Union Calendar No. 301

107TH CONGRESS
2D SESSION

H. R. 3130

[Report No. 107–505, Part I]

To provide for increasing the technically trained workforce in the United States.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 16, 2001

Mr. BOEHLERT (for himself, Mr. LARSON of Connecticut, Ms. HART, Mr. HONDA, and Mr. UDALL of Colorado) introduced the following bill; which was referred to the Committee on Science, and in addition to the Committee on Education and the Workforce, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

JUNE 12, 2002

Additional sponsors: Mrs. MORELLA, Mr. FERGUSON, Mrs. MCCARTHY of New York, Mr. FALEOMAVAEGA, Mr. GRUCCI, Mr. INSLEE, Mr. UPTON, Ms. DELAURO, Mr. WOLF, Mr. HOLT, Mr. GOODLATTE, Mr. SMITH of Texas, Mrs. WILSON of New Mexico, Ms. DUNN, Mr. DOOLEY of California, Ms. HARMAN, Mrs. MALONEY of New York, Mr. REYES, Mr. LIPINSKI, Ms. RIVERS, Ms. ESHOO, Mr. BOUCHER, Ms. LOFGREN, Mr. BERMAN, Mr. BAIRD, Mr. BARTLETT of Maryland, Ms. MCCOLLUM, Ms. PELOSI, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. BORSKI, Mr. HOEFFEL, Mr. SMITH of Michigan, Mr. EHLERS, Ms. WOOLSEY, Mr. BACA, Mr. ETHERIDGE, Mr. CALVERT, Mr. SHAYS, and Mr. LAMPSON

JUNE 12, 2002

Reported from the Committee on Science with an amendment

[Strike out all after the enacting clause and insert the part printed in italic]

JUNE 12, 2002

Referral to the Committee on Education and the Workforce extended for a period ending not later than June 12, 2002

JUNE 12, 2002

Committee on Education and the Workforce discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed

[For text of introduced bill, see copy of bill as introduced on October 16, 2001]

A BILL

To provide for increasing the technically trained workforce in the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Undergraduate Science, Mathematics, Engineering, and Technology Education Improvement Act".

SEC. 2. FINDINGS.

The Congress makes the following findings:

(1) Studies show that about half of all United States post-World War II economic growth is a direct result of technological innovation, and science, engineering, and technology play a central role in the creation of new goods and services, new jobs, and new capital.

(2) The growth in the number of jobs requiring technical skills is projected to be more than 50 percent over the next decade.

(3) A workforce that is highly trained in science, mathematics, engineering, and technology is crucial to generating the innovation that drives economic growth, yet females, who represent 50 percent of the United States population, make up only 19 percent of the science, engineering, and technology workforce.

(4) Outside of the biomedical sciences, the number of undergraduate degrees awarded in the science, mathematics, engineering, and technology disciplines has been flat or declining since 1987, despite rapid population growth and a significant increase in undergraduate enrollment over the same period.

(5) The demand for H–1B visas has increased over the past several years, suggesting that the United States is not training a sufficient number of scientists and engineers.

(6) International comparisons of 24-year olds have shown that the proportion of natural science and engineering degrees to the total of undergraduate degrees is lower in the United States than in Japan, South Korea, Taiwan, the United Kingdom, and Canada.

(7) Technological and scientific advancements hold significant potential for elevating the quality of life and the standard of living in the United States.

The quality and quantity of such advancements are dependent on a technically trained workforce.

(8) Reversing the downward enrollment and graduation trends in a number of science and engineering disciplines is not only imperative to maintaining our Nation's prosperity, it is also important for our national security.

(9) The decline of student majors in science, mathematics, engineering, and technology is reportedly linked to poor teaching quality in these disciplines and lack of institutional commitment to undergraduate education as compared to research.

(10) Undergraduate science, mathematics, engineering, and technology faculty generally lack any formal preparation for their role as undergraduate educators. In addition, faculty members are generally not rewarded, and in some cases are penalized, for the time they devote to undergraduate education.

(11) Faculty experienced in working with undergraduate students report that undergraduate research experiences contribute significantly to a student's decision to stay in an undergraduate science, mathematics, engineering, or technology major and to continue their education through graduate studies.

