



Republic of the Philippines
House of Representatives
Quezon City, Metro Manila



Twentieth Congress
First Regular Session

HOUSE BILL NO. **9735**

Introduced by Representative Irene G. Labadlabad
2nd District, Zamboanga del Norte

AN ACT
STRENGTHENING THE SCIENCE, TECHNOLOGY, ENGINEERING,
AND MATHEMATICS (STEM) EDUCATION SYSTEM THROUGH
CURRICULUM REFORM, TEACHER DEVELOPMENT,
MODERNIZED INFRASTRUCTURE, SCHOOL EXPANSION AND
FREE SCHOLARSHIPS AND APPROPRIATING FUNDS THEREFOR

EXPLANATORY NOTE

The education system in our country stands at a critical juncture. In a world increasingly driven by science, technology, engineering, and mathematics (STEM), our nation continues to face deep learning gaps. The *2022 Program for International Student Assessment*, released in 2023, revealed that the Philippines ranked 77th out of 81 participating countries, with student performance falling below the global average in all core subjects.

These outcomes paint a sobering picture for our youth, the majority of whom remain ill-prepared for today's global demands, where digital literacy, problem-solving, and scientific reasoning are indispensable. At a time when the

world is rapidly advancing in artificial intelligence, robotics, biotechnology, renewable energy, and data science, the Philippine education system must urgently integrate these disciplines.

This condition is supported by data from the Department of Science and Technology, which estimates that the Philippines faces a shortage of at least 200,000 engineers and STEM professionals by 2030 if current issues are not addressed.

STEM education is universally recognized as the backbone of innovation, economic competitiveness, and national development. Without decisive reforms, the Philippines is at risk of being left behind in the global economy. It is for this reason that comprehensive modernization and accessibility of STEM education from elementary to graduate studies should be implemented.

This measure mandates progressive curriculum enhancements across all levels of education to strengthen the nation's STEM foundation. At the elementary level, it seeks to foster scientific curiosity and digital literacy. In junior and senior high school, it will introduce applied STEM modules, including coding, robotics, environmental sciences, and health innovations to deepen experiential learning. At the tertiary and graduate levels, it will establish a national STEM scholarship program covering undergraduate, master's, and doctoral studies in public and private institutions, with return-of-service provisions to ensure that Filipino talent serves the nation first and contributes to national development.

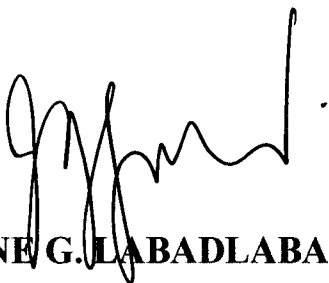
This measure will also ensure the continuous expansion and growth of the Philippine Science High School (PSHS) System, particularly in underserved and disadvantaged regions, and establish regional innovation hubs and academe-industry partnerships to bridge classroom learning with workforce needs. Under this bill, all PSHS campuses are mandated to be equipped with state-of-the-art laboratories, advanced research facilities, robust digital infrastructure, and comprehensive science learning resources that meet global standards in STEM education.

By investing in STEM, the future generations of Filipinos will have globally competitive skills, ensuring that the country produces scientists,

engineers, innovators, and educators who can lead in a technology-driven world.

Furthermore, this bill not only pushes for educational reforms, but it also promotes strategic investments for our nation's future. By nurturing every Filipino learner from their earliest years of schooling to the highest levels of specialization, it seeks to ensure that every citizen is empowered to become the innovators, leaders, and problem solvers of our country and educationally and technologically equipped to contribute to national development.

In view of the foregoing, the immediate passage of this bill is earnestly sought.



IRENE G. LABADLABAD



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Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

SECTION 1. ***Short Title.*** – This Act shall be known as the “*STEM Education Development Act.*”

SEC. 2. ***Declaration of Policy.*** – It is the declared policy of the State to strengthen the nation’s human capital by cultivating a robust foundation in science, technology, engineering, and mathematics (STEM) education as a strategic pillar of national development and global competitiveness. To this end,

the State shall modernize the STEM education system to align with emerging technologies and evolving industry demands, while ensuring inclusive and equitable access to quality education in support of a future-ready, innovation-driven workforce.

SEC. 3. ***Objectives.*** – This Act aims to:

- (a) Reinforce the early foundations in mathematics, sciences, digital literacy, and inquiry-based learning in the elementary grades which are crucial for future academic success;
- (b) Ensure progression and alignment of STEM competencies across elementary, junior high, senior high, and tertiary levels;
- (c) Expand access to STEM-focused programs, scholarships, and specialized schools, particularly for remote regions;
- (d) Modernize curriculum content and teaching methodologies to reflect global trends, knowledge and skills;
- (e) Support continuous professional development and incentives for teachers assigned in specialized STEM subjects;
- (f) Establish partnerships with industry, higher education, and local government to bridge school and workplace needs; and
- (g) Provide funding and oversight mechanisms to ensure sustainability.

SEC. 4. ***Curriculum Modernization.*** – The Department of Education (DepEd) shall undertake the modernization of the basic education curriculum to strengthen STEM competencies from the earliest grade levels and shall:

(a) Promote early science and mathematics education by designing and implementing age-appropriate, inquiry-based learning modules in science and mathematics, emphasizing on problem-solving, observation, and progressively introducing experimentation at the kindergarten and elementary levels;

(b) Integrate digital literacy into the curriculum by introducing basic computational thinking, coding fundamentals, and responsible technology use to students not later than Grade 3, using hands-on, accessible, and cost-effective digital learning tools; and

(c) Embed applied STEM concepts across reading, language, arts, and social studies to cultivate interdisciplinary learning, critical thinking, and innovation-oriented mindsets among students.

SEC. 5. ***Higher Education.*** – The Commission on Higher Education (CHED) shall strengthen and expand STEM education at the tertiary level and shall:

(a) Streamline and ensure that there is vertical alignment of Higher Education Institution (HEI) degree programs from undergraduate to graduate studies, so teachers develop specialized expertise in teaching STEM subjects and avoid teacher-subject mismatches.

(b) Encourage all Higher Education Institutions (HEIs) to implement an **Adopt-a-School Program**, wherein they take responsibility for nurturing and supporting nearby high schools to strengthen STEM education delivery and enhance student outcomes.

(c) Encourage and support higher education institutions (HEIs) in establishing, expanding, and upgrading degree programs in emerging and high-demand fields such as artificial intelligence (AI), robotics, biotechnology, renewable energy, data science, and other related disciplines, in alignment with national development priorities;

(d) Institutionalize stronger partnerships between HEIs and industry stakeholders to ensure curriculum relevance, improve the employability of graduates, and facilitate knowledge transfer, internships, and practical training opportunities;

(e) Support research and innovation by providing seed grants, establishing research laboratories, and supporting applied student and faculty research projects in priority development areas, with particular emphasis on innovation, technology transfer, and commercialization of outputs; and

(f) Promote regional equity and ensure that the expansion of STEM programs, laboratories, and research opportunities shall give priority to underserved regions and state universities and colleges (SUCs), in order to

promote inclusive development and equitable access to quality higher education.

SEC. 6. *Philippine Science High School (PSHS) System Development.* –

The Department of Science and Technology (DOST) shall, in coordination with DepEd, continue to expand and strengthen the Philippine Science High School (PSHS) System under Republic Act No. 12310, or the “*Expanded Philippine Science High School (PSHS) System Act*”, to ensure equitable access to advance STEM secondary education nationwide. For this purpose:

(a) All PSHS campuses shall be equipped with state-of-the-art laboratories, research facilities, digital infrastructure, and science learning resources that meet global standards in STEM education; and

(b) Research mentorship programs shall likewise be established in partnership with universities, research institutes, and industry to enhance applied learning and innovation.

The DOST shall, in coordination with DepEd and relevant stakeholders, implement the necessary policy and governance reforms to ensure the efficient expansion, management, and sustainability of the PSHS System, consistent with its charter and national development priorities. It shall also strengthen institutional linkages with local universities, industries, and innovation hubs to foster applied learning, joint research, and technology development responsive to national and regional needs.

SEC. 7. *Teacher Development and Incentives.* – To strengthen the capacity specialization, and motivation of educators in the effective delivery of STEM education, the DepEd shall, in coordination with the CHED, the DOST and other concerned agencies, implement the following:

(a) *National STEM Teacher Development Program.* – A National STEM Teacher Development Program is hereby institutionalized to provide:

(1) Mandatory In-Service Training and Continuing Professional Development focused on early numeracy, inquiry-based science instruction, integration of digital literacy, and emerging technologies;

(2) Annual Training and Certification in frontier and applied fields such as AI, robotics, biotechnology, renewable energy, and data science;

(3) Paid Industry Immersion Programs for STEM teachers to ensure real-world application of skills and stronger academe-industry linkages;

(4) Provision of updated teaching resources, digital tools, and laboratory access; and

(5) Priority access to scholarships for graduate and post-graduate studies in STEM-related fields;

(b) *STEM Teacher Incentives.* – Public elementary and secondary school teachers handling STEM subjects shall be provided with additional allowances, merit-based career incentives, and hardship benefits, particularly

for those assigned to remote, disadvantaged, and underserved areas, in order to attract, retain, and reward competent STEM educators nationwide; and

(c) *Scholarships and Fellowship Programs for Pre-Service STEM Teachers.* – The CHED shall, in coordination with DepEd, expand and strengthen scholarship programs for pre-service teachers specializing in mathematics, science, engineering, and digital literacy education. Such scholarships shall include tuition coverage, stipends, and other necessary allowances, subject to return-of-service provisions to ensure that graduates serve in the public education system for a period to be determined by CHED and DepEd.

SEC. 8. *Infrastructure, Laboratories, Information and Communication Technology.* – To ensure the effective delivery of STEM education across all levels, the DepEd shall, in coordination with DOST, the Department of Information and Communications Technology (DICT), provide facilities, and safe learning environments for schools, and implement the following:

(a) DepEd shall provide age-appropriate science corners, portable laboratory kits, and deploy mobile science laboratories or science vans to elementary schools, particularly those lacking permanent laboratory facilities. These resources shall be designed to be low-cost, durable, and adaptable to resource-limited school environments in both urban poor and rural communities;

(b) In partnership with DICT and LGUs, DepEd shall progressively equip classrooms with ICT-enabled tools and connectivity solutions. Priority shall be given to geographically isolated, disadvantaged, and conflict-affected areas to ensure no learner is left behind in digital access;

(c) DepEd shall, in collaboration with DOST and state universities and colleges (SUCs), establish regional science and innovation hubs that will serve as shared laboratories, teacher training centers, and repositories of STEM learning materials. These hubs shall be accessible to clusters of schools within the region, ensuring economies of scale and equitable access to advanced learning resources;

(d) All STEM learning materials and laboratory kits shall be developed, translated, and adapted to the local context, culture, and languages of learners, ensuring inclusivity and responsiveness to community realities while upholding global standards of STEM education; and

(e) DOST shall provide technical assistance for laboratory design, teacher training on laboratory safety, and research mentorship. Where full conventional laboratories are not feasible, the program shall support low-cost, modular laboratory kits or mobile laboratory units.

SEC. 9. *Scholarships, Grants, and Financial Assistance.* – To expand equitable access to quality education and strengthen the country’s pool of scientists, engineers, and innovators, the following programs are hereby established and institutionalized:

(a) *National STEM Scholarship and Grant Program.* – A National STEM Scholarship and Grant Program shall be established to provide students full scholarships, including tuition, stipends and related support for students from disadvantaged backgrounds. Eligible recipients may enroll in the Philippine Science High School, specialized STEM tracks in senior high schools, or priority tertiary STEM programs in public and private higher education institutions;

(b) *Transition Grants.* – Financial support and assistance shall be provided to students transitioning from K–12 STEM tracks into Technical Education and Skills Development Authority (TESDA) programs or tertiary-level STEM degree programs, to ensure continuity of learning and reduce attrition; and

(c) *STEM Scholarship Program for Higher Education.* – A National STEM Scholarship Program is hereby institutionalized to provide free tuition, stipends, and related allowances for qualified students pursuing STEM-related undergraduate, master's, and doctoral degrees in public and private higher education institutions, locally and abroad. This program shall be subject to return-of-service agreements in the Philippines.

SEC. 10. *Return of Service Obligation.* – Scholarship recipients shall execute a service contract requiring them to teach STEM subjects including Mathematics, Biology, Chemistry, Physics, Information Technology, and Agricultural and Fisheries Technology for at least two (2) years in a public or

private high school in the Philippines or render equivalent service in the Department of Science and Technology, or a related government agency, a government-recognized STEM development program, or in accredited STEM enterprises within the Philippines, subject to DOST approval. Failure to comply with the return-of-service obligation shall require full repayment of all benefits received, with applicable interest and penalties. Sureties shall be executed by the parents, guardians, or spouse of the scholar, as the case may be, to guarantee compliance with this provision.

SEC. 11. ***STEM-Industry Council.*** – A STEM-Industry Council is hereby created under the DOST to develop internship and apprenticeship programs for senior high school and college students, establish public-private partnerships for curriculum design, laboratory development, and applied research, and recommend tax incentives for private sector contributions to STEM education.

SEC. 12. ***Integration with the Universal Access to Quality Tertiary Education Act.*** – In line with Republic Act No. 10931, otherwise known as the “*Universal Access to Quality Tertiary Education Act*,” qualified STEM students in state universities and colleges (SUCs), local universities and colleges (LUCs), and technical-vocational institutions under TESDA shall continue to enjoy free tuition and other school fees. This Act shall ensure that STEM-related programs in these institutions are prioritized for funding and facilities upgrading to guarantee access to world-class education.

The Department of Science and Technology–Science Education Institute (DOST-SEI) shall, in coordination with the CHED, expand the existing merit- and needs-based scholarships to cover a greater number of STEM students, giving priority to those from economically disadvantaged backgrounds, geographically isolated areas, and underrepresented groups.

SEC. 13. ***Student Loan Program.*** – The Student Loan Program for Tertiary Education under Republic Act No. 10931, shall be expanded to cater to STEM students who may not fully qualify for scholarships. Loans shall be payable through an income-contingent repayment scheme, whereby repayment shall commence once the graduate is gainfully employed and earning above a minimum income threshold.

SEC. 14. ***STEM Student Support Services.*** – To maximize the impact of scholarships and student loans, the CHED and DOST shall provide academic mentoring, career counseling, mental health support, and entrepreneurship training for STEM students.

SEC. 15. ***National STEM Coordination Council (NSECC).*** – To ensure complementarity and avoid duplication of programs, there is hereby established a National STEM Education Coordination Council, hereinafter referred to as Council, under DOST, composed of the following:

- (a) Secretary of Science and Technology, as chairperson
- (b) Secretary of Education, as co-chairperson; and

(c) Chairperson of the Commission on Higher Education, as co-chairperson with membership from the Department of Information and Communications Technology, Technical Education and Skills Development Authority, the Philippine Normal University, and two representatives from relevant industry sectors.

SEC. 16. ***Functions of the Council.*** The Council shall have the following functions:

(a) Align and integrate the implementation of this Act with existing education and scholarship laws.

(b) Establish and maintain a centralized database of all STEM scholars, regardless of funding source, to ensure transparency, prevent duplication, and facilitate monitoring of return-of-service obligations;

(c) Consolidate all STEM-related teacher training, incentives, and scholarships under a single national framework;

(d) Ensure that the growth of the Philippine Science High School System is consistent with a national STEM master plan and complements K–12 STEM tracks and regional development priorities;

(e) Recommend integrated budget proposals across agencies to maximize resources and ensure funding coherence under the annual General Appropriations Act;

(f) Facilitate partnerships between the academe, industry, and government for curriculum development, research, internships, apprenticeships, and technology transfer; and

(g) Conduct periodic assessments of STEM programs implemented under this Act and related laws, and submit a consolidated report to Congress and the Office of the President.

The Council shall review the curriculum every five (5) years to integrate emerging disciplines and future technologies in consultation with global experts.

SEC. 17. *Role of Different Government Agencies.* – The implementation of this Act shall be jointly undertaken by the following agencies, under the policy oversight and coordination of the NSECC created under Section 15 of this Act:

(a) DOST – SEI shall serve as lead agency for the administration of scholarships, grants, and monitoring of return-of-service obligations, and shall oversee the expansion and strengthening of the PSHS System in coordination with DepEd;

(b) DepEd shall undertake curriculum modernization for basic education, the hiring and deployment of STEM teachers, and the implementation of teacher development programs at the elementary and secondary levels;

(c) CHED shall oversee tertiary and graduate STEM programs, including curriculum development, faculty research support, and coordination with higher education institutions for STEM expansion and industry partnerships;

(d) TESDA shall align technical-vocational STEM programs with the national STEM master plan, and provide pathways for K–12 STEM track graduates into specialized technical fields;

(e) Philippine Normal University (PNU) and other Teacher Training Institutions shall lead the training and professional development of STEM teachers, in coordination with CHED and the DepEd.

(f) DICT shall ensure digital infrastructure, connectivity, and ICT-enabled tools are deployed to support STEM learning nationwide.

All implementing agencies shall submit their respective annual plans and budgets for STEM-related programs to the National STEM Education Coordinating Council, which shall integrate and harmonize these submissions into a unified report for inclusion in the General Appropriations Act.

SEC. 18. ***Implementing Rules and Regulations.*** – Within ninety (90) days from the effectivity of this Act, the DOST shall, in coordination with the Department of Public Works and Highways, DepEd, CHED, TESDA, PNU and DICT, promulgate the necessary rules and regulations for the effective implementation of this Act.

SEC. 19. ***Separability Clause.*** – If any provision of this Act is declared unconstitutional, the remaining provisions not affected thereby shall continue to be valid and enforceable.

SEC. 20. ***Repealing Clause.*** – All laws, rules, and regulations inconsistent with the provisions of this Act are hereby repealed or amended accordingly.

SEC. 21. ***Effectivity.*** – This Act shall take effect fifteen (15) days after its publication in the *Official Gazette* or in a newspaper of general circulation.

Approved,