Louisiana Professional Engineering and Land Surveying Board

DRAFT Policy # 26
Adopted: September 10, 2018

Related Science or Technology Degrees and Engineering Graduate Degrees

This policy exists in part to assist staff in addressing questions regarding engineering graduate degrees which may or may not complement a related science or technology degree.

If/when staff are asked to address questions regarding those with an engineering undergraduate degree who are seeking a graduate degree, they should quote Rule 1105.A.*

This policy is not a stand-alone document. It is intended to be a supplement for staff-use if/when staff members are addressing questions from applicants regarding the laws and rules related to this topic.

It is in the best interest of the applicant for the applicant to review the appropriate laws and rules related to these topics rather than only relying on this policy letter.

If a potential applicant requests advice from staff prior to earning an undergraduate degree, the staff informs them that an accredited engineering curricula of four years or more is the best choice in accordance with Rule 1101.B.**

A degree program which has the word engineering in its title is not necessarily an engineering degree. Some examples are engineering management, construction engineering technology, electrical engineering technology, and civil engineering technology. The first example is a management degree. The others are technology degrees. There are numerous examples of degrees like this which are not engineering degrees.

If a potential applicant is already pursuing an undergraduate degree that is non-accredited and/or non-engineering, one reasonable option is for the student to change majors to an accredited engineering degree. Another option is for the student to pursue a second major of an accredited engineering degree.

If a potential applicant has already completed an undergraduate degree which is non-accredited and/or non-engineering, the staff informs that the option with the least uncertainty to resolve the problem is to go back and earn an accredited engineering undergraduate degree. At first glance, this may seem unreasonable, but there is possibly less time involved in completing a second undergraduate degree, this time that is accredited engineering, than in getting a graduate degree which meets the requirements of Rule 1105.A.*

The best fit for a graduate degree is one which matches the undergraduate degree. For example, a civil engineering graduate degree best follows a civil engineering undergraduate degree. Of course, if one already has an accredited civil engineering degree then a graduate degree would not be necessary to meet the educational requirement for licensure. LAPELS is considering a rule change which would allow an accredited engineering master's degree to remedy the lack of an accredited

undergraduate engineering degree, but the issue of the appropriate number of hours of engineering science and engineering design coursework still must be remedied.

The following examples in Table 1 illustrate that some related science degrees fit better than others. This list should not be seen as approval or as a suggestion. In fact, it may lead to a disapproved request for licensure. Instead, it should be viewed as a possible way to pursue a remedy to the problem of not having an accredited engineering undergraduate degree.

Non-engineering degrees are missing critical coursework in engineering sciences and engineering design. For example, an accredited construction engineering technology curricula may require algebra, trigonometry, and one 3-semester credit hour calculus overview course compared to a civil engineering curricula requirement for algebra, trigonometry, and five 3-semester credit hour calculus courses including differential equations.

The applicant must show evidence of the removal of deficiencies in science, mathematics, engineering sciences and engineering design as a prerequisite to the graduate courses. There is a significant difference between being admitted to a graduate engineering program and pursuing engineering licensure. The argument some applicants make, is 'my school admitted me to the program with my xxxxx degree, and did not require all the pre-requisite courses LAPELS is requiring'. Some applicants make the same argument when LAPELS requires them to attain a credential evaluation for their unaccredited undergraduate degree. The LAPELS response is that universities and LAPELS have different requirements because each entity has a different intended purpose and/or end result. The LAPELS purpose and responsibility is to "safeguard life, health, and property and to promote the public welfare". University graduate programs do not have that same purpose or responsibility.

If an applicant does not have an accredited undergraduate engineering degree then deficiencies do exist. It is insufficient and inappropriate to rely on a subjective analysis by a graduate school coordinator or even a pre-test of subject matter to justify whether or not deficiencies exist.

By definition, prerequisite means these deficiencies are removed before beginning the graduate degree coursework. The coursework required for an undergraduate degree in engineering is the remedy for the deficiencies. Graduate degree coursework is not the remedy.

The successful completion of a minimum of 48 semester credit hours of coursework in engineering sciences and engineering design is required in order to remove deficiencies in engineering sciences and engineering design.

*** - §1105. Acceptable Engineering Graduate Degrees**

A. Acceptable engineering graduate degrees are those in an engineering discipline or sub-discipline from a university having an undergraduate accredited engineering curriculum in the same discipline or sub-discipline and which require the removal of deficiencies in science, mathematics, engineering sciences and engineering design as a prerequisite to the graduate courses; or are those found by the board to be equivalent to such degrees. The successful completion of a minimum of 48 semester credit hours of coursework in engineering sciences and engineering design is required in order to remove deficiencies in engineering sciences and engineering design.

**** - §1101. Approved Curricula**

A. ....

B. In general, the board will recognize as approved all accredited engineering curricula of four years or more. The board may recognize as approved an engineering curriculum that was not accredited at the time of the applicant's graduation, but which became accredited within the following two years.

Table 1: Examples of Possible Engineering Graduate Degree Fit With Non-Engineering Undergraduate Degree***

Undergraduate degree	**Graduate degree**
Biology or Biological Sciences	Biomedical Engineering
Biology or Biological Sciences	Environmental Engineering
Physics	Mechanical, Electrical, or Civil Engineering
Chemistry	Chemical or Petroleum Engineering
Construction Engineering Technology	Construction or Civil Engineering
Civil Engineering Technology	Civil Engineering
Environmental Science	Environmental Engineering
Geology or Geological Sciences	Geotechnical Engineering
Electrical Engineering Technology	Electrical Engineering
Computer Science	Computer Engineering

***The contents of this table are not a recommendation. As the text of this policy clearly states, the recommendation is to earn an accredited undergraduate engineering degree.

Mathematics, Architecture, Oceanography, or Photography are unlikely to be a good fit.