FY 2016 Grant Program Scholarship Recommendations

Institution	Amount	Title
Idaho State University	$163,506	Idaho State University Nuclear Education Scholarship Program
University of Illinois	$200,000	University of Illinois at Urbana-Champaign Nuclear Engineering Education Scholarship Program
Western Carolina University	$199,119	Project Based Learning Program for Nuclear Workforce Development
Texas Southern University	$199,999	Medical Health Physics Scholarship Program at Texas Southern University
Purdue University	$194,400	Nuclear Engineering and Health Sciences Scholarship Program at Purdue University
Florida Memorial University	$200,000	Assisting N.U.C.L.E.A.R (Nuclear Underrepresented Collegiate Lions in Education And Research)
Florida International University	$195,318	FIU's Nuclear Scholarship (FNS) Program for Health Physics and Radiochemistry
Louisiana State University and A&M College	$200,000	LSU Scholarship Education Program in Nuclear Power Engineering
North Carolina State University	$199,345	Department of Nuclear Engineering North Carolina State University
Worcester Polytechnic Institute	$199,736	WPI Nuclear Science and Engineering Undergraduate Scholarship Program
University of Nevada Reno	$199,999	The University of Nevada, Reno Scholarship Program in Nuclear Materials
University of Wisconsin Madison	$200,000	University of Wisconsin-Madison Undergraduate Scholarship Program in Nuclear Engineering
University of California Berkeley	$200,000	Nuclear Engineer Scholarships at the University of California, Berkeley to support the expansion and diversity of the undergraduate program

Missouri University S&T	$200,000	Undergraduate Scholarships in Nuclear Engineering at Missouri S&T (2016-2018)
University of Florida	$200,000	2016 NRC Undergraduate Scholarship Program at the University of Florida
Texas A&M University Engineering Experiment Station	$194,574	Texas A&M University Undergraduate Scholarship Nuclear Program
Alabama A&M University	$200,000	Alabama A&M University Nuclear Engineering Scholarship Program

Idaho State University Nuclear Education Scholarship Program

Executive Summary:

Idaho State University (ISU) is requesting from NRC funds for eight two-year scholarships for undergraduate students in nuclear engineering (6) and health physics (2). Funds are also requested to support the professional development of the scholars via a technical tour and participation in a professional technical conference. Previous NRC program scholarship funds have substantially contributed to the growth and maintenance of ISU's Nuclear Engineering BS program and indirectly to re-invigorating its long-standing graduate program in nuclear science and engineering.

The ISU Nuclear Engineering and Health Physics Programs are well suited to successfully recruit, select and mentor students that will receive NRC scholarships because of the close ties to the INL and the participation in the Center for Advanced Energy Studies (CAES). Through the Scholarship Program, a selection and management committee will assure that only the most qualified students will receive a scholarship award. The committee will also track the progress of the scholars both in school and after. The ISU administration and the state of Idaho are committed to effectively support nuclear science and engineering education in the state of Idaho. This has been evidenced by recent state funding to CAES to supplement faculty at the three universities. Specifically at ISU, five new faculty positions were created in 2015, two new faculty members have been hired, and additional offers are being tendered. A strong partnership with Idaho National Laboratory (INL) has resulted in the development of programs specifically designed to educate students to serve in the nuclear energy profession. Ultimately, ISU believes that this program will help develop successful graduates that will become an integral part of the nuclear workforce.

Principal Investigator: Mary Lou Dunzik-Gougar, mldg@isu.edu

University of Illinois at Urbana-Champaign Nuclear Engineering Education Scholarship Program

Executive Summary:

The objectives of this program are to attract and retain superior undergraduate students to educate in nuclear engineering. This will be accomplished with financial resources from the NRC and academic and administrative resources from the Department of Nuclear, Plasma and Radiological Engineering (NPRE) at the University of Illinois at Urbana-Champaign (UIUC). This program will ensure that the best and brightest students will join the nuclear workforce following a very strong, competitive education in nuclear engineering. The specific goals are to support at least ten (10) undergraduate students each year under this program.