SEC. 3. DEFINITIONS

In this Act—

(1) the term "academic unit" means a department, division, institute, school, college, or other subcomponent of an institution of higher education;

(2) the term "community college" has the meaning given such term in section 7501(4) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7601(4));

(3) the term "Director" means the Director of the National Science Foundation;

(4) the term "eligible nonprofit organization" means a nonprofit research institute or a nonprofit professional association with demonstrated experience delivering science, mathematics, engineering, or technology education, as determined by the Director;

(5) the term "institution of higher education" has the meaning given such term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)); and

(6) the term "research-grade instrumentation" means a single instrument or a networked system of instruments that enable publication-quality research to be performed by students or faculty.

SEC. 4. TECHNOLOGY TALENT.

(a) SHORT TITLE.—This section may be cited as the "Technology Talent Act of 2002".

(b) GRANT PROGRAM.—

(1) IN GENERAL.—The Director is authorized to award grants, on a competitive, merit-reviewed basis, to institutions of higher education with physical or information science, mathematics, engineering, or technology programs for the purpose of increasing the number and quality of students studying and receiving associate or baccalaureate degrees in the physical and information sciences, mathematics, engineering, and technology. An institution of higher education that is awarded a grant under this section shall be known as a "National Science Foundation Science and Engineering Talent Expansion Center".

(2) REQUIREMENTS.—

(A) NUMBER.—The Director shall award not fewer than 10 grants under this section each year, contingent upon available funds.

(B) DURATION.—Grants under this section shall be awarded for a period of 5 years, with the final 2 years of funding contingent on the Director's determination that satisfactory progress has been made by the grantee during the first 3 years of the grant period toward achieving the in-

creases in the number of students proposed pursuant to subparagraph (E).

(C) PRINCIPAL INVESTIGATOR.—At least 1 principal investigator for each grant awarded under this section must be in a position of administrative leadership at the institution of higher education, and at least 1 principal investigator must be a faculty member from an academic department included in the work of the project.

(D) SUBSEQUENT GRANTS.—An institution of higher education that has completed a grant awarded under this section may apply for a subsequent grant under this section.

(E) INCREASES.—

*(i) INSTITUTIONS OF HIGHER EDUCATION WITH BACCALAUREATE DEGREE PROGRAMS.—An institution of higher education that awards baccalaureate degrees and desires to receive a grant under this section shall propose in its application specific increases in the number of students who are United States citizens or permanent resident aliens obtaining baccalaureate degrees at the institution within the phys-

ical or information sciences, mathematics, engineering, or technology, and shall state the mechanisms by which the success of the grant project shall be assessed.

(ii) COMMUNITY COLLEGES.—A community college that desires to receive a grant under this section shall propose in its application specific increases in the number of students who are United States citizens or permanent resident aliens pursuing degrees, concentrations, or certifications in the physical or information sciences, mathematics, engineering, or technology programs or pursuing credits toward transfer to a baccalaureate degree program in the physical or information sciences, mathematics, engineering, or technology, and shall state the mechanisms by which the success of the grant project shall be assessed.

(F) RECORDKEEPING.—Grantee institutions shall maintain, and transmit annually to the National Science Foundation, in a format indicated by the Director, baseline and subsequent data on undergraduate students in physical and information science, mathematics, engineering,

and technology programs. Such data shall include information on—

(i) the number of students enrolled;

(ii) student academic achievement, including quantifiable measurements of students' mastery of content and skills;

(iii) persistence to degree completion, including students who transfer from science, mathematics, engineering, and technology programs to programs in other academic disciplines; and

(iv) placement during the first year after degree completion in post-graduate education or career pathways.

(G) PRIORITY.—The Director may give priority in awarding grants under this section to institutions of higher education whose application—

(i) indicates a plan to build on previous and existing efforts with demonstrated success, including efforts involving industry, in improving undergraduate learning and teaching, including efforts funded by Federal grants from the National Science Foundation or other agencies; and

(ii) provides evidence of a commitment by the institution's administration to support and reward faculty involvement in carrying out the proposed implementation plan for the project.

