

THE INSTITUTION OF ENGINEERS, SRI LANKA
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Website: www.iesl.lk

Evaluation of Academic Qualifications for the Affiliate Membership of IESL

Criteria

The graduates (non-recognized/non accredited engineering degree holders) seeking registration as Affiliate Members of the IESL should meet three essential criteria/requirements at the outset to apply under this scheme.

1. Having a 3 year “Bachelor of Technology” or “Bachelor of Engineering” Degree, or equivalent
2. Having an academic content in the Degree program as set out in the IESL Engineering Technology Degree Program Recognition Manual
3. Having an entry-qualification to the Degree program as prescribed by the IESL

Duration for a fulltime Degree program should be minimum of 3 years, or more. For Degree equivalent qualifications the equivalent fulltime duration should be minimum of 3 years, or more.

Academic content of the Degree program should have a total of 105 Credits, or more, with a Credit distribution as given in Table 1, as per the IESL recognition manual. All Credits are converted to common scale equivalent Credits (rounded off to lower 0.5) as per Table 2 before totaling, and the candidate must provide necessary information (in a given format) to carry out this conversion.

Refer Annexure 1 for more details on “Minimum Credit Distribution & Credit Computation”.

Table 1: Minimum Credit Distribution

Category	Minimum SA Credits
Mathematics, Basic Sciences, Computing	33 Credits. (24 min. for Mathematics and Basic sciences)
Engineering Sciences, Engineering Design, Projects, Training	57 Credits. (36 min. for discipline specific, 18 min. for Designs & Projects)
Complementary Studies	15 Credits. (12 min. for Management, Economics and Communication, 3 min. for Humanities)
Total	105 Credits

Table 2: Credit computation

Category	Active duration per Credit
Lectures	14 hours
Tutorials, laboratory classes, designs or field works	28 hours
Open and distance learning	25 hours
Project study	1 week
Work camps	2 weeks
Industrial training	4 weeks

Entry requirement

Entry-qualification for the degree program should be as prescribed and published by the IESL:

Web link :

https://iesl.lk/index.php?option=com_content&view=article&id=47&Itemid=166&lang=en#entry-requirement-for-the-affiliate-membership)

ANNEXURE 1

STRUCTURE AND CONTENT OF THE ACADEMIC PROGRAMME

DEFINITIONS OF ACTIVE HOURS (AHs) AND ACADEMIC CREDITS (ACs)

For an academic activity that is granted academic credit, and in which the number of hours associated with it corresponds to the actual contact time of that activity, such as lectures, tutorials, laboratory, design or fieldwork, an Active Hour (AH) is defined as follows:

- one (1) hour of lecture
- two (2) hours of tutorial, laboratory, design or field work

One AH continued over the duration of a semester is defined as an Academic Credit (AC). (One (1) AC is equivalent to about fourteen (14) AHs. However, in the case of Open and Distance Learning, One (1) AC is considered equivalent to about twenty five (25) AHs)

For activities in which contact hours cannot be used to properly describe the extent of the work involved, such as project study, work camps and industrial training, the following definitions are used for an AC:

- one (1) week of project study
- two (2) weeks of work camp
- four (4) weeks of industrial training.

REQUIREMENTS OF THE ACADEMIC PROGRAMME

The title of the academic degree programme should include the word “engineering” and/ or “engineering technology” it must be truly descriptive of the curriculum content. Programme duration should not less than three (3) academic years of full-time equivalent study based on entry as prescribed above. When a programme has several options, all options are examined, and each one must meet the established criteria.

The entire programme must include a minimum of 105 Academic Credits (ACs). It is expected that the programmes will continue to have additional academic credits to demonstrate innovation and to achieve the special goals the particular engineering faculty or school may have for engineering education.

Appropriate laboratory experience must be an integral component of the curriculum, with instructions in safety procedures. The curriculum must prepare students to learn independently, and must expose them appropriately to engineering research and development activities. It must be ensured that the students are made aware of the role and responsibilities of the Engineering Technologist in society by exposing them to ethics, equity, public and worker safety, and concepts of sustainable development.

