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**TITLE 864 STATE BOARD OF REGISTRATION  
FOR PROFESSIONAL ENGINEERS**

**Proposed Rule**  
LSA Document #01-405

DIGEST

Amends 864 IAC 1.1-2-2 to establish the types of topics that qualify as advanced calculus based mathematics. Amends 864 IAC 1.1-2-4 to change one of the minimum education requirements for engineering interns from a bachelor of science degree to a baccalaureate degree and to specify that a senior in an engineering curriculum in a college or university in Indiana may take the last EI examination prior to graduation. Amends 864 IAC 1.1-12-1 to revise the fee schedule charged by the board. Effective 30 days after filing with the secretary of state.

**864 IAC 1.1-2-2**

**864 IAC 1.1-2-4**

**864 IAC 1.1-12-1**

SECTION 1. 864 IAC 1.1-2-2 IS AMENDED TO READ AS FOLLOWS:

**864 IAC 1.1-2-2 Engineers; education and work experience**

**Authority:** IC 25-31-1-7; IC 25-31-1-8

**Affected:** IC 25-31-1-12

Sec. 2. (a) This section establishes the minimum education and experience requirements under IC 25-31-1-12 for admission to the professional engineer examination.

(b) The following table establishes provisions for evaluating combined education and experience to determine if it is sufficient to satisfy minimum registration requirements under IC 25-31-1-12 for professional engineer registration applicants holding the stated degrees:

	Minimum Years of Progressive Work Experience Following Baccalaureate Degree
Education (Qualifying Degree) Doctorate in an engineering discipline following a baccalaureate degree in an approved engineering curriculum	2
Master of science degree in an engineering discipline following a baccalaureate degree in an approved engineering curriculum	3
Doctorate in an engineering discipline following a baccalaureate degree which is not in an approved engineering curriculum	4

Master of science degree in an engineering discipline following a baccalaureate degree which is not in an approved engineering curriculum	5
Baccalaureate degree in an approved engineering curriculum	4
Baccalaureate degree and completion of specific educational courses as required in subsection (c)	6

(c) The education of all applicants, except those who have obtained a baccalaureate degree in an approved engineering curriculum, must include the following:

- (1) At least twelve (12) semester credit hours in college level mathematics, excluding college algebra and trigonometry, which must include a minimum of nine (9) semester credit hours of calculus and a minimum of three (3) semester credit hours of advanced calculus based mathematics, **such as differential equations, linear algebra, or numerical analysis.**
- (2) At least eight (8) semester credit hours in college level courses in the physical sciences, which must include a minimum of three (3) semester credit hours of calculus based physics and a minimum of three (3) semester credit hours of chemistry.
- (3) At least twelve (12) semester credit hours of engineering sciences that require calculus as a prerequisite or corequisite.
- (4) Effective January 3, 2003, at least twelve (12) semester credit hours in engineering design.

(d) For a course to qualify as an engineering design course, the course must instruct on the decision making process in which the basic sciences and mathematics and engineering sciences are applied to convert resources optimally to meet a stated objective. Among the fundamental elements of the design process are the establishment of objectives and criteria, synthesis, analysis, construction, testing, and evaluation. The content of an engineering design course must include some of the following features:

- (1) Development of student creativity.
- (2) Use of open ended problems.
- (3) Development and use of modern design theory and methodology.
- (4) Formulation of design problems statements and specifications.
- (5) Consideration of alternative solutions, feasibility considerations, production processes, concurrent engineering design, and detailed system descriptions.

Further, it is essential that a variety of realistic constraints, such as economic factors, safety, reliability, aesthetics, ethics, and social impact, be included.

(e) An applicant for admission for the examination must:

- (1) include on the application, or a document attached to the application, which courses meet the requirements of subsection (c) by stating the course names and numbers; and
- (2) submit all college transcripts that show that college credit was awarded for the claimed courses.

(f) No degree requirement under this section may be achieved by obtaining an honorary degree or a degree obtained entirely by correspondence.

(g) College courses with substantial duplication of content may be counted only one (1) time toward the requirements of subsection (c).

