculty, and select leading industry practitioners will be established. This council will identify and prioritize relevant industry norms, compliance and certification standards, and leading manufacturing, hiring, and promotion best practices. The council will partner with a broader community of GE experts and Northeastern faculty to determine final program competencies, identify specific course, on-the-job, experiential, and assessment strategies, and establish admissions and success criteria.

The Learner Experience
GE expert manufacturing practitioners will preside over experiential activities and on-the-job training opportunities that promote and ensure mastery of program competencies within authentic work environments each semester. Courses that support these activities will be delivered online and led by Northeastern faculty. The proportion of Northeastern coursework and GE-led activities a learner encounters will vary from one semester to the next as participating learners prioritize and select from among program elements and incorporate workplace realities.

Beyond their place-based engagement, learners will also have opportunity to interact and collaborate with each other, with faculty, and with GE expert manufacturing practitioners via an online program community.

And throughout the entire process, a dedicated Northeastern career coach will academically advise and professionally guide each learner. Coaches will work with program participants from enrollment through graduation via phone-based and digital communication.

Curriculum
Where appropriate, existing GE and Northeastern curricula and assessments will be deployed. Where new curricula and assessments are called for, GE's manufacturing leaders and expert

practitioners will collaborate with Northeastern faculty, instructional designers, and assessment experts to operationalize and deliver the program's vision. Specifically, courses, on-the-job training, assessments, and experiential learning activities will be deployed or developed. Curriculum and assessments will be designed for online delivery to facilitate access and success. Face-to-face requirements will be limited to the program's on-the-job training and signature experiential learning activities.

Assessment
Each learner's ability to master and apply program competencies will be consistently and repeatedly evaluated using three distinct assessment methods.

1. *Examinations* will be employed to assess foundational, theoretical, and procedural mastery of course and program competencies.

2. *Performance-based assessments* will be employed to measure each learner's ability to synthesize and apply course and program competencies.

3. *Authentic, "learn by doing" assessments* will be employed during signature experiential learning engagements and culminate within a capstone experience.

Consistent with the program's unbundled faculty strategy, GE's manufacturing leaders and expert practitioners will assess learner performance on all performance-based assessments and during the signature experiential learning engagements. The latter will occur in a manner that embeds each learner within an authentic, real-world GE manufacturing environments.

Market-Leading Outcomes and Value

This program represents a highly unique collaboration between one of the world's most significant diversified industrial companies and a top-tier private research university with an experiential focus. The opportunity to participate in the EQUIP experiment served to catalyze our collaboration and helped us to think creatively about how we might leverage GE's current learning and development offerings to achieve a broader purpose: a bachelor's degree that leverages a state of the art understanding of manufacturing realities to meet the needs of both GE and similar manufacturers.

We do not believe that a comparable program currently exists. The program's foundation in *experiential learning* is particularly distinctive and differentiated: learners' opportunity to gain relevant and structured work experience will create greater labor market value beyond just a degree alone. As outlined in other sections of this application, the labor market value of a bachelor's degree is very clear. Although some bachelor's degree programs related to advanced manufacturing do exist, they are in a highly traditional construct - e.g., focused on traditional

students, full-time, etc. Our program is particularly differentiated by its grounding in industry; the diversity of experiential learning opportunities; the flexibility of fully online delivery; dedicated career coaching and mentoring; and its accelerated format.

Market Demand

GE's industry leadership, scale, and long operating history provide great confidence that there is a need and market demand for this program. In our program construct, GE is not simply a non-institutional provider of learning, but a major employer and hirer of graduates in its own right. Similarly, Northeastern University has a long history and is very successful in the current market offering bachelor's degrees and custom corporate programming in technical domains. In other words, both organizations' existing efforts - and demand for their professional roles, educational programs, etc - evidence a market need. Given that this program is designed to produce a graduate with a bachelor's degree, its potential and clear value rests on the proven demand and value of bachelor's degrees in the job market, as compared to newer and more experimental types of educational credentials.

The choice of a new program and experiment in manufacturing is highly intentional. The manufacturing industry is one of the largest economic sectors in the U.S., employing more than 12 million individuals (9% of the workforce) and accounting for 12% of GDP. A recent report by Deloitte and the Manufacturing Institute notes that over the next decade, nearly 3.5 million manufacturing jobs will be created and 2 million are expected to go unfilled due to the skills gap.

Demand is rising steadily for higher levels of educational attainment in the manufacturing workforce, in part due to the shift from classic, less skilled manufacturing to *advanced* manufacturing. In 2011, 53% of all manufacturing workers had at least some college education, up from 43% in 1994, according to the U.S. Department of Commerce's Economics and Statistics Administration. Georgetown University's Center on Education and the Workforce reports that educational attainment levels in manufacturing employment are expected to continue to rise into 2018.