(c) USES OF FUNDS.—Activities supported by grants under this section may include—

(1) projects that specifically aim to increase the number of traditionally underrepresented students in the physical or information sciences, mathematics, engineering, or technology, such as mentoring programs;

(2) projects that expand the capacity of institutions of higher education to incorporate current advances in science and technology into the undergraduate learning environment;

(3) bridge projects that enable students at community colleges to matriculate directly into baccalaureate physical or information science, mathematics, engineering, or technology programs, including those targeted at traditionally underrepresented groups in such disciplines;

(4) projects including interdisciplinary approaches to undergraduate physical and information science, mathematics, engineering, and technology education;

(5) projects that focus directly on the quality of student learning, including those that encourage—

(A) high-caliber teaching, including enabling faculty to spend additional time teaching participating students in smaller class settings, particularly in the laboratory environment, by, for example, providing summer salary or other additional salary for faculty members or stipends for students;

(B) opportunities to develop new pedagogical approaches including the development of web-based course strategies, distributed and collaborative digital teaching tools, or interactive course modules; and

(C) screening and training of teaching assistants;

(6) projects that—

(A) facilitate student exposure to potential careers, including cooperative projects with industry or government that place students in internships as early as the summer following their first year of study;

(B) provide part-time employment in industry during the school year; or

(C) provide opportunities for undergraduates to participate in industry or government sponsored research;

(7) projects that assist institutions of higher education in States that participate in the Experimental Program to Stimulate Competitive Research (EPSCoR) to broaden the science, engineering, mathematics, and technology student base or increase retention in these fields;

(8) projects to encourage undergraduate research on-campus or off-campus;

(9) projects that provide scholarships or stipends to students entering and persisting in the study of science, mathematics, engineering, or technology;

(10) projects that leverage the Federal investment by providing matching funds from industry, from State or local government sources, or from private sources; and

(11) other innovative approaches to achieving the purpose described in subsection (b)(1).

(d) ASSESSMENT, EVALUATION, AND DISSEMINATION OF INFORMATION.—

(1) PROJECT ASSESSMENT.—The Director shall require each recipient of a grant awarded under this section to implement project-based assessment that fa-

cilitates program evaluation under paragraph (2) and that assesses the impact of the project on achieving the purpose stated in subsection (b)(1), as well as on institutional policies and practices.

(2) PROGRAM EVALUATION.—Not later than 180 days after the date of the enactment of this Act, the Director shall award at least 1 grant or contract to an independent evaluative organization to—

(A) develop metrics for measuring the impact of the program authorized under this section on—

(i) the number of students enrolled;

(ii) student academic achievement, including quantifiable measurements of students' mastery of content and skills;

(iii) persistence to degree completion, including students who transfer from science, mathematics, engineering, and technology programs to programs in other academic disciplines; and

(iv) placement during the first year after degree completion in post-graduate education or career pathways; and

(B) conduct an evaluation of the impacts of the program described in subparagraph (A), in-

cluding a comparison of the funded projects to identify best practices with respect to achieving the purpose stated in subsection (b)(1).

(3) DISSEMINATION OF INFORMATION.—The Director, at least once each year, shall disseminate information on the activities and the results of the projects assisted under this section, including best practices identified pursuant to paragraph (2)(B), to participating institutions of higher education and other interested institutions of higher education.

(e) UNDERREPRESENTED GROUPS.—In carrying out the program authorized by this section the Director shall strive to increase the number of students receiving baccalaureate degrees, concentrations, or certifications in the physical or information sciences, mathematics, engineering, or technology who come from groups underrepresented in these fields.

(f) REPORTS.—

(1) LIST.—Not later than 90 days after the date of the enactment of this Act, the Director shall develop, and disseminate to institutions of higher education, a list of examples of existing institutional and government efforts relevant to the purpose stated in subsection (b)(1).

(2) INTERIM PROGRESS REPORT.—At the end of the third year of the program authorized under this section, the Director shall transmit to the Congress an interim progress report of the evaluation conducted under subsection (d)(2).

(3) FINAL REPORT.—Not later than 6 years after the date of the enactment of this Act, the Director shall transmit to the Congress a final report of the evaluation conducted under subsection (d)(2).

