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

Eighteenth Congress
First Regular Session

HOUSE BILL NO. 6547

Introduced by Honorable Jericho Jonas "Koko" B. Nograles

EXPLANATORY NOTE

This bill seeks to provide for higher standards of regulation in the practice of chemical engineering and expand its scope and nature.

Republic Act (RA) No. 9297, otherwise known as the *"Chemical Engineering Law of 2004,"* was approved on May 13, 2004 to supervise and regulate the practice of chemical engineering. It also aims to upgrade chemical engineering education to ensure that Filipino chemical engineers are at par with the best in the world and to reserve the practice of such profession to Filipino citizens.

Since the enactment of RA 9297 in 2004, advances in technology, globalization and the changes in the scope, nature, and trends in the practice of chemical engineering are challenges confronting the profession which necessitates the revision of the existing law regulating its practice.

Chemical engineering is a wide discipline that provides society with many critical utilities. Almost all industries require the employment of chemical engineers to, among others, maximize productivity and product quality while minimizing costs; ensure compliance with health, safety, and environmental regulations; monitor and optimize production processes; and ensure that safety procedures are implemented within industrial facilities. Chemical engineering has significant impact on the environment, the welfare and safety, quality of life, businesses, and leisure of the general public.

This proposed measure, among others, expands the scope and nature of the practice of chemical engineering and defines the three (3) levels of engineering practice in relation to chemical engineering to make it attuned to the current levels of global engineering practice. This measure also includes the adoption of outcomes-based engineering education to align with international standards of chemical engineering education and practice, and to be responsive to industry requirements.

The proposed revisions to RA 9297 under this bill intend to further strengthen the chemical engineering profession and enable chemical engineers to cope with these challenges. These revisions are necessary to continually enhance the competence of Filipino chemical engineers and increase their employment opportunities.

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

JERICHO JONAS "KOKO" B. NOGRALES

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AN ACT AMENDING AND REPEALING REPUBLIC ACT NUMBERED NINE THOUSAND TWO HUNDRED NINETY-SEVEN (R.A. NO. 9297), OTHERWISE KNOWN AS "THE CHEMICAL ENGINEERING ACT OF 2004"

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

SECTION 1. **Title.** – This Act shall be known as the "Comprehensive Chemical Engineering Law of 2018."

SECTION 2. **Statement of Policy.** – It is hereby declared the policy of the State to supervise, regulate and uphold the practice of chemical engineering in the interest of public safety recognizing it as vital to national development, upgrade chemical engineering education to guarantee attainment of internationally accepted skills and attributes of engineers, and to reserve the practice of such profession to Filipino Chemical Engineers.

SECTION 3. **Definition of Terms**

a) **Chemical Engineering** is a discipline and profession in Engineering which covers application of knowledge and skills in mathematics, chemistry, other natural sciences, unit operations, thermodynamics, unit process principles coupled with management and technology in using systems approach to problem analysis and solution creation using tools for scale bridging founded in physical, biological and molecular sciences giving high regard and consideration to public safety and environmental protection and sustainability for the betterment of humanity.
b) **Practice of Chemical Engineering** shall mean performance of activities under the scope of practice of the Chemical Engineering Profession
c) **Systems Approach** refers to the concept of integrated consideration of inputs, outputs and other relevant factors in analyzing problems.

d) **Tools for Scale Bridging** refer to concepts, principles and technology which may include unit operations, thermodynamics, chemical reaction kinetics, unit processes, optimization software, modelling and computing applications.

e) **Professional Chemical Engineer(PChE)** is a holder of a BS Chemical Engineering diploma and is a duly registered professional and holder of a valid Certificate of Registration and PRC Professional Identification Card who can conceptualize, develop, design, manage, improve and apply safe, healthy, ethical and economic ways of utilizing materials and energy in unit processes and operations to achieve physical and chemical change for the benefit of society and environment through the application of knowledge of mathematics, chemistry, molecular sciences, information technology and other natural, applied and social sciences, gained by study, research and practice.

f) **Chemical Process and Engineering Technologist** is a graduate of BS Chemical Engineering, BS Chemical Engineering Technology, or has completed at least the minimum third-year equivalent of a Bachelor of Science program in Chemical Engineering who has passed the Chemical Process and Engineering Technologist Licensure Examination given by the Board of Chemical Engineering of the Professional Regulation Commission. He/she may be engaged in performing engineering calculations, computer software applications, application of knowledge of mathematics, chemistry, molecular sciences, information technology and other natural, applied and social sciences in support to the Professional Chemical Engineers' requirements.

g) **Manufacturing Process Technician** is a graduate of Diploma in Chemical Process Technician or has completed at least the minimum second-year equivalent of a Bachelor of Science program in Chemical Engineering according to CHED guidelines with skills training from accredited and government-recognized trade and vocational institutions who have proven themselves skillfully qualified and certified to perform functions related to manufacturing equipment monitoring and operation which may require performance of duties related to production or as laboratory technician for Chemical Engineering Laboratories in an academic institution and in laboratories as defined in industrial plants.

h) **Industrial Plant** shall mean any installation, building or structure engaged in the commercial production of consumer and industrial products or is involved in pollution control processes; which has manufacturing equipment and facilities wherein unit processes and operations are carried out.

i) **Unit Process** shall mean a conglomeration of activities or operations in a manufacturing or industrial or waste treatment process that achieves chemical transformation.

j) **Unit Operation** shall mean any part or activity of a process which can be considered to have a single function intended to achieve physical change which may include, but is not limited to, storage of solid, gas and liquid components, heat transfer, mass transfer, separation and disintegration.

k) **Process** shall mean a series of steps or actions taken in order to achieve a particular purpose

l) **Process Design** shall mean preparation of conceptual plans on flow of activities or operations in an industrial plant intended either for construction of new facilities or for modification of existing facilities.