Manufacturing workers with higher levels of educational attainment are clearly rewarded with higher average hourly earnings - $34.82 for those with a bachelor's degree compared to only $22.11 for workers with some college or an associate degree, and even less ($17.43) for those with a high school diploma or less, according to U.S. Department of Commerce 2011 data.

Demand for this type of program is also evident in the educational preferences apparent in manufacturing industry employers' recent job postings. Of 1.9 million job postings in the manufacturing industry during 2015, 68% required or preferred candidates with a bachelor's degree, according to Burning Glass Technologies. The same database also shows that demand

for bachelor's degree-educated workers in the manufacturing industry grew 29% between 2014 and 2015, to nearly 1 million job openings at this level annually.

Costs

Total degree cost will vary, by learner, depending on the amount of prior college credit that can be accepted in transfer. A flat annual tuition fee of $10,000 will be assessed. This will allow participants to enroll full-time, three semesters per year. Given the program's accelerated format, a learner who brought no prior college experience and successfully completed all requirements each semester would pay a total of $30,000 in program tuition. Learners who brought significant prior college experience and successfully completed all requirements each semester could pay considerably less. We do not anticipate that prior college norms and transfer realities would be such that learners could graduate in less than 1.5 years.

In addition to tuition, participants will incur travel for experiential learning and required materials costs of approximately $2,000 per year.

GE employees will receive GE's tuition assistance benefits for participation in the program. All enrollees meeting federal aid eligibility requirements would be eligible for federal aid based on EQUIP's provisions. In addition, Northeastern would be committed to the use of institutional funds to ensure that need is met.

We will continue to explore ways in which Northeastern, GE, and (when working with members of the general public) other employers can continue to subsidize tuition in ways that keep total cost to degree reasonable and appropriate for the audience.

Non-Traditional Provider Status

GE is a publicly traded for-profit corporation (NYSE: GE).

Additional Program Details and Relationship to Existing Programs

GE and Northeastern will custom develop a new degree to meet the specific and emerging needs of the manufacturing industry. In doing so, both entities will leverage existing program competencies, select course content, establish on-the-job training and experiences, and certain assessment instruments. This "re-use" of relevant materials approach will allow the parties to work with proven materials and methods while also helping to keep new development costs to a minimum. Because program competencies as defined by the program's council will be paramount, we expect that at least 50% of the program will be created from whole cloth via new, custom development.

· *Is the existing program provided by the institution or by the non-traditional provider?*

Both GE and Northeastern will provide for the program's experience. Existing course content, on-the-job training and experiences, and assessment instruments authored and delivered by each party will be employed consistent with program objectives. Additionally, highly qualified, experienced Northeastern and GE faculty will collaborate as specialists in support of learners to unbundle the traditional university faculty role. The former will provide course instruction, coaching, and support while the latter will assess learner performance via the program's performance-based assessments and experiential learning engagements.

· *Will that version of the program continue to be offered while an alternative version participating in the experiment is also offered?*

As a new program, this is not applicable.

· *Will the institution or the non-traditional provider also be offering a version of the program that is not Title-IV eligible while participating in the experiment?*

No.

· *What is the total tuition and fee amount that is charged a student for the existing program?*

Not applicable.

· How many students were enrolled in the existing program in the most recent year?

Not applicable.

· *To the extent that information is available, provide the percentage of students who relied on private loans to cover all or some of the tuition and fees charged for the existing program*

Northeastern does not track the percent of learners who rely on private financing to pay for their education.

· *To the extent that this is applicable and there are publicly available documents that provide this information, what were the total profits generated by this program or service in the most recent year?*

Not applicable.

ANTICIPATED STUDENT POPULATION (Section B)

Target Audience

The ideal program participant will aspire to prepare for a career in manufacturing or distinguish herself/himself to advance or hold a leadership and management position within a state of the art manufacturing environment. Consistent with the realities of this target audience and the industry's talent development needs, prior college or manufacturing experience, while preferred, is not necessarily an admission requirement.

Estimated Number of Students

The program will be developed through a pilot with GE employees (estimated by April 2017), and fully opened to both GE employees and qualified members of the public (likely September 2017). We estimate that the pilot will serve 20-50 students, with the program for the public growing beyond this in scale.

Beyond year one, the program will be featured and will continue to be available to GE's existing manufacturing employees consistent with the company's commitment to continuous learning and advancement opportunities for all members of its workforce. The program will also establish an important, dedicated talent pipeline for GE as the company will elect to hire and/or promote its most qualified and capable graduates annually.