(g) ADVISORY COMMITTEE.—

(1) ESTABLISHMENT.—The Director shall establish an advisory committee, that includes significant representation from industry and academic leaders, for the grant program authorized under this section. The advisory committee shall—

(A) assist the Director in securing active industry, and State and local government, participation in the program;

(B) recommend to the Director innovative approaches to achieving the purpose stated in subsection (b)(1); and

(C) advise the Director regarding program metrics, implementation and performance of the program, and program progress reports.

(2) DURATION.—Section 14 of the Federal Advisory Committee Act shall not apply to the advisory committee established under this subsection.

(h) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section—

(1) $25,000,000 for fiscal year 2003; and

(2) such sums as may be necessary thereafter.

(i) RELATED PROGRAMS.—The Director shall give consideration to achieving the purpose stated in subsection (b)(1) by awarding grants to institutions participating in the Louis Stokes Alliances for Minority Participation.

SEC. 5. INSTITUTIONAL REFORM.

(a) IN GENERAL.—The Director shall award grants, on a merit-reviewed, competitive basis, to institutions of higher education to expand previously implemented reforms of undergraduate science, mathematics, engineering, or technology education that have been demonstrated to have been successful in increasing the number and quality of students studying and receiving associate or baccalaureate degrees in science, mathematics, engineering, or technology.

(b) USES OF FUNDS.—Activities supported by grants under this section may include—

(1) expansion of successful reform efforts beyond a single course or group of courses to achieve reform within an entire academic unit;

(2) expansion of successful reform efforts beyond a single academic unit to other science, mathematics, engineering, or technology academic units within an institution;

(3) creation of multidisciplinary courses or programs that formalize collaborations for the purpose of improved student instruction and research in science, mathematics, engineering, and technology;

(4) expansion of undergraduate research opportunities beyond a particular laboratory, course, or academic unit to engage multiple academic units in providing multidisciplinary research opportunities for undergraduate students;

(5) expansion of innovative tutoring or mentoring programs proven to enhance student recruitment or persistence to degree completion in science, mathematics, engineering, or technology;

(6) improvement of undergraduate science, mathematics, engineering, and technology education for nonmajors, including teacher education majors; and

(7) implementation of technology-driven reform efforts, including the installation of technology to fa-

cilitate such reform, that directly impact undergraduate science, mathematics, engineering, or technology instruction or research experiences.

(c) SELECTION PROCESS.—

(1) APPLICATIONS.—An institution of higher education seeking a grant under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum—

(A) a description of the proposed reform effort;

(B) a description of the previously implemented reform effort that will serve as the basis for the proposed reform effort and evidence of success of that previous effort, including data on student recruitment, persistence to degree completion, and academic achievement;

(C) evidence of active participation in the proposed project by individuals who were central to the success of the previously implemented reform effort; and

(D) evidence of institutional support for, and commitment to, the proposed reform effort, including a description of existing or planned

institutional policies and practices regarding faculty hiring, promotion, tenure, and teaching assignment that reward faculty contributions to undergraduate education equal to, or greater than, scholarly scientific research.

(2) REVIEW OF APPLICATIONS.—In evaluating applications submitted under paragraph (1), the Director shall consider at a minimum—

(A) the evidence of past success in implementing undergraduate education reform and the likelihood of success in undertaking the proposed expanded effort;

(B) the extent to which the faculty, staff, and administrators are committed to making the proposed institutional reform a priority of the participating academic unit;

(C) the degree to which the proposed reform will contribute to change in institutional culture and policy such that a greater value is placed on faculty engagement in undergraduate education and that a commensurate reward structure is implemented to recognize faculty for their scholarly work in this area; and

(D) the likelihood that the institution will sustain or expand the reform beyond the period of the grant.

(3) GRANT DISTRIBUTION.—The Director shall ensure, to the extent practicable, that grants awarded under this section are made to a variety of types of institutions of higher education.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section $15,000,000 for each of fiscal years 2003 through 2007.

SEC. 6. FACULTY DEVELOPMENT.

(a) IN GENERAL.—The Director shall award grants, on a merit-reviewed, competitive basis, to—

(1) institutions of higher education;

(2) eligible nonprofit organizations; or

(3) consortia of institutions and organizations described in paragraphs (1) and (2),

for professional development of undergraduate faculty in support of improved undergraduate science, mathematics, engineering, and technology education.