Principal Investigator: James F. Stubbins, **jstubbin@illinois.edu**

Project Based Learning Program for Nuclear Workforce Development

Executive Summary:

Western Carolina University (WCU) proposes this two-year program to fund six Nuclear Workforce Development Scholarships for specially selected, highly motivated electric power and mechanical engineering students who are pursuing an educational emphasis in nuclear power and who desire to contribute to the nuclear-related national workforce. The main objective is to use these scholarships to attract an inaugural class of students who will initiate our program for serving nuclear-related industry and academia leveraging WCU's engineering project based learning sequence. Our objective is also to increase the quantity and diversity of Electric Power Engineering (EPE) and Mechanical Engineering (ME), jointly called EPE-ME, students obtaining degrees. This Project Based Learning Program will, by design, benefit WCU's ongoing programs of recruiting and educating students, who include traditionally underrepresented groups (including but not limited to minorities, women, and persons with disabilities), into nuclear serving engineering fields. A fraction of the proposal also covers support for faculty and costs to cover administration, mentoring, recruiting and marketing.

Executive Summary: H. B. Karayaka, hbkarayaka@wcu.edu

Medical Health Physics Scholarship Program at Texas Southern University

Executive Summary:

Texas Southern University (TSU) is one of the nation's largest Historically Black Colleges and Universities (HBCUs), located within Houston, soon to be third largest metropolis in the country. Through previous and ongoing support, the Department of Physics at TSU (TSU-Physics) boasts the only Environmental Health Physics (EHP) program in Houston.

The objectives of the scholarship program outlined in this proposal will compliment both the EHP program and current research interest of the faculty at TSU by: 1) providing students strong theoretical and technical competencies in radiation physics, safety and protocol, 2) increasing the number of underrepresented students choosing careers in medical health physics, 3) providing students with summer internship opportunities in research at tier one universities and hospitals, and 4) introducing students to safety issues associated with therapeutic and diagnostic applications of radiation in medical facilities. We view this scholarship opportunity as a robust way to continue strengthening the health physics program at TSU, while also becoming a major contributor of underrepresented professionals to the radiological workforce in the Greater Houston area in the expanding field of radiation safety and applied nuclear science.

Principal Investigator: Mark C. Harvey, harveymc@tsu.edu

Nuclear Engineering and Health Sciences Scholarship Program at Purdue University

Executive Summary:

Scholarship support is requested for undergraduate bachelor's degree study in the nuclear engineering or radiological health science (health physics) programs at Purdue University. Although administratively independent, there is close collaboration between the faculty and education programs. The two schools are connected through common faculty research, exchange of professors in teaching parts of required courses, and most importantly through a unique formal educational option that bridges both Schools in an accelerated M.S. degree option, commonly labeled the "4+1" program, for students who complete either of the undergraduate degree programs and maintain a minimum GPA of 3.0 out of 4.0. The School of Nuclear Engineering prepares graduates to work in the nuclear engineering power sector and other important areas such as homeland security, regulation, and academia while the School of Health Sciences primarily concentrates on preparing their radiological health science program graduates for careers in reactor health physics, environmental health physics and medical health physics. The main objective of this scholarship support program is to recruit, retain, monitor and mentor students of high academic ability and performance so that they graduate to become career professionals and leaders in the nuclear power industry and government laboratories and regulatory agencies, such as the Nuclear Regulatory Commission, Environmental Protection Agency and Homeland Security.

Co-Principal Investigator: Jason Harris, jtharris@purdue.edu;
Co-Principal Investigator: Allen L. Garner, algarner@purdue.edu

Assisting N.U.C.L.E.A.R (Nuclear Underrepresented Collegiate Lions in Education And Research)

Executive Summary:

Florida Memorial University, the only HBCU (Historically Black College/University) in south Florida offers competitive, twin programs in Nuclear Science. Of the two programs, Radiochemistry has produced several graduates who have gone on to pursue advanced degrees or who have found employment in the nuclear field. The second program, Radiobiology, (established in 2010), is more promising in terms of numbers given the large enrollment of students that declare biology as their major. It is the intent of this proposal to build upon past successes of these programs by incorporating lessons learned during the eight-year period that FMU has been providing quality education and training in the nuclear field. FMU is committed to the education of a blend of students from diverse backgrounds who very often have a single characteristic: economically challenged backgrounds that make student matriculation a challenge. While this challenge might be thought of as an obstacle to any type of academic endeavor, especially one as rigorous as the one the nuclear field demands, it has been the experience of the faculty at the Department of Health and Natural Sciences that these same students excel when provided with financial assistance. Currently, three of our graduates are pursuing a Ph.D. in Radiochemistry with an additional one in the process of being admitted. Additionally, several students have found employment or are pursuing degrees in related fields. These students and the ones who have taken their place and are currently matriculating, possess the mindset of committed individuals with aspirations to pursue careers in the nuclear field. In that sense, the aims of the NRC and FMU coincide in wanting to build a strong pipeline of competent individuals that will alleviate the current and projected shortage of personnel in the nuclear industry/workforce. This proposal will aim to identify science students (aka “Lions”, based on the School mascot) interested in the two aforementioned programs and provide them with scholarships that will enable them to pursue their academic goals. Given the need for financial assistance, the scholarships will alleviate the need for the students to hold time-consuming outside employment. The learning environment will prepare FMU's graduates for post-graduate work, gainful employment, and leadership in a global economy. Through this grant, the Division of Health and Natural Sciences is proposing to design and implement a scholarship program to administer the scholarships to students who qualify.

Principal Investigators: Dimitri Tamalis, dtamalis@fmuniv.edu

FIU's Nuclear Scholarship (FNS) Program for Health Physics and Radiochemistry

Executive Summary:

The FNS Program, established in Sept. 2013, is growing via recruitment of students from FIU and Miami Dade College into: the Ph.D. in Radiochemistry; the B.S. in Health Physics; and 10 new nuclear courses – All developed through NRC grants and related cost match by FIU. These new nuclear degree programs will provide graduates with education and research opportunities that will prepare them for the nuclear workforce. The FNS Program will be expanded to the new Health Physics program and will secure commitment by 2 additional nuclear companies or national labs. FIU will incorporate lessons learnt from the current scholarships grant from the NRC (ending in 2016) and proposes 8 scholarships in year 1 and 12 scholarships in year 2. Students will be selected for these scholarships mostly through their affiliation with the Health Physics and Radiochemistry degree programs.

Principal Investigator: Joerg Reinhold, reinhold@fiu.edu

LSU Scholarship Education Program in Nuclear Power Engineering

Executive Summary:

Louisiana State University (LSU) proposes a Nuclear Power Engineering Scholarship Program to strengthen its recently established Nuclear Power Engineering (NPE) minor anchored in the Department of Mechanical and Industrial Engineering (MIE), in order to develop well trained nuclear workforce much needed by the nuclear industry in Louisiana, its vicinity, and nationwide. The proposed LSU Nuclear Power Engineering Scholarship Program will support 12 undergraduate students in the NPE minor each year for a period of 2 years. The objective of the present proposal is to provide incentives to attract high quality undergraduate students to the NPE minor, and prepare them for a career path immediately marketable to nuclear industry and academia to satisfy the growing regional and national demand for highly trained nuclear professionals. The NRC scholars will also constitute the recruiting pool for nuclear research programs under development by the Nuclear Engineering faculty in MIE. This scholarship program will be LSU's continuous efforts to build a strong nuclear energy program on the national stage. LSU's recently strengthened teaching and research capabilities in nuclear engineering and its existing strong ties with the nuclear industry will ensure the success of the Nuclear Power Engineering Scholarship Program.

Principal Investigator: Fengyuan Lu, luf@lsu.ed

Department of Nuclear Engineering North Carolina State University

Executive Summary:

The proposal requests funds for 8 NRC undergraduate scholarships over two years to pursue undergraduate studies in Nuclear Engineering at North Carolina State University. The program will be administered by the PI, Associate Professor of Nuclear Engineering and Director of Undergraduate Programs within the Nuclear Engineering Department. The proposal would allow for the awarding of 1 out-of-state and 7 in-state scholarships.