Target Student Demographics

We anticipate that the mean participant age will be in the low-30s as we will seek to attract and give admissions preference to learners with prior college or manufacturing experience. In terms of ethnic, gender, and economic diversity, we believe that participant demographics will be similar to those observed within Northeastern's Lowell Institute School, which exists to provide science, engineering, and technological program offerings for those populations that have been traditionally underrepresented in STEM fields. Half (49%) of today's Lowell Institute School learners are women, and 35% are from traditionally underrepresented minority populations. 30% of today's Lowell Institute School learners are eligible to receive the Pell grant.

Title IV Aid and Other Benefits

Based on historical data for similar populations attending Northeastern's Lowell Institute School, we estimate that roughly 60% of students in the program would receive Title IV aid; 10% would receive Veteran's benefits. Over 66% of students in the program would receive either or both benefits.

Pell and Financial Aid Questions

Students will be eligible for Title IV federal aid along with state funding if applicable. Federal aid can include Pell Grant, SEOG, Subsidized Stafford and Unsubsidized Stafford.

Expected Benefits and Outcomes

Program graduates will receive a *bachelor's degree* as well as relevant *industry certifications*. Critically - and differentiated from most educational models - the program is built around and offers *real-world work experience*, which has an added value in the job market. Additionally, the contribution of a major industrial employer, the engagement of industry experts, and alignment with industry standards will all result in *externally validated skills and knowledge*.

The job market value of bachelor's degrees - and their ability to deliver greater earnings - is evidenced by countless studies from individuals and groups such as Georgetown University's Center for Education and the Workforce, the Bureau of Labor Statistics, and the Federal Reserve Bank, among many other sources.[1] The value of increased educational attainment in manufacturing is also well documented by studies by the Bureau of Labor Statistics, Department of Commerce, and so on. In addition, 2016 Burning Glass Technologies data spanning hundreds of thousands of job openings suggests that manufacturing jobs preferring candidates with bachelor's degrees average $76,624 compared to $49,517 for the associate degree level, an economic opportunity premium of 55%.

Roles and Responsibilities of Each Entity

GE and Northeastern will share responsibility for program design to ensure that program competencies and specific learning outcomes align with the state of the art in manufacturing at GE and within similar manufacturing employers.

GE's expert manufacturing practitioners will preside over the program's signature experiential activities and will deliver its on-the-job training opportunities to ensure mastery of program competencies within authentic work environments each semester. Courses that support these activities will be delivered online and led by Northeastern faculty.

A dedicated Northeastern career coach will academically advise and professionally guide each learner. These coaches will work with program participants from enrollment through graduation to help program participants align their academic and career objectives.

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[1] "Earnings and Unemployment Rates by Educational Attainment," U.S. Bureau of Labor Statistics, http://www.bls.gov/emp/ep_chart_001.htm; Jaison Abel and Richard Deitz, "Do the Benefits of College Still Outweigh the Costs?," *Federal Reserve Bank of New York Current Issues in Economics and Finance* 20, no. 3 (2014): http://www.ny.frb.org/research/current_issues/ci20-3.pdf; Anthony Carnevale, Tamara Jayasundera, and Ban Cheah, *The College Advantage: Weathering the Economic Storm* (Washington, D.C.: Georgetown University, 2012), http://files.eric.ed.gov/fulltext/ED534455.pdf

Where appropriate, existing GE and Northeastern curricula and assessments will be deployed. Where new curricula and assessments are called for, GE's manufacturing leaders and expert practitioners will collaborate with Northeastern faculty, instructional designers, and assessment experts to operationalize and deliver the program's vision.

Northeastern will collect and validate information on student outcomes. Northeastern will lead all public-facing marketing and enrollment efforts and will work collaboratively with GE leaders to enroll GE employees in the program. Tuition billing, financial aid, technical support, and student services will be provided by Northeastern.

Payments Between Providers

Each participating learner is responsible to pay tuition and cover associated program costs consistent with and accessing the relevant tuition assistance programs, financial aid, and Northeastern support described above.

Track Record in Serving Low-Income Students

Non-Traditional Provider
As an employer entity, GE has not served low-income students in the traditional fashion that an educational provider might. However, the company sustains more than 125,000 U.S. jobs and greatly prides itself on more than a century of job creation, wealth, and engaging in its communities, as recently described in an April 2016 *Washington Post* article by CEO Jeffrey Immelt.