m) **Process Parameters** refer to a set of conditions to be met when running an industrial process.

n) **Process Control** refer to changing of process parameters based on the results of process monitoring.

o) **Process Equipment** refer to equipment where unit process or unit operation takes place.

p) **Waste Treatment Facility** shall mean any installation, building or structure engaged in the handling, treatment and disposal of solid, liquid or gaseous wastes generated by the community either from residential or institutional sources and from industrial processes.

q) **Waste Treatment Process** shall mean the operations involved in achieving physical, chemical and biological change in collected wastes so as to attain environmental compliance.

r) **Professional Chemical Engineering Subjects** shall mean courses offered in higher educational institutions for the Bachelor of Science in Chemical Engineering Program and other related Engineering programs covering any of the following topics: chemical engineering thermodynamics; chemical engineering mathematics; industrial chemistry; chemical engineering calculations; chemical reaction engineering; physical and chemical principles; industrial processes; momentum transfer; heat transfer; mass transfer; separation processes; particle technology; industrial waste management and control; process equipment and plant design; and biochemical engineering and bioengineering; nanotechnology;

s) **In-Process Laboratory** refers to a satellite installation that industrial plants have in order to perform quality-related analysis or tests that may be required in adjustment of Process Parameters used in commercial and industrial production operations.

t) **Pilot Laboratory** refers to a miniature version of the industrial plant where pilot trials are conducted for product development and research purposes. Results of these studies are farmed out for commercial production once approved.

u) **Research and Development Laboratory** refers to a facility where research and development studies can be performed incorporating physical, chemical and microbiological tests if needed.

v) **Process Simulation Laboratory** refers to a facility where process simulation and optimization and mathematical modelling are done using computer applications and software intended for industrial applications.

w) **Quality Assurance Laboratory** refers to a facility inside an industrial plant wherein physical, chemical, biological, process and statistical analysis are performed in relation to production operations.

x) **Chemical Engineering Laboratory** refers to a facility in an academic institution offering Chemical Engineering Programs that have instructional unit operations and process equipment.

y) **Special Permit to Practice** refers to a document issued by the Board of Chemical Engineering to qualified chemical engineers, Foreign or Filipino, who have established themselves as experts in their field of practice, allowing him/her to perform chemical engineering practice for a prescribed period as determined by the Board.

z) **Resident Professional Chemical Engineer** refers to a regular professional chemical engineer employed in industrial plant, facility or institution

SECTION 4. **Scope of Practice**

A. **Professional Chemical Engineers** practice includes performance of activities and/or rendering professional service in the following fields of specialization:

1. **Equipment Design**: Includes conceptualization of equipment features, material composition, dimensional requirements, functionality assessment, fabrication requirements, calculations, drawings and supervision of fabrication conforming to established equipment codes.
2. **Process Design**: Includes conceptualization of process flow, revision of processes, optimization of processes, setting of parameters, process control, sampling and testing, validation, verification, preparation of reports, feasibility studies, materials specification, efficiency calculations, conduct of trials, modification of parameters and engineering calculations.
3. **Industrial Plant Design**: Includes integration of facilities lay-out and location, process and equipment design, cost estimation, market study, material and energy management, financial management, waste management and personnel management.
4. **Project Management**: Includes planning, manpower management, facilities management, materials management, calculations, mobilization of project logistics, management presentations and preparation of reports.
5. **Process Management**: Includes supervision of an industrial process or specific areas in it, monitoring of operational parameters, process control, sampling and testing, preparation of manpower complement, scheduling and planning of materials and production operations, preparation of reports, management presentations, production logistics, disposal logistics and training of personnel on operations.
6. **Environmental Impact Assessment**: Includes preparation of proposals, sampling and testing, engineering calculations, project presentation, planning, mobilization, preparation of EIA report and compliance monitoring.
7. **Waste Management**: Includes identification, characterization and quantification of wastes, preparation of waste management proposals, conduct of training on waste management, design of waste treatment and

control facilities, engineering calculations, monitoring and supervision of waste treatment facilities, sampling and testing, preparation of reports, management presentations, and handling activities related to environmental concerns.

8. **Education**: Includes holding positions in an academic institution offering engineering programs, preparation of outcome-based engineering courses, assessment of engineering programs and student outcomes, teaching of subjects or courses included in the curricula of different engineering programs, preparation and grading of examinations, preparation of reports, academic advising, student research advising, consultation activities, project implementation and attendance to relevant conferences on student learning, participation in international and local university linkage activities.
9. **Research and Development**: Includes conceptualization of products and processes, preparation of feasibility studies, optimization, simulation, engineering process equipment design, process and equipment innovation, materials substitution, conduct of trials, sampling and testing, engineering calculations, intellectual property patent applications, development of standards, preparation of reports and management presentation.
10. **Quality Assurance**: Includes observation techniques applied in the process, establishment of sampling frequency, sampling and testing, analysis and interpretation of results of tests for adjustment of process parameters, process and statistical analysis, monitoring of process parameters, engineering calculations, preparation of reports, management presentations, manpower planning, operation of testing equipment and management of facilities intended for quality assurance.
11. **Quality Management**: Includes management of manpower, materials, energy, technological and financial resources for implementation of quality-related functions, activities and systems in relation to an industrial plant operation and institutional facilities.
12. **Operations Management**: Includes management of manpower, materials, energy, technological and financial resources for implementation of functions, activities and systems in relation to an industrial plant operation and institutional facilities.
13. **Process Engineering**: Includes thorough understanding of industrial processes and corresponding parameters, revision of processes, establishment of process parameters, engineering calculations, process instrumentation and control, process optimization, efficiency calculations, preparation of reports, preparation of recommendations, development of procedures and management presentations.
14. **Environmental Engineering**: Includes activities related to management of industrial, commercial and institutional wastes, cleaner production process modification, pollution control activities, consultations with local government units on waste management, preparation of design plans for waste

treatment facilities, operation and supervision of waste treatment facilities, preparation of reports, management presentations, sampling and testing, line operations, manpower planning and deployment and conduct of training related to environmental concerns.