Principal Investigators: J. Michael Doster,

WPI Nuclear Science and Engineering Undergraduate Scholarship Program

Executive Summary:

The Worcester Polytechnic Institute (WPI) Nuclear Science and Engineering Program (NSE) requests support for sixteen undergraduate student scholarships over 2 years (eight students per year). This program is designed to enhance student professional development in an enriched educational program and to develop a highly talented and competent workforce to support the national objective of reinvigorating the nuclear power industry. Graduates of our program will be capable of working in nuclear power-plant design, construction, and operation in addition to radiation regulation, homeland security, dosimetry, and isotope handling.

Principal Investigator: David Medich, dcmedich@WPI.EDU

The University of Nevada, Reno Scholarship Program in Nuclear Materials

Executive Summary:

University of Nevada, Reno (UNR) has been involved in externally-funded research on the performance and reliability of materials in advanced nuclear power applications for over 20 years and has had strong graduates from the graduate program. Only recently UNR has initiated a Nuclear Materials emphasis in the Materials Science and Engineering degree program. The proposed grant will initiate a Scholarship Program in Nuclear Materials to attract, retain, support and recognize outstanding undergraduate students pursuing the nuclear materials emphasis degree at UNR. 11 scholarships will be offered each year and a total of 22 scholarships will be offered over the 2-year period. The goal is to increase the number and quality of students earning BS degree at UNR who are able to support the design, construction, operation, and regulation of nuclear facilities, and the safe handling of nuclear materials. Scholarships recipients will be encouraged to attend one professional meeting in any area of nuclear power in order to develop professional contacts that will help them find an appropriate nuclear related professional placement after graduation.

Principal Investigator: Dev Chidambaram, dcc@unr.edu

University of Wisconsin-Madison Undergraduate Scholarship Program in Nuclear Engineering

Executive Summary:

The Nuclear Engineering degree program (NE) in the Engineering Physics (EP) Department at the University of Wisconsin – Madison proposes an Undergraduate Scholarship Program in Nuclear Engineering in support of outstanding undergraduate students enrolled in our nuclear engineering degree major, with a career objective of employment in nuclear engineering related fields. The employment may be with the NRC, other Federal agencies, State agencies, Department of Energy laboratories, nuclear-related industry, or academia in the recipients' sponsored fields of study; i.e., 1-year of employment for a 2-year scholarship. The proposed scholarship program will recruit top-notch students from among the nuclear engineering program sophomore class into the scholarship program, and award ten scholarships for two years to financially assist students in pursuit of their Bachelor of Science degree in Nuclear Engineering (BSNE). The recruitment, selection, and program administration of the students and their progress will use proven techniques from the EP department and the WiscAMP program. The expected duration to obtain a BSNE degree is about 4 years, depending on the students' preparation. The EP department will supplement this award, as appropriate, to allow students to complete their degree. Evaluation of program success will be accomplished in a collaborative fashion. Prof. Henderson, the EP department chair, will utilize the Engineering Physics faculty, in collaboration with the WiscAMP program, to provide an ongoing review of the undergraduate students' progress toward their degree, as well as interactions with nuclear power industry during any summer internships or co-op experiences.

Principal Investigator: Douglass Henderson, dlhender@wisc.edu

Nuclear Engineer Scholarships at the University of California, Berkeley to support the expansion and diversity of the undergraduate program

Executive Summary:

The Nuclear Engineering Department at the University of California, Berkeley (UCB-NE) is the only nuclear engineering department in California. Students graduating from UCB-NE work at national labs all over the country, in the broader nuclear industry (power, detection, policy, etc.), as well as, in newly rising startup companies. UCB-NE is planning to double the number of students enrolled in the undergraduate program within the next few years. In order to make this sustainable we need to attract the brightest, most capable, and diverse students into our program. Furthermore, the rapid increase in tuitions, makes more challenging for low income, first time in college, and underrepresented minority students to enroll in our Institution, thus, Nuclear Engineering program; therefore, we propose to establish the Undergraduate Scholarship Program in Nuclear Engineering in support of outstanding undergraduates interested in nuclear engineering and a career in the nuclear power industry. The proposed program would recruit and enroll top-performing, diverse undergraduate students as they enter into the nuclear engineering bachelor's degree program.