Higher Education Institution
Northeastern has a long history of success in serving low-income students. Examples of efforts to support low-income students include policies such as fulfilling 100% of demonstrated financial need for students in certain divisions; targeting substantial scholarship programs specifically to low-income neighborhoods and restricting federal campus-based funds for Pell recipients and families with highest demonstrated need. Our Pell completion rate for the most recent cohort is 82%.

Support Services for Low Income Students

Northeastern is committed to serving the student support needs of all students, regardless of modality of learning. A comprehensive array of services to address the academic, wellness, and financial needs of students is in place. Academically, a range of services is available, including both online and on-ground tutorial assistance in foundational as well as major-related course/discipline areas. The University's expansive library resources are available and

accessible. Northeastern has an extensive program of support for students for whom English is their second language as well as a generally-accessible writing support program available to all students and supplemental instruction. The holistic approach to student support includes attention to wellness concerns and all students have access to mental and physical health services through the University's Health and Counseling Program and/or appropriate referral. Our "We Care" program ensures that those most in need, are connected with campus resources to address their individual concerns.

Financially, Northeastern is committed to supporting students in the development of sound financial literacy skills, often a particular concern for low-income students. In addition, the University's Career Services office is one of the top ranked (placing 1st or 2nd each year) in the country.

Student engagement for online students is also a top priority. These services include online orientation, virtual career conversations and meet-ups, and virtual labs. As of Fall 2016, we will be launching an alumni mentorship pilot accessible for virtual students.

Aid

Pell Grants are already awarded to students with highest need. At Northeastern, SEOG funding is reserved for Pell recipients - ensuring that this funding is applied to those with highest need. Institutional funds are also prioritized for those students with highest need.

QUALITY ASSURANCE PROCESS

Description of the quality assurance entity (QAE)

The American Council on Education will serve as the QAE for this project. ACE has a long history of leading academic quality evaluation processes and evaluating learning that takes place outside a formal classroom for college credit recommendations—since 1954 for military experiences and occupations and since 1974 for workplace courses, examinations and non accredited provider general education courses. ACE CREDIT® has successfully worked with thousands of corporate learning programs offered by businesses and industry, labor unions, associations, government agencies, and military services. The credit recommendations are designed to provide adult learners the opportunity to receive academic credit for learning completed outside of the traditional college or university classroom.

By what process has the QAE developed (or will develop) clear, specific, and measurable standards by which to review, approve, and monitor programs based on the "Quality Assurance Questions," establish consequences, and enforce the standards?

ACE will use faculty evaluators, psychometricians, and subject matter experts from the field to evaluate the effectiveness of the program in meeting the intended outcomes. ACE Evaluators are recruited from diverse post-secondary institutions across the country. In order to serve in this capacity, faculty must be currently teaching at a post-secondary institution recognized by the Council for Higher Education Accreditation, and teaching for a minimum of 5 years. This helps to ensure that the review process incorporates the standards and best-practices found in community colleges and private and public four-year universities. For the purposes of EQUIP, faculty selected must also currently serve as a department chair, dean, or associate dean and must represent an institution offering degree programs or certificates. Subject matter experts from the field who also serve as postsecondary faculty will also participate on the evaluation team.

How will the QAE review programs based on the "Quality Assurance Questions"? Has it already reviewed the program based on those questions? If so, attach specific answers. If not, when will it do so? (Please note: these questions will need to be answered by the QAE before the Program Participation Agreement for the participating institution is amended.

ACE has not conducted a review of the program to date. EQUIP program monitoring by ACE will occur at five separate junctures (see table below). Each review will result in summary data, commendations and recommendations provided to Northeastern University, General Electric (GE) and New England Association of Schools and Colleges (NEASC). If corrective and/or punitive actions are to be taken those will be clearly stated and defined within each report.

	Purpose	QAE Questions Addressed
Pre Program Start	To approve program, review stated outcomes, establish baseline standards and expectations, set data submission dates and expectations **Student Data Review:** NO	A1, A2, A3, A4, A5, B1, B2, B3, C3, C4, C5, D1, D2, D3, D4, D5, D6
Early 25% of program completion	Identify early warning signs of issues of implementation, quality, and management. Evaluate stated outcomes against established baseline standards and expectations **Student Data Review:** YES	C1, C2, C5, D6
Mid 50% of program completion	Determine corrective and preventative action to mitigate identified early issues. Evaluate stated outcomes against established baseline standards and expectations. **Student Data Review:** YES	B2, B3, C1, C2, C5, D2, D3, D5, D6,
Conditional 75% of program completion*	Assess impact of corrective and preventative actions. Implement punitive measurement. **Student Data Review**: YES	C1, C2, C5,
Completion	Evaluate stated outcomes against established baseline	B2, B3, C1, C2, C3, C5,

100% of program completion	standards **Student Data Review**: YES	D2, D3, D5, D6

How will the institution, QAE, and/or accreditor monitor and report on the performance of the program, providers, and students? How will the QAE be linked with the institution's and accreditor's existing complaint processes? If the QAE identifies program quality concerns or determines that the program is at risk of or subject to any adverse action by any party, how will the QAE notify the institution and affiliated non-traditional providers?

