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(Original Signature of Member)

115TH CONGRESS  
2D SESSION

**H. R.** \_\_\_\_\_

To direct the National Science Foundation to provide grants for research about STEM education approaches and the STEM-related workforce, and for other purposes.

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IN THE HOUSE OF REPRESENTATIVES

M\_\_\_\_. \_\_\_\_\_ introduced the following bill; which was referred to the Committee on \_\_\_\_\_

\_\_\_\_\_  
**A BILL**

To direct the National Science Foundation to provide grants for research about STEM education approaches and the STEM-related workforce, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Innovations in Men-  
5 toring, Training, and Apprenticeships Act”.

6 **SEC. 2. FINDINGS.**

7 Congress finds the following:

1           (1) To remain competitive in the global econ-  
2           omy, foster greater innovation, and provide a foun-  
3           dation for shared prosperity, the United States  
4           needs a workforce with the right mix of skills to  
5           meet the diverse needs of the economy.

6           (2) Evidence indicates that the returns on in-  
7           vestments in technical skills in the labor market are  
8           strong when students successfully complete their  
9           training and gain credentials sought by employers.

10          (3) The responsibility for developing and sus-  
11          taining a skilled technical workforce is fragmented  
12          across many groups, including educators; students;  
13          workers; employers; Federal, State, and local govern-  
14          ments; labor organizations; and civic associations.  
15          Such groups need to be able to coordinate and co-  
16          operate successfully with each other.

17          (4) Coordination among students, community  
18          colleges, secondary and post-secondary institutions,  
19          and employers would improve educational outcomes.

20          (5) Promising experiments currently underway  
21          may guide innovation and reform, but scalability of  
22          some of those experiments has not yet been tested.

23          (6) Evidence suggests that integration of aca-  
24          demic education, technical training, and hands-on  
25          work experience improves outcomes and return on

1 investment for students in secondary and post-sec-  
2 ondary education and for skilled technical workers in  
3 different career stages.

4 (7) Outcomes show that mentoring can increase  
5 STEM student engagement and the rate of comple-  
6 tion of STEM post-secondary degrees.

7 **SEC. 3. NATIONAL SCIENCE FOUNDATION STEM INNOVA-**  
8 **TION AND APPRENTICESHIP GRANTS.**

9 (a) ESTABLISHMENT.—The Director of the National  
10 Science Foundation shall award competitive grants to eli-  
11 gible applicants in accordance with this section.

12 (b) COORDINATION.—In carrying out this section, the  
13 Director shall consult and cooperate with the programs  
14 and policies of other relevant Federal agencies to avoid  
15 duplication with, and enhance the effectiveness of, the pro-  
16 vision of grants under this section.

17 (c) GRANTS FOR ASSOCIATE DEGREE PROGRAMS IN  
18 STEM FIELDS.—

19 (1) IN GENERAL.—The Director of the National  
20 Science Foundation shall award competitive grants  
21 to community colleges to develop or improve asso-  
22 ciate degree and certificate programs in STEM  
23 fields in which there is significant workforce demand  
24 in the region of the community college receiving the

1 award and a need to strengthen the global competi-  
2 tiveness of affected companies.

3 (2) APPLICATION.—In considering applications  
4 for grants under paragraph (1), the Director shall  
5 prioritize—

6 (A) applicants that consist of a partnership  
7 between the applying community college and in-  
8 dividual employers or an employer consortia,  
9 and may include a university or other organiza-  
10 tion with demonstrated expertise in academic  
11 program development;

12 (B) applications that demonstrate current  
13 and future workforce demand in occupations di-  
14 rectly related to the proposed associate degree  
15 or certificate program.

16 (C) applications that include commitments  
17 by the partnering employers or employer con-  
18 sortia to offer apprenticeships, internships or  
19 other applied learning opportunities to students  
20 enrolled in the proposed associate degree pro-  
21 gram; and

22 (D) applications that include outreach  
23 plans and goals for recruiting and enrolling  
24 women and other historically underrepresented

1 individuals in STEM studies and careers in the  
2 proposed associate degree program.

3 (3) FUNDING.—The National Science Founda-  
4 tion shall devote not less than \$20,000,000 to  
5 awards described in this subsection, which shall in-  
6 clude not less than \$5,000,000 for each of fiscal  
7 years 2018 through 2021, subject to the availability  
8 of appropriations, to come from amounts made avail-  
9 able for the Education and Human Resources Direc-  
10 torate. This subsection shall be carried out using  
11 funds otherwise appropriated by law after the date  
12 of enactment of this Act.

13 (d) GRANTS FOR STEM DEGREE APPLIED LEARN-  
14 ING OPPORTUNITIES.—

15 (1) IN GENERAL.—The Director of the National  
16 Science Foundation shall award competitive grants  
17 to universities partnering with employers or em-  
18 ployer consortia that commit to offering apprentice-  
19 ships, internships, research opportunities, or applied  
20 learning experiences to enrolled university students  
21 in identified four-year STEM degree programs.

22 (2) APPLICATION.—In considering applications  
23 for grants under paragraph (1), the Director shall  
24 prioritize—

1 (A) applicants that consist of a partnership  
2 between—

3 (i) the applying university; and

4 (ii) individual employers or an em-  
5 ployer consortia;

6 (B) applications that demonstrate current  
7 and future workforce demand in occupations di-  
8 rectly related to selected STEM fields; and

9 (C) applications that include outreach  
10 plans and goals for recruiting and enrolling  
11 women and other populations historically under-  
12 represented in STEM.

13 (3) FUNDING.—The National Science Founda-  
14 tion shall devote not less than \$10,000,000 to  
15 awards described in this subsection, which shall in-  
16 clude not less than \$2,500,000 for each of fiscal  
17 years 2018 through 2021, subject to the availability  
18 of appropriations, to come from amounts made avail-  
19 able for the Education and Human Resources Direc-  
20 torate. This subsection shall be carried out using  
21 funds otherwise appropriated by law after the date  
22 of enactment of this Act.

23 (e) GRANTS FOR COMPUTER-BASED AND ONLINE  
24 STEM EDUCATION COURSES.—

1           (1) IN GENERAL.—The Director of the National  
2           Science Foundation shall award competitive grants  
3           to institutions of higher education or nonprofit orga-  
4           nizations to conduct research on student outcomes  
5           and determine best practices and scalability of com-  
6           puter-based and online courses for technical skills  
7           training.

8           (2) RESEARCH AREAS.—The research areas eli-  
9           gible for funding under this subsection may in-  
10          clude—

11                   (A) post-secondary courses for technical  
12                   training for STEM occupations;

13                   (B) improving high-school level vocational  
14                   training in STEM subjects;

15                   (C) encouraging and sustaining interest  
16                   and achievement levels in STEM subjects  
17                   among women and other populations histori-  
18                   cally underrepresented in STEM studies and  
19                   careers; and

20                   (D) combining computer-based and online  
21                   STEM education and training with traditional  
22                   mentoring and other mentoring arrangements,  
23                   apprenticeships, internships, and other applied  
24                   learning opportunities.

1           (3) FUNDING.—The National Science Founda-  
2           tion shall devote not less than \$10,000,000 to  
3           awards described in this subsection, which shall in-  
4           clude not less than \$2,500,000 for each of fiscal  
5           years 2018 through 2021, subject to the availability  
6           of appropriations, to come from amounts made avail-  
7           able for the Education and Human Resources Direc-  
8           torate. This subsection shall be carried out using  
9           funds otherwise appropriated by law after the date  
10          of enactment of this Act.

11 **SEC. 4. RESEARCH ON EFFICIENCY OF SKILLED TECH-**  
12 **NICAL LABOR MARKETS.**

13          (a) EFFICIENCY OF SKILLED TECHNICAL LABOR  
14 MARKET.—The Directorate of Social, Behavioral & Eco-  
15 nomic Sciences of the National Science Foundation, in co-  
16 ordination with the Secretary of Labor, shall support re-  
17 search that improves the efficiency of skilled technical  
18 labor markets in the United States, including research on  
19 labor market analysis innovations, data and information  
20 sciences, electronic information tools and methodologies,  
21 and metrics.

22          (b) COMPARISON OF UNITED STATES WORK-  
23 FORCE.—

24           (1) RESEARCH.—The National Science Founda-  
25           tion shall commission research that compares and



1 contrasts skilled technical workforce development be-  
2 tween the United States and other developed coun-  
3 tries, including the diversity of skilled technical and  
4 professional workforces, to the extent feasible.

5 (2) REPORT.—Not later than 3 years after the  
6 date of enactment of this Act, the Director of the  
7 National Science Foundation shall submit to Con-  
8 gress a report on the results of the study under  
9 paragraph (1).

10 (c) SKILLED TECHNICAL WORKFORCE.—

11 (1) REVIEW.—The National Center for Science  
12 and Engineering Statistics of the National Science  
13 Foundation shall consult and coordinate with other  
14 relevant Federal statistical agencies to explore the  
15 feasibility of expanding its surveys to include the col-  
16 lection of objective data on the skilled technical  
17 workforce.

18 (2) REPORT.—Not later than 1 year after the  
19 date of enactment of this Act, the Director of the  
20 National Science Foundation shall submit to Con-  
21 gress a report containing the progress made in ex-  
22 panding the National Center for Science and Engi-  
23 neering Statistics surveys to include the skilled tech-  
24 nical workforce. Such report shall include a plan for  
25 multi-agency collaboration in order to effect data

1 collection and reporting of data on the skilled tech-  
2 nical workforce.

3 **SEC. 5. SPENDING LIMITATION.**

4 No additional funds are authorized to be appro-  
5 priated to carry out this Act and the amendments made  
6 by this Act, and this Act and such amendments shall be  
7 carried out using amounts otherwise available for such  
8 purpose.

9 **SEC. 6. EVALUATION AND REPORT.**

10 (a) EVALUATION.—

11 (1) IN GENERAL.—Not later than 2 years after  
12 the date of enactment of this Act, the Director of  
13 the Foundation shall evaluate the grants and pro-  
14 grams provided under this Act.

15 (2) REQUIREMENTS.—In conducting the evalua-  
16 tion under paragraph (1), the Director shall use a  
17 common set of benchmarks and assessment tools to  
18 identify best practices and materials developed or  
19 demonstrated by the research conducted pursuant to  
20 such grants and programs.

21 (b) REPORT ON EVALUATIONS.—Not later than 180  
22 days after the completion of the evaluation under sub-  
23 section (a), the Director of the Foundation shall submit  
24 to Congress and make widely available to the public a re-  
25 port that includes—

1 (1) the results of the evaluation; and

2 (2) any recommendations for administrative  
3 and legislative action that could optimize the effective-  
4 tiveness of the grants and programs under this Act.

5 (c) CONSULTATION.—In carrying out this section, the  
6 Director of the Foundation shall consult the programs and  
7 policies of other relevant Federal agencies to avoid dupli-  
8 cation with, and enhance the effectiveness of, the grants  
9 and programs under this Act.

10 **SEC. 7. DEFINITIONS.**

11 In this Act:

12 (1) STEM.—The term “STEM” means science,  
13 technology, engineering, and mathematics, including  
14 computer science.

15 (2) COMMUNITY COLLEGE.—The term “commu-  
16 nity college” has the meaning given the term “junior  
17 and community college” in section 312 of the Higher  
18 Education Act of 1965 (20 U.S.C. 1058).

19 (3) INSTITUTION OF HIGHER EDUCATION.—The  
20 term “institution of higher education” has the  
21 meaning given such term in section 101(a) of the  
22 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

23 (4) REGION.—The term “region” means a labor  
24 market area, as such term is defined in section 3 of

1 the Workforce Innovation and Opportunity Act (29  
2 U.S.C. 3102).

3 (5) SKILLED TECHNICAL WORKFORCE.—The  
4 term “skilled technical workforce” means workers  
5 with high school diplomas and two-year technical  
6 training or certifications who employ significant lev-  
7 els of STEM knowledge in their jobs.

8 (6) UNIVERSITY.—The term “university”  
9 means a 4-year institution of higher education, as  
10 defined in section 101(a) of the Higher Education  
11 Act of 1965 (20 U.S.C. 1001(a)).