STRUCTURE AND CONTENT OF THE ACADEMIC PROGRAMME

The initial education of an engineering technologist should provide an in-depth core of scientific and technical skills together with a sufficient breadth of experience in complementary studies, consisting of humanities, social sciences, arts, management, engineering economics and communication, in order to ensure continuing awareness of these disciplines. It is appropriate for the programme structure to be designed in such a way that gives a progressive shift of emphasis from engineering science and principles in the early stages to more integrated studies in the final year.

The essential elements are grouped under several headings.

(a) Mathematics, Basic Sciences and Computing (Minimum of 33 ACs)

A minimum of twenty four (24) academic credits is recommended for the components of mathematics and basic sciences. Mathematics should include appropriate elements of linear algebra, differential and integral calculus, differential equations, probability, statistics, numerical analysis and discrete mathematics. Some of the mathematical techniques may be taught within other subjects in the programme where they are relevant.

The basic sciences component of the curriculum must include elements of physics and chemistry, and other relevant elements of life sciences and earth sciences. These subjects are intended to impart an understanding of natural phenomena and relationships through the use of analytical and / or experimental techniques.

(b) Engineering Sciences and Engineering Design (Minimum of 57 ACs)

A minimum of fifty seven (57) academic credits from a combination of engineering sciences, engineering design & projects and exposure to professional practice is recommended. Of this, a minimum of 18ACs must be engineering design and projects; and a minimum of 36ACs must be an engineering discipline specialisation.

Engineering science subjects would normally have their roots in basic sciences and mathematics, but carry knowledge further towards creative applications. They may involve the development of mathematical or numerical techniques, modelling, simulation and experimental procedures. Application to the identification and solution of practical engineering problems is stressed. In addition to engineering science subjects pertinent to the discipline, the curriculum must include engineering science content, which imparts an appreciation of important elements of other engineering disciplines.

Engineering design integrates mathematics, basic sciences, engineering sciences and complementary studies in developing elements, systems and processes to meet specific needs. It is a creative and iterative process subject to constraints, which may be governed by standards or legislation.

The engineering curriculum must end with a significant design experience, which is based on the knowledge and skills acquired in earlier coursework. Such a project could give the student an exposure to the concepts of teamwork and project management. Whilst group projects, such as in design exercises, may be appropriate for work in earlier years, the final year project is required to demand individual analysis and judgement. Even though work may be carried out in small groups, the student should be assessed independently from the work of others. The student is expected to develop techniques of literature review and information gathering.

The engineering sciences and engineering design components of the curriculum must include appropriate content, which requires the application of computers.

(c) Complementary Studies (Minimum of 15 ACs)

A minimum of twelve (12) academic credits for studies in management, engineering economics and communication and three (3) academic credits in humanities, social sciences, arts and professional ethics are recommended to complement the technical content of the curriculum.

While considerable flexibility is offered in the choice of suitable courses for the complementary studies component of the curriculum, some areas of study are considered to be essential in the education of an engineer. Accordingly, the curriculum must include studies on the impact of technology on society, engineering economics, and subject matter that deals with central issues, methodologies and thought processes of the humanities and social sciences.

Student's capability to effectively communicate, both orally and in writing, must also be developed. From the initial stages of the programme, careful attention must be paid to the development of clear and concise reporting skills of the students.

EXPOSURE TO PROFESSIONAL ENGINEERING PRACTICE

Industrial training in a practical engineering environment, directly assisting professional engineers, would give the student a valuable insight into professional practice. Such experience would complement the formal studies at the educational establishment, and should ideally consist of several different types of experience. This must include practical experience in the basic manufacturing and construction techniques applicable to the student's chosen discipline of engineering. The opportunity to observe human and industrial relations, job organisation, maintenance, safety and environmental procedures from the point of view of the general workforce is an important component in the early preparation for a career as an engineering technologist.

IESL strongly advocates that each undergraduate undergoes industrial training for a period of not less than twelve (12) weeks, and submits a report on the training certified by the employer's representative to enable assessment and the award of credits. The academic credits obtained for industrial training (subject to a maximum of six ACs) is considered under the category of engineering sciences engineering design and projects.