Monitoring of program outcomes by ACE will be done at four distinct points from program launch (see above). The summary of progress and outcomes of these analyses and reports of performance will be provided to the accreditor and department every six months through the duration of the program. Instances of noncompliance or required corrective actions will be reported to the accreditor and department immediately upon identification. Institutions and providers will then have a specified amount of time to implement these actions and show improvement. If sufficient improvement is not reached, the program will be suspended.
For the duration of the project, the three entities will adhere to Northeastern's current grievance/complaint process. Any complaints that cross the desk of the academic chair will be sent to ACE once resolved for tracking purposes. *See Appendix 3, Data Workflow.*

What actions will the institution and/or QAE take, and under what circumstances, to hold the institution and the non-traditional providers accountable, and help them improve as necessary?

Northeastern and GE will be held accountable for making continuous improvements based upon feedback provided by students via end of course and end of program surveys. The three entities in the project will work together to determine appropriate steps to address any course or program weaknesses or challenges and monitor outcomes through the early, mid and completion quality checkpoints.

If the program is suspended, terminated, or otherwise limited in its participation in the experiment by the Department, the QAE, the accreditor, the institution, or the non-traditional provider(s), what academic options will be provided to students by the institution (e.g., full transfer of credits into another program at the institution, a title IV teach out plan, and/or other options)? For institutions allowing access to federal student loans as part of the experiment, what actions will the institution take, and under what conditions, to protect students from debt or other financial liabilities resulting from their enrollment in a program that is suspended, terminated, or otherwise limited (e.g., repayment of student loans, transfer of credit to another institution, free access to credit-bearing courses, etc.)?

In the event of program suspension or termination, established university protocols for developing customized teachout plans, including substitutions, waivers, and timelines to ensure students are offered the opportunity to earn the credential.

What policies and procedures will be in place to assure the independence and absence of conflicts of interest among the non-traditional providers, QAE, and the institution? Please address independence in terms of ownership, funding, and staffing.

Northeastern University, GE, and ACE are independent of each other with no conflicts of interest. Although Northeastern has worked with both GE and ACE in the past, their ownership, funding, and staffing are completely independent as a private research university, a for-profit corporation, and a 501(c)(3) association, respectively. Additionally, Northeastern has an established process to ensure there are no conflicts of interest or commitment among its staff.

D. What due diligence has the institution done, or will it do, to determine if the QAE, non-traditional providers, and their employees are in good legal standing and have no past history of fraud, commission of a felony, disbarment or liability for negligence or misrepresentation?

According to the General Services Administration's System for Award Management, both the American Council on Education and General Electric are currently in active status and eligible to receive federal contracts. Moreover, as a publicly traded company, General Electric is subject to exacting public scrutiny and government regulation of its securities transactions and ordinary course of business. Similarly, for some four decades, the American Council on Education has had extensive experience evaluating educational content and helping colleges and universities determine whether to award credit for corporate workplace learning programs offered by businesses and industry, labor unions, associations, and government agencies.

INFORMATION RELATED TO SPECIFIC TITLE IV PROVISIONS

1. Will the program use the minimum program length waiver?

No

2. Will the program use the satisfactory academic progress waiver?

No

3. If the program is a distance-education program, how will it address the "regular and substantive interaction" requirements, or qualify as a degree-granting correspondence program?

Northeastern will use this opportunity to explore innovative methods to ensure its responsibilities with respect to "regular and substantive interaction" requirements. It will deploy the following strategies to measure and report on learners engagement with the program:

- Reliable learner- and course-specific analytics that provide evidence of regular and substantive engagement and to guide and engage both learners and those who serve them;
- Evidence of the use of disaggregated faculty models that enable learner-centered service and promote efficiency and effectiveness through role specialization (e.g., coaches, instructional faculty, evaluation faculty, etc.);
- Evidence and artifacts from GE-led experiential learning and on-the-job-training engagement;
- Evidence of engagement that occurs beyond a course as part of specific and planned career development, local workforce, or community engagement programming (e.g., campus-based career forums; community service initiatives, professional coaching and development; etc.);
- Other outcomes-based metrics and efficacy strategies that demonstrate the effectiveness of the program's offerings in a learner-specific manner to be determined (e.g., pre- and post- course/program assessment data; career impact).