(b) USES OF FUNDS.—Activities supported by grants under this section may include—

(1) support for individuals to participate in scholarly activities aimed at improving under-

graduate science, mathematics, engineering, and technology education including—

(A) sabbatical funding, including partial or full support for salary, benefits, and supplies, for faculty participating in scholarly research in—

(i) science, mathematics, engineering, or technology;

(ii) the science of learning; or

(iii) assessment and evaluation related to undergraduate instruction and student academic achievement;

(B) stipend support for graduate students and post-doctoral fellows to participate in instructional or evaluative activities at primarily undergraduate institutions; and

(C) release time from teaching for faculty engaged in the development, implementation, and assessment of undergraduate science, mathematics, engineering, and technology education reform activities following participation in a sabbatical opportunity or faculty development program described in this subsection; and

(2) support for institutions to develop, implement, and assess faculty development programs focused on improved instruction, mentoring, evaluation,

and support of undergraduate science, mathematics, engineering, and technology students, including costs associated with—

(A) stipend support or release time for faculty and staff engaged in the development, delivery, and assessment of the faculty development program;

(B) stipend support or release time for faculty, graduate students, or post-doctoral fellows from the host institution or external institutions who are engaged as participants in such faculty development programs; and

(C) support for materials, supplies, travel expenses, and consulting fees associated with the development, delivery, and assessment of such faculty development programs.

(c) APPLICATIONS.—An entity seeking a grant under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum—

(1) a description of the activities to be carried out under the proposed project and the projected impact of the project on undergraduate majors and non-

majors enrolled in science, mathematics, engineering, or technology courses or programs;

(2) a plan for assessment of the outcomes of the proposed project;

(3) a plan for dissemination of information regarding the activities and outcomes of the proposed project; and

(4) evidence of institutional support for implementation of the proposed project, including commitment to appropriate faculty sabbaticals and release time from teaching.

(d) ANNUAL MEETING.—The Director shall convene an annual meeting of awardees under this section to foster greater national information dissemination and collaboration in the area of undergraduate science, mathematics, engineering, and technology education.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are to be authorized to be appropriated to the National Science Foundation to carry out this section $8,000,000 for each of fiscal years 2003 through 2007.

SEC. 7. ACCESS TO RESEARCH-GRADE INSTRUMENTATION.

(a) IN GENERAL.—The Director shall award grants, on a merit-reviewed, competitive basis, to institutions of higher education to support the acquisition of research-grade instrumentation and to support training related to

the use of that instrumentation. Instruments provided through awards under this section shall be used primarily for undergraduate research, undergraduate instruction, or both, in science, mathematics, engineering, or technology.

(b) ELIGIBLE INSTITUTIONS.—Grants may be awarded under this section only to institutions of higher education that award fewer than 10 doctoral degrees per year in disciplines for which the National Science Foundation provides research support.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are to be authorized to be appropriated to the National Science Foundation to carry out this section $10,000,000 for each of fiscal years 2003 through 2007.

SEC. 8. UNDERGRADUATE RESEARCH EXPERIENCES.

(a) IN GENERAL.—The Director shall award grants, on a merit-reviewed, competitive basis, to institutions of higher education, eligible nonprofit organizations, or consortia thereof to establish sites that provide research experiences for 10 or more undergraduate science, mathematics, engineering, or technology students. The Director shall ensure that—

(1) at least half of the students participating at each site funded under this section shall be recruited from institutions of higher education where research

activities in science, mathematics, engineering, or technology are limited or nonexistent;

(2) the awards provide undergraduate research experiences in a wide range of science, mathematics, engineering, or technology disciplines;

(3) awards support a variety of projects including independent investigator-led projects, multidisciplinary projects, and multiinstitutional projects (including virtual projects);

(4) students participating in the projects have mentors, including during the academic year, to help connect the students' research experiences to the overall academic course of study and to help students achieve success in courses of study leading to a baccalaureate degree in science, mathematics, engineering, or technology;

(5) mentors and students are supported with appropriate summer salary or stipends; and

(6) all student participants are tracked through receipt of the undergraduate degree and for at least 1 year thereafter.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section $10,000,000 for each of fiscal years 2003 through 2007.

SEC. 9. DISSEMINATION OF PROJECT INFORMATION.