15. **Biochemical Engineering**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of biochemical production facilities, supervision of biochemical processes, preparation of process parameters and specifications, sampling and testing, line operations, engineering calculations and other fields such as tissue engineering, genetics and biotechnology.
16. **Nuclear Engineering**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of nuclear facilities, supervision of nuclear processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
17. **Molecular Engineering**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of molecular engineering facilities, supervision of molecular processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
18. **Nano Engineering**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of nano-engineering, facilities supervision of nano-level production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
19. **Glass Manufacturing**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of glass manufacturing facilities, supervision of glass production processes, preparation of process parameters and specifications, sampling and testing, line operations, engineering calculations.
20. **Plastic Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of plastic manufacturing facilities, supervision of plastic production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
21. **Metal Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of metal manufacturing facilities, supervision of metal production processes, preparation of process parameters and

specifications, sampling and testing, line operations, and engineering calculations.

22. **Packaging Products Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of packaging products manufacturing facilities, supervision of packaging production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
23. **Energy Engineering**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of energy generation facilities, energy resource management, supervision of energy production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
24. **Petroleum and Petrochemical Engineering**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of petroleum refinery and petrochemical facilities, supervision of petroleum and petrochemical production processes, design and modification of existing petroleum and petrochemical process, troubleshooting, use of engineering software, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
25. **Food and Beverage Manufacturing**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of food manufacturing facilities, supervision of food production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
26. **Pharmaceutical and Cosmetics Manufacturing**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of pharmaceutical and cosmetics facilities, supervision of pharmaceutical/cosmetics production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
27. **Paint, Coats and Ink Manufacturing**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of paint and ink manufacturing facilities, supervision of paint and ink production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
28. **Rubber Manufacturing**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of rubber manufacturing facilities, supervision of rubber

production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.

29. **Non-Metallic Products Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of non-metallic products manufacturing facilities, supervision of production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations. This may include products like ceramics, cement, clay, gypsum, etc.
30. **Pulp and Paper Products Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of pulp and paper products manufacturing facilities, supervision of pulp and paper production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
31. **Industrial Chemical Products Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of industrial chemical products manufacturing facilities, supervision of chemical production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
32. **Agricultural Products Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of agricultural products manufacturing facilities, supervision of agricultural production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
33. **Industrial Gases Production:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of industrial gas products manufacturing facilities, supervision of industrial gas production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
34. **Biofuels Production:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of biofuel products manufacturing facilities, supervision of biofuel production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
35. **Textile Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of textile products manufacturing facilities, supervision of

textile production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.

36. **Mineral Processing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of mineral products manufacturing facilities, supervision of mineral production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
37. **Semiconductor Equipment and Products Manufacturing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of semiconductor products manufacturing facilities, supervision of semiconductor production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
38. **Water Resource Management:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of water products manufacturing facilities, supervision of water treatment and production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
39. **Advance Device and Material Testing:** Includes acquisition of relevant qualifications through graduate courses, experience or research, covers design and management of advance device and material products testing and manufacturing facilities, supervision of advance device and material production processes, preparation of process parameters and specifications, sampling and testing, line operations, and engineering calculations.
40. **Forensic Investigation**: Includes acquisition of relevant qualifications through graduate courses, experience or research, covers analytical investigation, sampling and testing of evidences related to crimes, crime scenes, terrorist situations, and other incidents that require the technical expertise of engineers, preparation of technical reports and acting as technical expert in court when necessary.
41. **Technical Sales and Services**: Includes technical sales and service activities covering process equipment, raw materials, packaging materials, reagents, reactants, industrial chemicals, industrial gases, industrial and commercial products, online analytical instruments, analysis of technical data, calibration of equipment, importation and inbound logistics, supervision of transport and installation, processing of technical documents, preparation of sales reports, and inventory management.
42. **Technical Consultation**: Includes provision of service to persons, entities, industries, government agencies, academic institutions and non-

governmental organizations related to concerns or issues in any field of specialization offered by Professional Chemical Engineers

43. **Inventions/ Innovations**: Includes conceptualization, rationalization, design, fabrication of prototype, sampling and testing, patent application, product presentations, commercial scale manufacture and engineering calculations.
44. **Plant Management**: Includes holding a management-level position in a company that applies the attributes and skills of a chemical engineer, covers planning, manpower deployment, budget preparation, supervision of processes, quality assurance, preparation of reports, attendance to conferences, participation in working groups formed locally by government agencies, participation in international working groups.
45. **Entrepreneurship**: Includes ownership of a business enterprise that is engaged in manufacture of products, sales of engineering-related products, disposal of wastes, provision of technical consultation, provision of training services and trading of industrial products locally and internationally.
46. **Emerging Technologies**

B. **Chemical Process and Engineering Technologists** practice includes performance of activities and/or rendering professional service engaged in the following activities either in support to the projects handled by a Professional Chemical Engineer or functioning independently:

1. **Engineering Calculations;**
2. **Process Monitoring and Testing;**
3. **Product Sampling and Testing;**
4. **Process Flow Drawings/ Documents;**
5. **Operation of Manufacturing/Industrial Equipment;**
6. **Minor Maintenance Activities on Manufacturing/ Industrial Equipment;**
7. **Calibration of Online Measuring Instruments;**
8. **Technical Report Preparation;**
9. **Engineering Laboratory Assistance/Service;**
10. **Waste Disposal;**
11. **Waste Treatment Plant Equipment Operation;**
12. **Pollution Control;**
13. **Quality Assurance Activities;**
14. **Supervision of Line Workers;**
15. **Chemical Engineering Teaching and Research Laboratory Support**

C. **Manufacturing Process Technicians** practice includes performance of activities and/or rendering professional service engaged in the following activities either in support to the projects handled by a Professional Chemical Engineer or functioning independently:

1. **In-Process Product Sampling and Testing:**
2. **Chemical Engineering and Manufacturing Process Equipment Operation;**

3. **Minor Maintenance Activities on Manufacturing/Industrial Process Equipment;**
4. **Calibration of Online Process Measuring Instruments;**
5. **Waste Disposal;**
6. **Pollution Control;**
7. **Quality Assurance Activities**

SECTION 5. **Educational Requirements and Qualifications**

A. **Professional Chemical Engineers** must have the following credentials in order to engage in professional practice:
   1. **Bachelor of Science in Chemical Engineering Diploma** from a CHED-Registered Higher Educational Institution.
   2. **Passed the Chemical Engineering Licensure Examination** administered by the Board of Chemical Engineering of the Professional Regulation Commission and issued the Professional License Identification Card and Certificate of Registration.
   3. **Valid Professional License Identification Card**
   4. **Professional Tax Receipt**
   5. **Official Dry Seal duly Issued in coordination with the Accredited Integrated Professional Organization**
   6. **Accredited Integrated Professional Organization of Chemical Engineers Membership Identification Card** which can only be issued to members of good standing and compliant to the minimum Continuing Professional Development Units.
   7. **Of Good Moral Character and a Law-abiding Citizen of the Philippines**

B. **Chemical Process and Engineering Technologists** must have the following credentials in order to engage in professional practice:
   1. **Bachelor of Science Chemical Engineering Technologist or Bachelor of Science in Chemical Engineering** from a CHED Compliant Higher Educational Institution.
   2. **Chemical Process and Engineering Technologist Licensure Examination** administered by the Board of Chemical Engineering of the Professional Regulation Commission and issued the Professional License Identification Card and Certificate of Registration.
   3. **Valid Professional License Identification Card**
   4. **Professional Tax Receipt**
   5. **Accredited Integrated Professional Organization of Chemical Engineers Membership Identification Card** which can only be issued to members of good standing and compliant to the minimum Continuing Professional Development Units.
   6. **Of Good Moral Character and a Law-abiding Citizen of the Philippines**

C. **Manufacturing Process Technicians** must have the following credentials in order to engage in professional practice:

1. **Chemical Technician Certificate** from an accredited and government-recognized trade and vocational institution
2. **Passed the Chemical Engineering Technician Licensure Examination** administered by the Board of Chemical Engineering of the Professional Regulation Commission and issued the Professional License Identification Card and Certificate of Registration.
3. **Valid Professional License Identification Card**
4. **Professional Tax Receipt**
5. **Accredited Integrated Professional Organization of Chemical Engineers Membership Identification Card** which can only be issued to members of good standing and compliant to the minimum Continuing Professional Development Units.
6. **Of Good Moral Character and a Law-abiding Citizen of the Philippines**

ARTICLE II

THE PROFESSIONAL REGULATORY BOARD FOR CHEMICAL ENGINEERS

SECTION 6. Selection and Composition of the Members of the Board

The Board of Chemical Engineering, herein referred to as the Board, under the administrative control and supervision of the Professional Regulation Commission hereinafter called the Commission, shall be composed of a Chairman, a Vice-Chairman and three (3) members appointed by the President of the Philippines as taken from the nominees recommended by the duly Accredited Integrated Professional Organization of Chemical Engineers and short-listed by the Commission.

The Accredited Integrated Professional Organization of Chemical Engineers shall recommend five (5) nominees for every vacant position, six (6) months prior to end of the term. Recommendation and selection of short-listed nominees shall be done for one position at a time.

SECTION 7. Powers and Duties of the Board – The Board shall have the following powers and duties:

1. Supervise, regulate and uphold the practice of the chemical engineering profession in the Philippines in accordance with the provisions of this Act;
2. Determine the requirements and evaluate the qualifications of the applicants for registration and renewal of license of Professional Chemical Engineer, Chemical Process and Engineering Technologist (ChEPET), and Manufacturing Process Technician (ProTech);
3. Prescribe the subjects in the licensure examination aligned with the current minimum B.S. Ch.E. curriculum standards set by the Commission on Higher Education; determine the syllabi of the subjects and their relative weights; construct the test questions in the examination; score and rate the examination papers; and submit the examination results to the Commission;

4. Issue together with the Commission, Certificates of Registration and Professional Identification Card to applicants who have passed the licensure examinations for professional chemical engineers, chemical process and engineering technologists and manufacturing process technicians;
5. Issue together with the Commission, licensure examination exemptions, Certificates of Registration and Professional Identification Card to applicants who have graduated from Internationally Accredited B.S. Ch.E. and technology programs;
6. Issue special permits to persons admitted to the practice of the profession;
7. Award Certificate of Recognition for advance studies and researches and accomplishments in the chemical engineering profession that contribute to its enrichment;
8. Oversee the conduct of the Continuing Professional Development programs for Professional Chemical Engineers (PChE), Chemical Process and Engineering Technologist (ChEPET), and Manufacturing Process Technician (ProTech);
9. Conduct on-site inspection, submit an inspection report to the Commission and monitor compliance of industrial plants, facilities, institutions and other entities engaged in the scope of practice of Chemical Engineering and shall seek the assistance of the Accredited Integrated Professional Organization in order to carry out these functions;
10. Inquire into the conditions affecting the practice of the Professional Chemical Engineer, Chemical Process and Engineering Technologist (ChEPET), and Manufacturing Process Technician (ProTech) and adopt measures for the enhancement and maintenance of a high professional, ethical and technical standard. Pursuant thereto, the Board may inspect establishments where chemical engineers practice their profession in order to determine and enforce compliance with the provisions of this Act;
11. Issue Certificates of Compliance to Industrial Plants, facilities and institutions engaged in the scope of practice of Chemical Engineering pursuant to the provisions of this Act;
12. In coordination with the Commission on Higher Education (CHED), inspect the facilities, faculty, equipment and other aspects directly related to the chemical engineering program of educational institutions and submit a monitoring report to the Commission;
13. Adopt a Code of Ethics and a Code of Technical Standards for the practice of chemical engineering;
14. Investigate, in accordance with the rules on administrative investigation promulgated by the Commission, violations of this Act and its implementing rules and regulations, the Code of Ethics and the Code of Technical Standards for chemical engineers, administrative polices, orders and issuances promulgated by the Board;

15. Issue *subpoena ad testificandum* and subpoena *duces tecum* to secure the attendance of witnesses or the production of documents in connection with any administrative case before the Board;
16. Hear and decide administrative cases filed against chemical engineers and firms employing chemical engineers. The hearing shall be presided by the Chairman or a Member of the Board with the assistance of an Attorney of the Commission. Any decision shall be concurred in by at least a majority of the Board. Decisions of the Board may be appealed to the Commission within fifteen (15) days from notice, otherwise such decisions shall become final and executory;
17. Administer oaths in connection with the performance of its functions;
18. Adopt an official seal and prescribe the seal of the chemical engineering profession;
19. Submit an annual report on the proceedings and accomplishments during the year and/or recommendations of the Board to the Commission thirty (30) days after the close of each calendar year;
20. Prosecute or institute criminal action against any violator of this Act and/or rules and regulations of the Board;
21. Prescribe guidelines and criteria on the Continuing Professional Development (CPD) program for chemical engineers in consultation with the integrated and accredited chemical engineering organizations;
22. Adopt the implementing rules and regulations of this Act; and
23. Perform such other functions as may be necessary in order to implement the provisions of this Act.

SECTION 8. Qualifications of the Board Chairman and Members. The Chairman and Members of the Board must, at the time of the appointment shall be:

a) A natural-born Filipino citizen and resident of the Philippines;
b) At least a holder of a bachelor`s degree in chemical engineering as conferred by an engineering school of good standing, recognized and accredited by the Government;
c) A professional chemical engineer who has been in active practice for at least ten (10) years;
d) With graduate studies and/or equivalent relevant professional qualifications
e) A member of good standing of the integrated and duly accredited national chemical engineering profession;
f) Must not, for a period of three (3) consecutive years prior to appointment, be a member of the faculty of any university, college, school or institution conferring an academic degree necessary for admission to the practice of chemical engineering, nor have pecuniary interest in or administrative supervision over any such institutions of learning;
g) Must not, for a period of three (3) consecutive years prior to appointment, be connected with a review center or with any group or association where review

classes or lectures in preparation for the licensure examination are offered or conducted at the time of appointment; and

h) Has never been convicted of any offense involving moral turpitude.

Section 9. Term of Office. – The Chairman and the Members of the Board shall have a term of three (3) years only, with a maximum of one reappointment. No member of the Board shall serve for more than two (2) regular terms. Vacancies shall be filled for the unexpired term only. The Chairman and Members shall qualify by taking the proper oath prior to assumption of office. The incumbent Chairman and Members shall be allowed to serve for the remainder of their term until a new composition of the Board shall have been constituted.

Section 10. Secretary of the Board. – The Board shall have a Secretary, appointed by the Commission, who shall record the minutes of its meetings and perform such other functions as the Board may require. The Commission shall provide for compensation of the Secretary.

Section 11. Removal/Suspension of the Chairman and Members. The President upon recommendation of the Commission may remove any member of the Board on the following grounds: conflict of interest, neglect of duty, incompetence, commission or tolerance of irregularities in the licensure examination, malpractice or unprofessional or unethical conduct, violation of this Act or the Code of Ethics for Chemical Engineers, final judgment of crimes involving moral turpitude, after due notice and hearing where his right to be heard, to defend himself and to be assisted by counsel shall be respected.

Section 12. Compensation of the Board. – The Chairman and Members of the Board shall receive such compensation or honorarium as may be prescribed by the rules and regulations of the Commission.

Section 13. Annual Report. – The Secretary shall prepare an annual report for the consideration and approval of the Board. The Board shall submit an annual report to the Commission after the close of each fiscal year giving a detailed account of the proceedings of the Board during the year and embodying such recommendations to the Commission as the Board may desire to make. The accredited integrated professional organization may request for a copy of the annual report.

ARTICLE III

LICENSURE EXAMINATION, REGISTRATION AND EXEMPTION

Section 14. Examination Requirement. – All applicants for registration for the practice of chemical engineering shall be required to pass the licensure examination prescribed herein.

Section 15. Holding of Examination. – Examination of candidates desiring to practice chemical engineering shall be given twice each calendar year on the dates and venues prescribed by the Board. Such examination shall be conducted by the Board.

Section 16. Scope of Examination. – The licensure examination shall cover, but shall not be limited to, the following subjects:

(a) Professional Chemical Engineer. - Physical and Chemical Principles; General Engineering; and Chemical Engineering: Provided, That the relative weight of Chemical Engineering is not less than forty per centum (40%).

(b) Chemical Process and Engineering Technologist. - Physical and Chemical Principles; General Engineering; and Chemical Engineering (excluding heat and mass transfer, momentum transfer, chemical reaction engineering, plant and equipment design, biochemical engineering): Provided, That the relative weight of Chemical Engineering is not less than forty per centum (40%).

(c) Manufacturing Process Technician. – Analytical and Organic Chemistry; General Engineering; and Chemical Engineering (excluding thermodynamics, transport phenomena, chemical reaction engineering, biochemical engineering): Provided, That the relative weight of Chemical Engineering is not less than forty per centum (40%).

Section 17. Qualifications for Professional Chemical Engineer Examinations. – Any person applying for admission must have the following qualifications:

(a) That he/she is a citizen of the Philippines;

(b) That he/she is of good moral character;

(c) That he/she is a graduate of a school, institute, college or university recognized by the Government and has been conferred the degree of Bachelor of Science in Chemical Engineering or its equivalent; and

(d) That he/she has not been convicted of an offense involving moral turpitude by a court of competent jurisdiction.

Section 18. Qualifications for Chemical Process and Engineering Technologist Examinations. – Any person applying for admission must have the following qualifications:

(a) That he/she is a citizen of the Philippines;

(b) That he/she is of good moral character;

(c) That he/she is a graduate of Bachelor of Chemical Engineering Technology or has completed at least the minimum third-year equivalent of a Bachelor of Science program in Chemical Engineering according to CHED guidelines, or subject to the evaluation of the Board such equivalent and/or related engineering course or program from any school, institute, college or university recognized by the Government where it is established; and

(d) That he/she has not been convicted of an offense involving moral turpitude by a court of competent jurisdiction.

Section 19. Qualifications for Manufacturing Process Technician Examinations. – Any person applying for admission must have the following qualifications:

(a) That he/she is a citizen of the Philippines;

(b) That he/she is of good moral character;

(c) That he/she is a graduate of Diploma in Chemical Process Technician or has completed at least the minimum second-year equivalent of a Bachelor of Science program in Chemical Engineering according to CHED guidelines with skills training from accredited and government-recognized trade and vocational institutions where it is established; and

(d) That he/she has not been convicted of an offense involving moral turpitude by a court of competent jurisdiction.

Section 20. Examination Fees. – Every applicant admitted to take the chemical engineering examination shall pay such fees as may be prescribed by it before he or she is allowed to take the examination.

Section 21. Report of Rating. – The Board shall complete the correction of examination papers within twenty (20) days from the last day of the examination. The Commission shall report the rating of examinees not more than thirty (30) days after the Board has completed the correction of examination papers.

Section 22. Exemption from Licensure Examination. -All applicants who have graduated from Internationally Accredited B.S. Ch.E. and Technology programs are entitled to apply for exemption from licensure examination, provided that all requirements are met according to the provisions of this Act.

Section 23. Issuance of Certificate of Registration and Professional Identification Card. – The Commission, on recommendation of the Board, enter in the Roster of Chemical Engineers, Chemical Process and Engineering Technologists, Manufacturing Process Technician, and issue a Certificate of Registration and Professional Identification Card to each person who obtained a general average of no less than seventy per centum (70%) and a rating of no less than fifty per centum (50%) in any examination subject and applicants qualified for exemption. Every Certificate of Registration shall state the full name of the registrant and his registration number, and shall be signed by the Chairman and Members of the Board and the Commission and authenticated by the official seal of the Commission indicating that the person named therein is entitled to the practice of the profession with all the privileges appurtenant thereto. The said Certificate of Registration shall remain in full force and effect until suspended or revoked in accordance with this Act.

A professional identification card bearing the signature, number, date of issuance, expiry date, duly signed by the Chairman of the Commission shall likewise be issued to every registrant who has paid the prescribed fee.

Section 24. Renewal of Professional License. -The professional license issued to Professional Chemical Engineer and Chemical Process and Engineering Technologist shall be valid for three (3) years from its issuance and shall be renewed every after three (3) years on the birth month of the Professional Chemical Engineer and Chemical Process and Engineering Technologist upon presentation/submission of the required Continuing Professional Development credit units earned and payment of prescribed fees.

Section 25. Seal of Professional Chemical Engineer. – Each chemical engineer shall, upon registration, obtain a seal as prescribed by the Board bearing the professional's name, registration number and the legend "Professional Chemical Engineer." Plans, specifications, designs, reports and other professional documents prepared by or executed under the supervision of and issued by the professional shall be stamped on every sheet with said seal, indicating therein his/her current Professional Tax Receipt (PTR) number, date/place of payment and current membership number in the Accredited Integrated Professional Organization, when filed with the Government authorities or when submitted or used professionally.

Section 26. Fees for Registration. – Every person issued a Certificate of Registration as a professional chemical engineer shall pay to the Commission such fees as the Commission may prescribe.

Section 27. Exemptions from Registration and Issuance of Special Permit to Practice. – Registration shall not be required of the following persons upon proper application for exemption with the Board:

(a) Chemical engineers, recognized as experts in their specific fields of chemical engineering, called in by the Republic of the Philippines for consultation or for a specific design, installation or project; Provided, that their practice shall be confined to such work; and

(b) Chemical engineers; who have distinguished themselves in their respective fields of specification, contracted as professors or lecturers on chemical engineering subjects by Philippine schools, or colleges, institutes or universities on a direct hire or exchange basis, subject to verification of credentials by the Board.

(c) Chemical engineers; who have distinguished themselves in their respective fields of specification, contracted as consultants, technology providers or specialists on chemical engineering processes by Philippine industrial firms on a direct hire basis, subject to verification of credentials by the Board.

Section 28. Suspension or Revocation of Certificate of Registration and Cancellation of Special Permit to Practice. – Any of the following shall be sufficient ground for the suspension or revocation of a Certificate of Registration and cancellation of Special Permit to Practice:

(a) Any act of incompetence, negligence, or illegal practice of chemical engineering resulting to damages to property and environment, injury or loss of lives;

(b) Acts inimical to the chemical engineering profession;

(c) Gross immorality or commission of any act involving moral turpitude; and

(d) Violation of this Act, the rules and regulations, other policies of the Board and the Code of Ethics.

Complaints against professional chemical engineers and firms employing chemical engineers may be filed by any person or by the Board *motu proprio*. Complaints shall be in writing and sworn to by the persons executing them. Complaints shall be filed with the Secretary of the Board. *Provided*, That the action of the Board shall be subject to appeal to the Commission within fifteen (15) days from notice, whose decision on the matter shall be final.

Section 29. Reissuance of Revoked Certificate of Registration and Special Permit to Practice and Replacement of Lost Certificates. - The Board may, for reasons it may deem sufficient and upon proper petition, reissue revoked Certificates of Registration and Special Permit to Practice.

A new Certificate of Registration and Special Permit to Practice may be issued to replace a lost, destroyed or mutilated Certificate, subject to the rules and regulations of the Board, and upon payment of the appropriate fees to the Commission.

ARTICLE IV

PRACTICE OF CHEMICAL ENGINEERING

Section 30. Vested Rights, Automatic Registration of Chemical Engineers. – All chemical engineers who are registered at the time this Act takes effect shall automatically be recognized as Professional Chemical Engineers.

Section 31. Who May Practice Chemical Engineering. – Except as may be provided in this Act, only professional chemical engineers may practice chemical engineering. No firm, partnership, corporation or association may be licensed and registered as such for the practice of chemical engineering, but duly licensed and registered chemical engineers may form partnerships among themselves or with other licensed and registered engineers and architects and use the title "Chemical Engineers," "Engineers and Architects" in their partnership name.

Section 32. Prohibitions in the Practice of Chemical Engineering. – No person shall practice chemical engineering or render chemical engineering service, without a valid certificate of registration, a valid professional identification card or a special permit to practice. Any person who shall commit the following acts shall be guilty of misdemeanor:

(a) Practice chemical engineering or render chemical engineering services, or pass himself off or advertise himself as a chemical engineer without a valid certificate of registration and/or valid professional identification card or when such has been suspended or revoked;

(b) Attempt to use as his own the certificate or seal of another person or impersonate any professional chemical engineer;

(c) Attempt to use a revoked or suspended certificate of registration or an expired professional license;

(d) Sign a document involving design, plan, technical specification and the like on behalf of a professional chemical engineer; or

(e) Furnish the Board or Commission any false information or document in order to secure a Certificate of Registration or renewal of Professional Identification Card.

Section 33. Roster of Chemical Engineers. – The Commission shall keep a roster of all professional chemical engineers, chemical process and engineering technologists and manufacturing process technicians, stating their names; registration numbers and places of business. The Commission shall regularly update such roster and make it available to all interested parties upon formal written request free of charge.

Section 34. Submission of Designs and Specifications for Government Approval. – Any proposal, design, specification, working drawings or plan for processes and equipment in an industrial plant or any part thereof submitted to any government agency, national or local, including government-owned or controlled corporations, shall not be processed or approved, nor shall such plant be issued any permit, license, franchise, authorization or certification, unless such proposal, design, specification, working drawing or plan is signed by a professional chemical engineer, with its seal and registration number affixed thereto.

Section 35. Hazard Allowance, Health and Accident Insurance, and Legal Assistance. – Professional chemical engineers, chemical process and engineering technologists and manufacturing process technicians who are exposed to workplace and process hazards as part of their regular responsibilities are entitled to commensurate hazard allowance, medical benefits and insurance coverage. These should be indicated as separate items in the compensation package and cannot be incorporated in the basic salary.

Legal assistance shall be provided by the employer to professional chemical engineers, chemical process and engineering technologists and manufacturing process technicians who face civil or criminal suits arising from work done in good faith.

Section 36. Continuing Professional Development (CPD). – Continuing Professional Development is an integral part in the practice of chemical engineering profession and is considered relevant to sustained competency enhancement, capacity building and renewal of professional license. A CPD Program shall be prescribed and promulgated by the Board in consultation with the Accredited Integrated Professional Organization of Chemical Engineers. The Board shall maintain the CPD Council that is composed of a Chairperson coming from the Board, a member from the accredited integrated professional organization of chemical engineers and a member from the academe.

Section 37. Foreign Reciprocity. – No foreign chemical engineer shall be granted any of the right or privilege under this Act unless the country of which he is a subject or citizen grants the same or similar rights or privileges to Filipino chemical engineers.

Section 38. Act Not Affecting Other Professions. – This Act shall not be construed to affect or prevent the practice of any other lawfully recognized profession.

Section 39. Indication of Registration/Professional License Number and Professional Tax Receipt Payment. – The professional chemical engineer and chemical process and engineering technologist shall be required to indicate his Certificate of Registration, Professional Identification Card number, date of issuance in the duration of validity, including the Professional Tax Receipt (PTR) of the documents he signs, uses or issues in connection with the practice of his profession.

Section 40. Membership in the Accredited Integrated Professional Organization (AIPO). - There shall be an integrated national organization of chemical engineers duly accredited by the Board and the Commission. A chemical engineer duly registered with the Board and the Commission shall automatically become a member subject to the provisions on membership of the current constitution and by-laws of the AIPO for chemical engineers. The member shall receive benefits appurtenant thereto upon payment of the required fees and dues.

ARTICLE V

CERTIFICATE OF PROCESS COMPLIANCE

Section 41. Certificate of Process Compliance. – The Board, after inspection, shall issue a Certificate of Process Compliance valid for three (3) years to industrial plants, private and government facilities and institutions engaged in the scope of practice of Chemical Engineering in the Philippines, *provided*, that such practice is carried out only by professional chemical engineers holding valid Certificate of Registration and Professional identification card issued by the Board. *In addition,* the industrial plants, private and government facilities and institutions shall be in compliance with all related regulatory requirements and Code of Technical Standards for the Practice of Chemical Engineering. The management or administration of such industrial plants, private and government facilities and institutions, shall be held liable for violations of this Act.

Section 42. Personnel Required in Industrial Plant, Facility and Institution. -In the interest of public safety and environmental protection, professional chemical engineers shall be designated to supervise and address workplace and process safety requirements in industrial plant operations. Regardless of the size of the industrial plant, all process equipment and plant design shall be approved by a professional chemical engineer.

All micro, small, medium and large scale industrial plants, facilities and institutions engaged in manufacturing operations, which include laboratory facilities such as pilot, in-process, process simulation, research and development, quality assurance, and chemical

engineering laboratories, shall have at least the following complement of resident professional chemical engineers:

(a) Micro and Small-scale industrial plants: one (1) professional chemical engineer, provided, that every plant in this category operating in more than one shift every twenty four hours, shall have in addition to the minimum personnel herein required, one (1) professional chemical engineer in-charge of each and every additional shift.

(b) Medium-scale industrial plants: two (2) professional chemical engineer - process and industrial waste, provided, that every plant in this category operating in more than one shift every twenty four hours, shall have in addition to the minimum personnel herein required, one (1) professional chemical engineer in-charge of each and every additional shift.

(c) Large-scale industrial plants: five (5) professional chemical engineer to handle unit operations, provided, that every plant in this category operating in more than one shift every twenty-four (24) hours shall have, in addition to the minimum personnel herein required at least two (2) professional chemical engineer in-charge of each and every additional shift.

(d) Academic and research institutions: Only professional chemical engineers shall handle professional chemical engineering courses. Research related chemical engineering processes shall be under the supervision of professional chemical engineers. Support staff for chemical engineering laboratories shall be at least a Chemical Process and Engineering Technologist.

(e) Design and consultancy firms: Only professional chemical engineers shall prepare process equipment and plant design specifications for industrial plants, facilities and institutions.

Section 43. Process Compliance – Industrial process shall be reviewed, certified, signed and sealed by a Professional Chemical Engineer.

Section 44. Suspension or Revocation of Certificate of Process Compliance. -Certificates of Compliance may be suspended or revoked for non-compliance with the provisions of this Act.

Section 45. Reissuance of Revoked Certificate of Process Compliance and Replacement of Lost Certificates. - The Board may, for reasons it may deem sufficient and upon proper petition, reissue revoked Certificate of Process Compliance.

A new Certificate of Process Compliance may be issued to replace a lost, destroyed or mutilated Certificate, subject to the rules and regulations of the Board, and upon payment of the appropriate fees to the Commission.

ARTICLE VI

TRANSITORY PROVISIONS

Section 46. Vested Rights: Automatic Registration of Professional Chemical Engineers and Chemical Process and Engineering Technologists. All chemical engineers who are registered under Republic Act 9297 at the time of effectivity of this Act shall automatically considered Professional Chemical Engineers and shall hold the same registration number. The validity and period of existing professional license shall continue in force until its date of expiry.

All persons occupying positions of Chemical Process and Engineering Technologists and Manufacturing Process Technicians for a minimum of three (3) years, at the time of effectivity of this Act, shall be automatically qualified for registration.

Section 47. Securing Certificate of Process Compliance. There shall be a five (5) year grace period for industrial plants, facilities and institutions to apply and secure Certificate of Process Compliance.

ARTICLE VII

GENERAL PROVISIONS

Section 48. Code of Ethics and Code of Technical Standards for the Practice of Chemical Engineering. - The Board shall adopt a Code of Ethics and the Code of Technical Standards of Practice for Chemical Engineers, which shall be promulgated by the Accredited Integrated Professional Organization.

Section 49. Penal Clause for the Practice of Chemical Engineering. - Any person who shall violate any of the provisions of this Act shall be guilty of misdemeanor and shall, upon conviction, be sentenced to a fine of not less than One hundred thousand pesos (P100,000.00) nor more than One million pesos (P1,000,000.00) or imprisonment for a period of not less than six (6) months nor more than five (5) years or both at the discretion of the court. This includes any person who:

(a) Practices chemical engineering or render chemical engineering services, or passes himself/herself off or advertises himself/herself as a chemical engineer without a valid certificate of registration and/or valid professional identification card or when such has been suspended or revoked;

(b) Attempts to use as his/her own, the certificate or seal of another person, or impersonates any professional chemical engineer;

(c) Attempts to use a revoked or suspended certificate of registration or an expired professional license;

(d) Signs a document involving design, plan, technical specification and the like on behalf of a professional chemical engineer; or

(e) Furnishes the Board or Commission any false information or document in order to secure a Certificate of Registration or renewal of Professional Identification Card.

Section 50. Penal Clause for Industrial Plants, Facilities and Institutions. - Any industrial plant, facility and institution who shall violate any of the provisions of this Act shall be guilty of misdemeanor and shall, upon conviction, be sentenced to a fine of not less than Three hundred thousand pesos (P300,000.00) nor more than Three million pesos (P3,000,000.00) or imprisonment for a period of not less than six (6) months nor more than one (1) year or both at the discretion of the court. The management or administration of such industrial plants, private and government facilities and institutions, shall be held liable for violations of this Act.

Section 51. Enforcement Assistance to the Board. – The Board shall be assisted by the Commission in carrying out the provisions of this Act and its implementing rules and regulations and other policies. The lawyers of the Commission shall act as prosecutors against illegal practitioners and other violators of this Act and its rules. The duly constituted authorities of the government shall likewise assist the Board and the Commission in enforcing the provisions of this Act and its rules.

Section 52. Implementing Rules and Regulations. – Subject to the approval of the Commission, the Board shall adopt and promulgate such rules and regulations including Code of Ethics for Chemical Engineers and Code of Technical Standards for the Practice of Chemical Engineering to carry out the provisions of this Act, which shall be effective after sixty (60) days following their publication in the Official Gazette or in a major newspaper of general circulation.

Section 53. Separability Clause. – If any section of this Act shall be declared unconstitutional or invalid, such shall not invalidate any other section of this Act.

Section 54. Repealing Clause. – Republic Act No. 9297 is hereby repealed and all other laws, decrees, orders, rules and regulations, ordinances, and other issuances or parts thereof which are inconsistent with this Act are hereby superseded, repealed or amended accordingly.

Section 55. Effectivity. – This Act shall take effect fifteen (15) days following its publication in the Official Gazette or in any major newspaper of general circulation.