PROVIDER AND ACCREDITOR COMMITMENTS

We are attaching letters from the non-traditional provider, GE, describing its commitment to offering content and instruction, as well as our accreditation agency, NEASC, on the Commission on Institutions of Higher Education's commitment to consider including the proposed program in the institution's accreditation.

Quality Assurance Questions

ACE will collect from the institution and non accredited provider information required in sections A through D via a Quality Assurance Baseline Questionnaire. The institution and provider partner must submit current or comparable program data that program outcomes will be measured against. Claims for learning will be validated by a team of postsecondary faculty, a psychometrician, and industry subject matter experts. If the program is not meeting intended and expected outcomes by the mid point evaluation (50% to completion) the institution will be required to implement an improvement plan. Data reflecting results of the improvement plan will be monitored and analyzed at a conditional evaluation point (75% to completion) and again at the 100% completion point to measure success. *See Appendix 1 and 2, Completion and Post Evaluation rubrics from ACE.*

A. *Claims for Learning*

The nature of the experiment that has been proposed here is such that answers to many of the following prompts cannot yet be determined. GE and Northeastern will partner in the custom design and delivery of a new bachelor's degree to meet the needs of the manufacturing industry and its employers. Should this application be approved, the parties will immediately form, and jointly support an expert program council that will be charged to more fully define and design the program, its specific learning outcomes, and expected/defined results. Given the brisk pace of the EQUIP application timeline, this council's work has not yet occurred.

What measurable claims is the institution making about the learning outcomes of students enrolled in the program?

Program participants can expect to complete their entire bachelor's degree program in three years or less, depending upon how much prior college they possess at entry. Learners will be continuously enrolled with a blend of experiential, on-the-job training, and Northeastern course commitments equivalent to a full-time slate of study.

Upon program completion, students will have acquired the cognitive and non-cognitive competencies that correlate with the state of the art in manufacturing. Foundational content knowledge in mathematics, physical sciences, and technology will be complemented with skills required to effectively learn and apply content in myriad settings and will include critical thinking, complex problem-solving, analysis, and the use of mathematics and scientific concepts to address and solve problems.

Program participants will be well prepared for a career in manufacturing and able to distinguish himself/herself to advance or hold a leadership and management position within a state of the art manufacturing environment.

These high level program outcomes will be assessed in relation to each learner's job advancement or job placement results and via annual employer surveys to determine the job readiness and success of program graduates as compared with employees served by other universities/programs.

How are the value and relevance of those claims established? For example, what external stakeholders have been consulted to verify the value and relevance of the claims?

Program competencies and specific learning outcomes will align with the state of the art in manufacturing at GE and within similar manufacturing employers. A program council, to consist of GE experts, Northeastern faculty, and select leading industry practitioners will be established.

This council will identify and prioritize relevant industry norms, compliance and certification standards, and leading manufacturing, hiring, and promotion best practices. The council will partner with a broader community of GE experts and Northeastern faculty to determine final program competencies, identify specific course, on-the-job, experiential, and assessment strategies, and establish admissions and success criteria.

ACE has not yet reviewed the program and will do so upon acceptance to Round 3 to establish the ways in which requisite knowledge and skills are captured.

How will the claims be measured?

Program participants will be well prepared for entry-level employment or advancement within the manufacturing industry. Through their experience with a new, custom developed disciplinary core and major that reflects the state of the art in manufacturing at GE and similar, large manufacturing employers, program graduates will possess the knowledge, skills, and abilities necessary to compete. Rigorous assessment methods (as described below) will ensure that learners are prepared to the level of mastery with essential manufacturing concepts, practices, and realities.

A robust suite of experiential learning offerings positioned throughout the entire program will allow participants the chance to apply program competencies and be evaluated within authentic manufacturing environments. More importantly, participants will be building professional experience they can use to compete for employment or advancement as compared to other candidates who may possess only course-based credentials.

ACE will use faculty evaluators, psychometricians, and subject matter experts from the field to evaluate the effectiveness of the program in meeting the intended outcomes. Baseline data will be provided by the institution prior to program start and the three entities will set expectations for program success at each of the evaluation checkpoints established by the Department.

How will institutions be held accountable for meeting those claims?

Please see response II.A. 3 , II.A.4., and II.A.7.

How do all the claims for learning come together into a meaningful and coherent set of overall program outcomes and goals?

ACE has not yet reviewed the program and will do so upon acceptance to Round 3 to establish the ways in which claims for learning come together into a meaningful and coherent set of overall program outcomes and goals.

B. Assessments and Student Work

ACE will utilize psychometricians to evaluate and confirm the validity and reliability of program assessments upon acceptance to Round 3. (Response to section IV.B.1-3)

1. How does the institution assess whether students enrolled in the program can meet the claims outlined in Section A?

Each learner's ability to master and apply program competencies will be consistently and repeatedly evaluated using three distinct assessment methods:

1. *Examinations* will be employed to assess foundational, theoretical, and procedural mastery of course and program competencies.
2. *Performance-based assessments* will be employed to measure each learner's ability to synthesize and apply course and program competencies.
3. *Authentic, "learn by doing" assessments* will be employed during signature experiential learning engagements and culminate within a capstone experience.

Consistent with the program's unbundled faculty strategy, GE's manufacturing leaders and expert practitioners will assess learner performance on all performance-based assessments and during the signature experiential learning engagements. The latter will occur in a manner that embeds each learner within an authentic, real-world GE manufacturing environments.

2. How has the reliability of these assessments been established?

The reliability of these assessments will be determined through collaboration among GE practitioners, Northeastern faculty, and two experts in assessment design and delivery employed by Northeastern within both its College of Professional Studies and its Center for Advancing Teaching and Learning through Research.

3. How has the validity of these assessments been established?

The validity of these assessments will be determined through collaboration among GE practitioners, Northeastern faculty, and two experts in assessment design and delivery employed by Northeastern within both its College of Professional Studies and its Center for Advancing Teaching and Learning through Research.

4. How and how often does the QAE review these assessments?

At program completion, if outcomes are not being met as expected then assessments will be re-reviewed. If content or scope of assessments do not change through the program duration they would not require a re-review.

C. Outputs, which, where applicable, must be disaggregated to show outcomes specifically for low-income students.

1. How are students performing on program assessments?

As a new program, this is not yet known. When we have an accepted and final program, we will add the outcomes and specific baseline data that the program will be measured against.

2. How are students progressing through the program?

See above answer: to be determined.

3. What are the actual program outcomes for students (e.g., entry into subsequent phase of study, career, etc.)?

See above answer: to be determined.

4. What are the following ratios for the program, where relevant?
- Published tuition and fees versus earnings
- Average net price versus earnings
- Median student debt versus earnings

See above answer: to be determined.

5. How does the program rate on measures of student satisfaction? For example, how does the program rate in the following:

Comments from students about what made them successful or unsuccessful in the program?

A rigorous and transparent methodology for gathering and synthesizing customer satisfaction measures?

See above answer: to be determined.

D. Management -

1. How has the stability of the non-traditional provider(s) been evaluated (e.g., longevity and past outcomes, leadership/board, etc.)?

Founded in 1892, GE is one of the largest and most stable, long-lived corporations in the United States. GE is publicly traded (NYSE: GE) and as a result of SEC and other reporting requirements, there is tremendous transparency into GE's outcomes. Northeastern and GE have worked closely with each other for many years on research, cooperative education placements, and custom education programming. Northeastern is highly confident in GE's stability and integrity. Further, GE has recently announced the relocation of its corporate headquarters to Boston, in part due to the presence of and ability to collaborate with universities such as Northeastern: Northeastern is one of GE's special "schools of focus."

2. How are privacy, security, and student authentication managed?

Northeastern University will be the responsible party for maintaining student records and participants will be considered Northeastern University students. Northeastern is in full compliance with federal, state, and local mandates, including those related to the Family Rights and Privacy Act (FERPA).

3. Are activities related to student recruitment appropriate and transparent?

Northeastern will market to and recruit program participants. Northeastern is transparent with regard to the responsibilities associated with enrolling in learners in its programs, and every effort is made to communicate this important information clearly to students and prospective students alike. The university clearly outlines its admissions and enrollment requirements along with applicable policies and procedures on the University website (www.neu.edu), as well as detailed descriptions in both the student handbook and graduate catalog. Prospective students are guided through their evaluation and application process by enrollment coaches who express program expectations and requirements in a clear and complete manner.

4. How is pricing made transparent?

All pricing activities for this proposal will be consistent with Northeastern's current comprehensive efforts with regard to pricing transparency and clarity. Tuition, fees and estimated educational expenses are currently published in multiple places using various technologies. These pricing statistics are published online on pages related to Admissions, Financial Aid and various academic units; these online references are updated annually. Hard copy references are also made available for marketing and recruiting purposes. We also offer online tools and calculators that allow students to calculate net price, annual costs, and payments plans. In addition, financial aid communications regularly include pricing information; our award letters conform to national standards for higher education pricing and consumer disclosure. Finally, we offer customized financial planning tools for individual students which include information on billed expenses, estimated expenses, financial aid and net price.

5. Are all materials accessible to learners with disabilities?

Northeastern ensures its compliance with Title V of Americans with Disabilities Act and fulfills its requirements of ADA and section 508 of the Rehabilitation Act, in part, by adhering to WCAG 2.0 Level AA accessibility standards. Faculty are trained to support these standards. And courses are hosted within a learning management system that supports these standards and are designed consistent with best practices of universal design.

6. What is the process for continuous improvement of all aspects of the learning experience (content, platform, student support, faculty engagement, etc.)?

GE and Northeastern will collaborate to ensure the continuous improvement of all aspects of the learning experience. Specifically, Northeastern instructional design and program development teams will partner with GE manufacturing experts and Northeastern faculty to uses employ a unified development strategy for continual improvement of the learning experience. This process uses an evidence-based design model.

Because the technology is determined by defined learning needs, designers assess technology that directly support their chosen methods of achieving learning and performance outcomes. Working with faculty, designers execute on a shared vision to design a learning and performance solution using the chosen technologies. Underlying philosophies such as Universal Design for Learning are utilized both in the development of the delivery of accessible content, while learning is evaluated through carefully selected vehicles that directly measure learning and performance goals.

As delivery of the learning experience occurs, data is collected on the state of the learner and recommendations for future improvements to the learning experience are made.

APPENDIX

1. Completion Program Evaluation from QAE ACE

Completion Program Evaluation

(100% to completion)

Evaluation of Outputs

Section A: Claims for Learning

	Comments
Stated claims will be reflected in this section	

Section B: Assessments and Course Level Outputs*

	Baseline	Early	Mid	Complete	Comments
Student performance - Course level					
Course level pass rates					
Percentage of students earning Incomplete					
Retention Rate					
Withdrawal Rate					
Average time to course completion					
Anticipated time to program completion					

*demographic data will be collected and disaggregated for reporting purposes

Section C: Program Outputs*

	Baseline	Early	Mid	Complete	Comments
Percent of students tracking to meet stated program outcome					
Average time to program completion					
Employment outcomes					
Average length of time between completion of program and employment in field of study					
Participant Job Placement Rates					
Median Starting Salary – Current Salary					
Job Retention rate					
Academic Outcomes					
Transfer rate – internal / program continuation					
Transfer rate – external					
Student satisfaction measurements					
Rate of reported student satisfaction					
Success Themes					
Challenges					

*demographic data will be collected and disaggregated for reporting purposes

Section D: Management*

	Comments
Continuous improvement is evident in the following ways	

*demographic data will be collected and disaggregated for reporting purposes

2. Post Program Evaluation from QAE ACE

Post Program Evaluation

(150% to completion)

Evaluation of Outputs

Section A: Claims for Learning

	Comments
Stated claims will be reflected in this section	

Section C: Program Outputs*

	Baseline	Early	Mid	Completion	Post Completion	Comments
Employment outcomes						
Average length of time between completion of program and employment in field of study						
Participant Job Placement Rates						
Median Starting Salary / Current salary						
Job Retention rate						
Academic Outcomes						
Transfer rate						
Employee satisfaction measurements						
Rate of reported employee satisfaction						

*demographic data will be collected and disaggregated for reporting purposes

3. Data Process Flow from QAE ACE

Steps for Data integrity and security

1. Institutions send ACE data in secure file with no Personally Identifiable information through an FTP. Individual students are re-classified with unique ID numbers that are not associated with any institutional identification number for the student.
2. ACE will download the file from the secure FTP site. The secure file will be saved to an encrypted folder on ACE servers.
3. ACE servers maintain a high level of security and maintain the data integrity while on the server.
4. ACE will only provide access to the raw data for a small number of identified and qualified individuals involved in the project.
5. Identified staff members will not share any data through emails or other non-secure correspondences.
6. Any subsequent copies or data output files created from the original data file will be saved and kept secure on the encrypted folder for the project.
7. Any reporting of information from this data will be in aggregated form and will not provide any personally identifiable information. Aggregate information sharing will only occur between parties that are deemed as necessary to see the aggregate data outputs.
8. All data will be permanently deleted within 6 months of determining that the information is no longer needed to be held on ACE servers. Any decision on the deletion of data will be done in consultation with the other relevant parties.
9. This process will be repeated for any other data that is collected for the purpose of the project.

Below is a chart of the data process flow