The Director shall ensure that all National Science Foundation-sponsored undergraduate science, mathematics, engineering, or technology education projects, including those sponsored by National Science Foundation research directorates, shall disseminate via the Internet, at a minimum, the following information:

(1) Scope, goals, and objectives of each project.

(2) Activities, methodologies, and practices developed and implemented.

(3) Outcomes, both positive and negative, of project assessment activities.

SEC. 10. EVALUATION.

(a) IN GENERAL.—The Director, through the Research, Evaluation and Communication Division of the Education and Human Resources Directorate of the National Science Foundation, shall evaluate the effectiveness of all undergraduate science, mathematics, engineering, or technology education activities supported by the National Science Foundation in increasing the number and quality of students, including students from groups underrepresented in science, mathematics, engineering, and technology fields, studying and receiving associate or baccalaureate degrees in science, mathematics, engineering, and technology. In conducting the evaluation, the Director shall consider information on—

(1) the number of students enrolled;

(2) student academic achievement, including quantifiable measurements of students' mastery of content and skills;

(3) persistence to degree completion, including students who transfer from science, mathematics, engineering, and technology programs to programs in other academic disciplines; and

(4) placement during the first year after degree completion in post-graduate education or career pathways.

(b) ASSESSMENT BENCHMARKS AND TOOLS.—The Director, through the Research, Evaluation and Communication Division of the Education and Human Resources Directorate of the National Science Foundation, shall establish a common set of assessment benchmarks and tools, and shall enable every National Science Foundation-sponsored project to incorporate the use of these benchmarks and tools in their project-based assessment activities.

(c) DISSEMINATION OF EVALUATION RESULTS.—The results of the evaluations required under subsection (a) shall be made available to the public.

(d) REPORTS TO CONGRESS.—Not later than 3 years after the date of the enactment of this Act, and once every 3 years thereafter, the Director shall transmit to the Con-

gress a report containing the results of evaluations under subsection (a).

SEC. 11. NATIONAL ACADEMY OF SCIENCES STUDY ON UNDERGRADUATE RECRUITMENT AND RETENTION.

(a) STUDY.—Not later than 3 months after the date of the enactment of this Act, the Director shall enter into an arrangement with the National Research Council of the National Academy of Sciences to perform a study on the factors that influence undergraduate students to enter and persist to degree completion in science, mathematics, engineering, and technology programs or to leave such programs and matriculate to other academic programs, as reported by students.

(b) TRANSMITTAL TO CONGRESS.—Not later than 18 months after the date of the enactment of this Act, the Director shall transmit to the Congress a report containing the results of the study under subsection (a).

(c) AUTHORIZATION OF APPROPRIATION.—There are authorized to be appropriated to the National Science Foundation for carrying out this section $700,000 for fiscal year 2003, to remain available until expended.

SEC. 12. MINORITY-SERVING INSTITUTIONS UNDERGRADUATE PROGRAM.

(a) IN GENERAL.—

(1) The Director shall establish a program to award grants to Hispanic-Serving Institutions, Historically Black Colleges and Universities, Alaska Native-Serving Institutions, Native Hawaiian-Serving Institutions, and tribally controlled colleges and universities to enhance the quality of undergraduate science, mathematics, and engineering education at such institutions and to increase the retention and graduation rates of students pursuing baccalaureate degrees in science, mathematics, or engineering.

(2) Grants shall be awarded under this section on a merit-reviewed, competitive basis.

(b) PROGRAM COMPONENTS.—Grants awarded under this section shall support—

(1) activities to improve courses and curriculum in science, mathematics, or engineering disciplines;

(2) faculty development, including support for—

(A) sabbaticals and exchange programs to improve the faculty's research competency and knowledge of technological advances;

(B) professional development workshops on innovative teaching practices and assessment;

(C) visiting faculty, including researchers from industry; and

(D) faculty reassigned time or release time to mentor students or to participate in curriculum reform and academic enhancement activities;

(3) stipends for undergraduate students participating in research activities in science, mathematics, or engineering disciplines on-campus or off-campus at industrial, governmental, or academic research laboratories; and

(4) other activities that are consistent with subsection (a)(1), as determined by the Director.

(c) APPLICATION.—An institution seeking funding under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require.