(h) Progressive experience of sufficient quality when used relative to the requirement for experience on engineering projects as provided for in IC 25-31-1-12(a) means the applicant has demonstrated the ability to assume continuously increasing levels of responsibility for engineering projects.

(i) No experience obtained prior to a baccalaureate degree shall qualify.

(j) Part-time experience acquired while the applicant was a full-time student shall not qualify. All other part-time experience shall be converted to its full-time equivalent in evaluating an application.

(k) Notwithstanding other provisions of this section, applicants who hold either a valid certificate as an EI or an engineer-in-training (EIT) do not need any additional education beyond that which was required for admission to the EI or EIT examination in Indiana, so long as they apply for admission to the professional engineer examination no later than the first examination application deadline (as provided for in 864 IAC 1.1-3-4), which is subsequent to seven (7) years after the date the applicant took and passed the engineering intern examination. (*State Board of Registration for Professional Engineers; Rule 2, Sec 2; filed Feb 29, 1980, 3:40 p.m.: 3 IR 627; filed Oct 17, 1986, 2:20 p.m.: 10 IR 435; filed Sep 24, 1992, 9:00 a.m.: 16 IR 726, eff Jan 1, 1993; filed Mar 28, 1995, 2:00 p.m.: 18 IR 2103, eff Jul 4, 1995; filed Mar 28, 1995, 2:00 p.m.: 18 IR 2112, eff Jan 3, 1997; filed Mar 27, 2000, 8:58 a.m.: 23 IR 2002; filed May 4, 2001, 11:13 a.m.: 24 IR 2694, eff Jul 3, 2001; readopted filed Jun 21, 2001, 9:01 a.m.: 24 IR 3824*)

SECTION 2. 864 IAC 1.1-2-4 IS AMENDED TO READ AS FOLLOWS:

#### **864 IAC 1.1-2-4 Engineering intern; education and work experience**

**Authority:** IC 25-31-1-7; IC 25-31-1-8

**Affected:** IC 25-31-1-12

Sec. 4. (a) The education and experience requirements of section 2 of this rule for professional engineer applicants apply for engineering intern applicants except that:

- (1) individuals with a ~~bachelor of science baccalaureate~~ degree meeting the course requirements of section 2(c) of this rule shall only be required to obtain two (2) years of work experience;
- (2) individuals with a master of science degree in an engineering discipline following a baccalaureate which is not in an approved engineering curriculum shall only be required to obtain one (1) year of work experience; and
- (3) individuals with the other degrees listed in section 2(b) of this rule shall not be required to obtain any work experience.

(b) An individual who is enrolled as a senior in an engineering curriculum in a college or university **in Indiana**, which has at least one (1) approved engineering curriculum may take the last EI examination offered on the individual's campus prior to the individual's scheduled graduation. This subsection does not apply to any individual enrolled in any other ~~bachelor of science baccalaureate~~ degree program. (*State Board of Registration for Professional Engineers; Rule 2, Sec 4; filed Feb 29, 1980, 3:40 p.m.: 3 IR 628; filed Oct 17, 1986, 2:20 p.m.: 10 IR 438; errata filed Mar 8, 1990, 5:00 p.m.: 13 IR 1189 voided by the attorney general filed Apr 18, 1990: 13 IR 1863; errata filed Dec 20, 1990, 5:00 p.m.: 14 IR 1071; filed Sep 24, 1992, 9:00 a.m.: 16 IR 726, eff Jan 1, 1993; filed Mar 28, 1995, 2:00 p.m.: 18 IR 2105, eff Jul 4, 1995; readopted filed Jun 21, 2001, 9:01 a.m.: 24 IR 3824*)

SECTION 3. 864 IAC 1.1-12-1 IS AMENDED TO READ AS FOLLOWS:

#### **864 IAC 1.1-12-1 Fees charged by board**

**Authority:** IC 25-31-1-7; IC 25-31-1-8

**Affected:** IC 25-31-1

Sec. 1. The board shall charge and collect the following fees, which shall all be nonrefundable and nontransferable:

- (1) For review of an application for examination for ~~registration certification as a professional engineer other than comity, ten~~ **an engineering intern, one hundred** dollars ~~(\$10): (\$100).~~
- (2) For review of an application for examination for registration as a professional engineer, three hundred dollars (\$300).
- ~~(2)~~ **(3) For the examination or reexamination of any applicant under the Act: fifty dollars (\$50):**
  - (A) fundamental of engineering examination, one hundred dollars (\$100); and**
  - (B) principles and practice of engineering examination, one hundred fifty dollars (\$150).**
- ~~(3)~~ **(4) For the processing and review of qualifications for registration as a professional engineer by comity, fifty five hundred** dollars ~~(\$50): (\$500).~~
- ~~(4)~~ **(5) For issuance of the original certificate to practice as a professional engineer following passage of the examination or approval for registration on the basis of comity:**

(A) when the certificate is dated between August 1 of an odd-numbered year and July 31 of the following even-numbered year, inclusive, ~~ten fifty~~ dollars ~~(\$10)~~; **(\$50)**; and

(B) when the certificate is dated between August 1 of an even-numbered year and July 31 of the following odd-numbered year, inclusive, ~~twenty one hundred~~ dollars ~~(\$20)~~; **(\$100)**.

~~(5)~~ **(6)** For biennial renewal of the certificate to practice as a professional engineer, ~~twenty one hundred~~ dollars ~~(\$20)~~ **(\$100)** payable prior to July 31 of each even-numbered year.

~~(6)~~ **(7)** For renewal of an expired certificate to practice as a professional engineer, ~~ten fifty~~ dollars ~~(\$10)~~; **(\$50)**, plus all unpaid renewal fees for the four (4) years of delinquency. A certificate may not be renewed after four (4) years of delinquency.

~~(7)~~ **(8)** For a duplicate or replacement certificate to practice as a professional engineer, ten dollars (\$10).

~~(8)~~ **(9)** For **an applicant for engineering intern under 864 IAC 1.1-2-4(b) for review of the application**, examination, and enrollment as an ~~EE~~, **twenty engineering intern**, fifty dollars ~~(\$20)~~; **(\$50)**.

~~(9)~~ **(10)** The fee shall be ~~fifty one hundred~~ dollars ~~(\$50)~~ **(\$100)** for the proctoring of examinations taken in this state for purposes of registration in other states. This fee shall be in addition to the examination fee.

*(State Board of Registration for Professional Engineers; Rule 12, Sec 1; filed Feb 29, 1980, 3:40 p.m.: 3 IR 637; filed Oct 14, 1981, 1:30 p.m.: 4 IR 2459; filed Oct 17, 1986, 2:20 p.m.: 10 IR 442; errata, 10 IR 445; filed Sep 24, 1992, 9:00 a.m.: 16 IR 735; filed Mar 28, 1995, 2:00 p.m.: 18 IR 2111; filed Jun 14, 1996, 3:00 p.m.: 19 IR 3109; readopted filed Jun 21, 2001, 9:01 a.m.: 24 IR 3824)*

### **Notice of Public Hearing**

*Under IC 4-22-2-24, notice is hereby given that on July 18, 2002 at 1:30 p.m., at the Indiana Government Center-South, 402 West Washington Street, Conference Center Room 12, Indianapolis, Indiana the State Board of Registration for Professional Engineers will hold a public hearing on proposed amendments to establish the types of topics that qualify as advanced calculus based mathematics, to change one of the minimum education requirements for engineering interns from a Bachelor of Science degree to baccalaureate degree, to specify that a senior in an engineering curriculum in a college or university in Indiana may take the last EI examination prior to graduation, and to revise the fees charged by the board. Copies of these rules are now on file at the Indiana Government Center-South, 302 West Washington Street, Room E012 and Legislative Services Agency, One North Capitol, Suite 325, Indianapolis, Indiana and are open for public inspection.*

Gerald H. Quigley  
Executive Director  
Indiana Professional Licensing Agency