Principal Investigator: Massimiliano Fratoni, maxfratoni@berkeley.edu

Undergraduate Scholarships in Nuclear Engineering at Missouri S&T (2016-2018)

Executive Summary:

Missouri University of Science & Technology (Missouri S&T) is pleased to submit this proposal for scholarships for undergraduate students pursuing B.S. degrees in Nuclear Engineering. The requested NRC funding will provide undergraduate scholarships to defray the cost of fees for 26 full-time students each year for two years. Twenty-six (26) high quality students with a minimum GPA of 3.0/4.0 will be selected from a pool of over 88 students who are expected to be in the next year's Juniors and Seniors. The selection criteria will primarily be academic merit (GPA) with consideration given to financial need. The NRC scholarship grant will assist in providing a significant fraction (~5%) of the nation's approximately 630 expected graduates with a B.S. degree in Nuclear Engineering each year (2015-2017) who would be capable of supporting the design, construction, operation and regulation of nuclear facilities and the safe handling of nuclear materials.

Principal Investigator: Hyoung Koo Lee, leehk@mst.edu

2016 NRC Undergraduate Scholarship Program at the University of Florida

Executive Summary

The objective of the 2016 University of Florida Nuclear Engineering Undergraduate Scholarship Program is to produce high quality engineers who benefit the various sectors of the nuclear industry. The goal of this proposal is to provide ten scholarships to undergraduates in the nuclear engineering program, pursuing either a B.S. degree in nuclear engineering, or a degree in a related engineering discipline with a minor in nuclear engineering. The program will be administered and managed by Interim Chair for the Department of Materials Science and Engineering, and Director of the Nuclear Engineering Program. He will coordinate different functions, including advertisement, recruitment, review of scholarship applications, and selection of recipients. The selection process will be conducted using a set of parameters with appropriate weighting for consistency and transparency, and use a committee to select the fellowship recipients. The committee will meet annually to select (or renew) scholarship recipients from the pool of new applicants and existing recipients. The committee, with assistance from the coordinator within the Department's Academic Services Office, will monitor the educational program of each scholarship recipient, and prepare and submit an annual report to the NRC Project Manager electronically.

Principal Investigator: James E. Baciak, jebaciak@mse.ufl.edu

Texas A&M University Undergraduate Scholarship Nuclear Program

Executive Summary:

The Texas A&M University Undergraduate Scholarship Nuclear Program will provide financial assistance to undergraduate students majoring in nuclear engineering and radiological health engineering at Texas A&M University. With 349 undergraduate students, a diverse and quality student pool is available to select recipients from. The major impact of this program will be an increased and well-prepared engineering workforce for the nuclear sector.

Institutional support enables a comprehensive structure for the Undergraduate Scholarship Nuclear Program from the recruiting stage through the internal competition process and retention programs to the employment stage. The scholarship program will be implemented as an integrated element of a state plan to develop a larger nuclear workforce through the Nuclear Power Institute (NPI). Throughout the program, scholarship recipients will be mentored by faculty and receive academic and employment advising.

Principal Investigator: Jean Ragusa, jean.ragusa@tamu.edu

Alabama A&M University Nuclear Engineering Scholarship Program

Executive Summary:

The *objective* of this scholarship program is to attract outstanding students to the *Nuclear Power* concentration in Electrical Engineering and the *Nuclear Systems* concentration in Mechanical Engineering at Alabama A&M University. The program will support United States citizens or permanent residents with tuition, fees, and other education costs. Extensive marketing will be used to recruit outstanding students internally from our engineering programs, and externally from other universities and community colleges. The graduates will acquire skills relevant to the development and operation of nuclear facilities, safe handling of nuclear materials, and nuclear regulation and security. Advising and mentoring will be provided to scholarship recipients in their academics, co-ops and internships, and professional development. An oversight committee will monitor the academic progress of the students and use assessment rubrics to evaluate the effectiveness of the program, and provide improvement feedbacks.

The *benefits* of this scholarship program include: 1) increase in the number and quality of graduates joining the workforce needed to sustain the United States nuclear industry, and 2) increased number of highly qualified underrepresented groups (African Americans and women) joining the United States nuclear workforce. The co-ops and internships activities the students will be mentored for and placed would benefit the United States nuclear enterprise.

Principal Investigator: Stephen Egarievwe, stephen.egarievwe@aamu.edu