SEC. 13. ADVANCED TECHNOLOGICAL EDUCATION PROGRAM.

(a) CORE SCIENCE AND MATHEMATICS COURSES.—Section 3(a) of the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862i(a)) is amended—

(1) by inserting ", and to improve the quality of their core education courses in science and mathematics" after "education in advanced-technology fields";

(2) in paragraph (1) by inserting "and in core science and mathematics courses" after "advanced-technology fields"; and

(3) in paragraph (2) by striking "in advanced-technology fields" and inserting "who provide instruction in science, mathematics, and advanced-technology fields".

(b) ARTICULATION PARTNERSHIPS.—Section 3(c)(1)(B) of the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862i(c)(1)(B)) is amended—

(1) by striking "and" at the end of clause (i);

(2) by striking the period at the end of clause (ii) and inserting a semicolon; and

(3) by adding after clause (ii) the following new clauses:

"(iii) provide students with research experiences at bachelor-degree-granting institutions participating in the partnership, including stipend support for students participating in summer programs; and

"(iv) provide faculty mentors for students participating in activities under clause (iii), including summer salary support for faculty mentors.".

(c) ADVANCED TECHNOLOGICAL EDUCATION ADVISORY COMMITTEE.—

(1) ESTABLISHMENT.—The Director shall establish an advisory committee on science, mathematics, and technology education at community colleges consisting of non-Federal members, including representatives from academia and industry. The advisory committee shall review, and provide the Director with an assessment of, activities carried out under the Advanced Technological Education Program (in this section referred to as the "Program"), including—

(A) conformity of the Program to the requirements of the Scientific and Advanced-Technology Act of 1992;

(B) the effectiveness of activities supported under the Program in strengthening the scientific and technical education and training capabilities of community colleges;

(C) the effectiveness of the National Science Foundation and institutions receiving awards under the Program in disseminating information to other community colleges about activities carried out under the Program and about model curricula and teaching methods developed under the Program;

(D) the balance of resources allocated under the Program for support of national centers of excellence, individual institution grants, and articulation partnerships; and

(E) other issues identified by the Director.

The advisory committee shall make recommendations to the Director for improvements to the Program based on its reviews and assessments.

(2) ADVISORY COMMITTEE REPORTS.—The advisory committee established under paragraph (1) shall report annually to the Director and to Congress on the findings and recommendations resulting from the reviews and assessments conducted in accordance with paragraph (1).

(3) DURATION.—Section 14 of the Federal Advisory Committee Act shall not apply to the advisory committee established under this subsection.

(d) NATIONAL SCIENCE FOUNDATION REPORT.—Within 6 months after the date of the enactment of this Act, the Director shall transmit a report to Congress on—

(1) efforts by the National Science Foundation and awardees under the Program to disseminate information about the results of projects;

(2) the effectiveness of national centers of scientific and technical education established under sec-

tion 3(b) of the Scientific and Advanced-Technology Act of 1992 in serving as national and regional clearinghouses of information and models for best practices in undergraduate science, mathematics, and technology education; and

(3) efforts to satisfy the requirement of section 3(f)(4) of the Scientific and Advanced-Technology Act of 1992.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation—

(1) for activities to improve core science and mathematics education in accordance with section 3(a) of the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862i(a)), as amended by subsection (a) of this section, $5,000,000 for each of fiscal years 2003 through 2007;

(2) for acquisition of instrumentation in accordance with section 3(a)(4) of the Scientific and Advanced-Technology Act of 1992—

(A) $3,000,000 for fiscal year 2003;

(B) $3,500,000 for fiscal year 2004;

(C) $4,000,000 for fiscal year 2005;

(D) $4,500,000 for fiscal year 2006; and

(E) $5,000,000 for fiscal year 2007; and

(3) for support for research experiences for undergraduate students in accordance with section 3(c)(1)(B) of the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862i(c)(1)(B)), as amended by subsection (b) of this section, $750,000 for each of fiscal years 2003 through 2007.

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Reported from the Committee on Science with an amendment

JUNE 12, 2002

Referral to the Committee on Education and the Workforce extended for a period ending not later than June 12, 2002

JUNE 12, 2002

Committee on Education and the Workforce discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed