INSTITUTION OF ENGINEERS,

SRI LANKA.

MANUAL FOR RECOGNITION OF FOUR YEAR ENGINEERING DEGREES CONDUCTED IN SRI LANKA

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(amendments up to February 2019)

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R1.0 INTRODUCTION

The Institution of Engineers, Sri Lanka (IESL) oversees the Engineering Profession in Sri Lanka, and in accordance with its Charter and provisions of the Act No. 17 of 1968, is empowered to admit to membership, classify and confer titles indicating the professional standing of its members. In fulfilment of its Charter obligations IESL has been responsible for the recognition/accreditation of engineering education programmes in Sri Lanka and in providing consultative feedback on the development of engineering education programmes comparable to global practice.

IESL evaluates undergraduate engineering degree programmes and accords recognition (to cater to the local requirements) and accreditation (to cater to the international recognition requirements) in accordance with established criteria and procedures, through its Education Committee and Accreditation Board respectively. It does not indicate recognition is superior to the accreditation or vice versa for Associate Membership and charter requirements of the IESL. However, recognition is a pre-requirement to accreditation of Degree programmes which have not applied for recognition/accreditation by 1 June 2018.

This Manual outlines the criteria and procedures for recognition of an Honours (or special) engineering education programme of four years or equivalent duration by the IESL.

R2.0 DEFINITIONS

R2.1 GENERAL

IESL / Institution	-	The Institution of Engineers, Sri Lanka
IESLAB / Board	-	The Institution of Engineers, Sri Lanka Accreditation Board
IESLEC/Committee	-	The Institution of Engineers, Sri Lanka Education Committee
Panel	-	A team of evaluators appointed to undertake recognition activities
PES	-	Programme Evaluation Subcommittee of the Education Standing Committee of IESL

R2.2 STUDY PROGRAMMES

University	-	An institution of higher learning authorised by legislation (either directly or indirectly) to award professional engineering degrees.
Faculty	-	The entity responsible for academic administration and conduct of different engineering education programmes at the University.
Department	-	The entity responsible for the design and conduct of the programme to be recognized/accredited.
Institute	-	University / Faculty / Department applying for the recognition/accreditation of an Engineering Study Programme is referred to as the 'Institute' in this document
Programme	-	The sequence of structured educational experience undertaken by the students, leading, on completion and on satisfactory assessment of performance, to the award of an engineering degree.
Degree	-	A graduate level engineering qualification normally of four years' duration
Academic staff	-	The staff responsible for teaching in the programme leading to the award of the degree.
Visiting staff	-	Staff from other universities and / or practising engineers giving instructions on a part-time basis.
Assessment	-	Judgement of a student's work by the Institute.
Evaluation	-	Judgement of the engineering programme by the Institution or its appointed agency.
Stakeholders	-	All groups with key interest in engineering education and its outcome.
External Examiner	-	A suitable person with high academic standing outside the Institute, who scrutinises and reports on examination and assessment
OBE	-	Outcomes Based Education
ICC	-	Industry Consultative Committee: a body consisting of professionals from industries, government, professional organisation, regulatory, alumni, etc., appointed by the Institute to ensure the programme's relevancy to the stakeholders' needs.

R2.3 ACCREDITATION AND RECOGNITION

Accredited Degree - A degree eligible for graduate registration in Washington Accord signatory countries after satisfying conditions stipulated by the relevant institutions and for professional registration in International Professional Engineers Agreement signatory countries after satisfying training, experience and other requirements stipulated by the relevant institutions.

Recognised Degree - A degree eligible for graduate registration of IESL, and for professional registration of IESL after satisfying its training, experience and other requirements.

R2.4 PERIOD OF RECOGNITION

Full Recognition - For a programme that fully satisfies the minimum standard for recognition set by the IESL, recognition is normally given for 05 years; at the end of this period either it has to be renewed or application requires to be forwarded for accreditation.

Conditional Recognition - Where there are minor shortcomings in meeting recognition requirements, the programme may be given conditional recognition for a period of not more than two (2) years during which the Faculty must take necessary corrective measures to ensure continuation of recognition, by satisfying the requirements specified as conditions for recognition.

R3.0 EVALUATION PANEL

An evaluation panel is appointed by the Council of the IESL on the recommendation of the Education Standing Committee for making the evaluation, and it must consist of:

- a Chairperson, who is a well recognized senior academic with extensive experience in the relevant field,
- two (2) other senior academics in the relevant field
- two (2) senior engineering practitioners from the industry in the relevant field

All of the panel members must be chartered engineers (unless in special circumstances when the council decides otherwise), typically chosen for their broad experience in engineering and their ability to evaluate the generic programme content, outcomes and quality systems. The engineering practitioners should be having extensive experience in employing practicing graduate engineers.

At least three (3) members of the duly appointed evaluation panel, including the chairperson and one from each of the two other categories must visit the Higher Education Institute for the evaluation.

When more than one program is evaluated, each program shall have a separately appointed evaluation panel.

R4.0 POLICY ON RECOGNITION

R4.1 THE PURPOSE OF RECOGNITION

Institute education provides the learning base on which each engineer's professional career is built. The engineering profession requires its members to have competence in engineering, as well as an understanding of the effects of engineering on the society and the environment. The purpose of recognition is to ensure that the engineering education programme concerned imparts the minimum academic requirements needed for an individual to register with the Institution as a graduate engineer. The processes of recognition place emphasis on the quality of the students, academic staff, support staff and teaching facilities. It is about continual improvement of engineering programs.

Recognition thus provides public knowledge of engineering education programmes that guarantee successful students of entry into the profession, and gives an assurance to prospective students on the entry into the profession. It gives a feedback to the Government and the Institute of the basic requirements of a graduate engineering education programme, and the level of resources reasonably needed to meet these requirements.

In case an evaluated programme is found to be lacking certain necessary attributes for recognition, the evaluation will result in a review of the present situation and recommendations for improvement with time targets for achievement in order to satisfy the required standard for recognition.

R5.0 REQUIRED ATTRIBUTES OF A GRADUATE

The skills, knowledge and attitude that are expected from the graduates of a Four year Bachelors degree programme meeting the educational requirements towards registration as a Chartered Engineer of the Institution of Engineers, Sri Lanka are listed under several headings as given below. These have been developed based on the generic attributes outlined in the IESL Professional Review Rules, and are to be attained by an engineering graduate from any study programme, irrespective of the engineering discipline.

The graduates are expected to successfully fit into society, satisfying the needs of the employers and the industry. The attributes required of an engineering graduate are:

(i) Apply knowledge of mathematics, basic sciences and engineering fundamentals to the analysis of complex engineering problems.
(ii) Identify, formulate, research literature, conduct investigations and solve complex engineering problems to provide valid conclusions.
(iii) Design systems, components or processes that meet specified needs.
(iv) Conduct investigations of complex problems using research based knowledge and research methods.
(v) Create, select and apply appropriate techniques, resources, and modern engineering and IT tools to complex engineering activities.
(vi) Assess societal, health, safety, legal, cultural and environmental issues related to professional engineering solutions.
(vii) Demonstrate broad knowledge of sustainable development concepts and practices required for dealing with contemporary issues related to professional engineering practice.
(viii) Demonstrate broad knowledge of ethical responsibilities and professional standards.
(ix) Demonstrate ability to function effectively as an individual and in multidisciplinary and multi cultural teams, with the capacity to be a leader or manager as well as an effective team member.
(x) Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
(xi) Demonstrate broad knowledge of management and business practices, including financial management, risk and change management.
(xii) Engage in independent and lifelong learning in the broad context of technological change.

R6.0 STRUCTURE AND CONTENT OF THE ACADEMIC PROGRAMME

R6.1 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.

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 entire program must include a minimum of 130 Academic Credits (ACs). It is expected that a recognized program will continue to have additional academic credits to demonstrate innovation and to achieve the specific goals the particular engineering faculty or school may have for engineering education.

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 professional engineer in society by exposing them to ethics, equity, public and worker safety, and concepts of sustainable development.

The essential elements are grouped under three headings.

(a) Mathematics, Basic Sciences and Computing (Minimum of 25 ACs)

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 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 75 ACs)

A combination of engineering sciences, engineering design & projects and exposure to professional practice is recommended. Of this a minimum of 25 ACs must be engineering design & projects; and a minimum of 25 ACs 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.

The engineering curriculum must end with a significant design experience, which is based on the knowledge and skills acquired earlier. Such an exercise is expected to give the student an exposure to the concepts of teamwork and project management. The final year project is required to demand individual analysis, judgement as well as teamwork. Each student should be assessed independently from the work of others. The student is expected to develop techniques in literature review and information gathering.

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

(c) Complementary Studies (Minimum of 20 ACs)

A minimum of fifteen (15) academic credits for studies in management, Law & regulatory environment, engineering economics, professional ethics and communication and five (5) academic credits in humanities, social sciences, and arts are recommended to complement the technical content of the curriculum.

R6.2 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 a professional engineer.

Each undergraduate shall undergo industrial training for a period of not less than twenty-four (24) weeks (continuously, or in 2 sessions of 12 continuous weeks) and submit 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 (maximum of six ACs) is considered under the category of engineering sciences, engineering design and projects. These credits may be acquired by alternative methods of exposure to the working environment provided there is a satisfactory scheme of assessment and award of credits specified in the curriculum.

R7.0 ACADEMIC STAFF AND STUDENTS

R7.1 ACADEMIC STAFF

The character of the educational experience of the student is greatly influenced by the competence and outlook of the academic staff. The number of staff devoted to the programme must be large enough to cover, by experience and interest, all curricular areas of the programme. The Institute may engage part-time or visiting staff members, who are outstanding professionals in their fields, to cover certain subject areas in the curriculum outside the specialisations of the full-time staff.

The academic staff teaching courses in the engineering curriculum are expected to have a high level of competence, and to be dedicated to the aims of engineering education. In general, the academic staff should have a postgraduate degree, preferably at doctoral level. However, staff with a good first degree, and having wide industrial experience along with other acceptable professional qualifications, may be considered to give an industrial flavour to the programme. This category of staff without adequate research experience should be encouraged to obtain such experience after recruitment. Academic staff without industrial experience and professional qualifications should also be encouraged to obtain them after recruitment. The overall competence of the Institute will be judged by such factors as the level of academic education of its members, the diversity of their backgrounds, their ability to communicate effectively, their experience in teaching and research, their level of scholarship as shown by scientific and professional publications, their degree of participation in professional, scientific and learned societies and their personal interest in the students' curricular activities.

The teaching loads of academic staff should allow adequate time for participation in research and professional development activities. The Institute must ensure a balanced and conducive environment for effective

teaching, research and professional development. The academic staff of the engineering Institute must provide proper curricular and career counselling to the students.

To ensure effective teaching, the equivalent full-time academic staff to student ratio should be maintained at 1:12, or better. However, the number of fulltime academic staff members shall not fall below six (6) even if the number of students is very small. Similarly, for an academic department that is conducting "n" no. of parallel programs and when the staff cannot be uniquely identified to individual programs the minimum no. of permanent staff shall not fall below (2+4n), even if the number of students is small. There must also be a sufficient number of trained and qualified members of the technical and administrative staff to assist in the conduct of the educational programme. The staff to student ratio is to be calculated as set out in Appendix RA.3.10.6. (In the case of open and distance learning, the academic staff to student ratio may be lower than stated above.)

R7.2 STUDENTS

Students pursuing engineering education programmes must have a sound understanding of mathematics and physical sciences, in order to grasp complex engineering principles from the beginning itself. Minimum entry qualifications acceptable for a recognized degree in Sri Lanka is 2C & 1S (two Credit Passes and one Simple Pass) in the physical science stream subjects (combined mathematics, physics and chemistry) in one and the same sitting at the GCE (A/L) examination, conducted by the Department of Examinations of Sri Lanka. For students from GCE (A/L) Cambridge/Edexcel examination minimum entry qualification is 2Bs and 1C (for mathematics, physics and chemistry) in one and the same sitting. Foundation courses are not accepted in lieu of GCE (A/L) qualifications.

The students also need to acquire English language skills to follow the course in English medium and possess competency in the use of computers and IT skills. The Institute must ensure that any student who does not meet these criteria would undertake additional suitable remedial programmes in order to attain the required skills.

R7.3 TEACHING FACILITIES

The quality of the environment in which the programme is delivered is important as it influences the quality of educational experience gained by students. Therefore, there must be an adequate number of suitable classrooms, audio-visual and projection facilities, study areas, information resources (library), computing and information technology systems, and general infrastructure to meet the programme's objectives. This must enable students to learn the use of modern engineering and organisational tools, and explore beyond the formal dictates of their specific programme of study.

For programmes offered at multiple or remote locations, and those offered partly in the distance mode, sufficient communication facilities must be provided to give those students a learning experience and support equivalent to that of the on-campus students. There must also be adequate facilities for student-staff interaction. On-campus students should be encouraged to participate in the other activities of the Institute, and reasonable effort should be made to provide similar opportunities for other students.

Laboratories and workshops should be adequately equipped for experiments and "hands-on" experience in the area of the core subjects. Appropriate experimental facilities must be available for students to gain substantial experience in understanding and operating engineering equipment, and in designing and conducting experiments. The equipment must be representative of engineering practice, including computerised equipment and current software where possible. Laboratory experiences must provide students with 'hands–on' experience and not just demonstrations. Where practical work is undertaken at another Institute, or in industry, arrangements must be made to provide reasonable accessibility and opportunities for learning.

R7.4 QUALITY MANAGEMENT SYSTEM

R7.4.1 Strategic Statement, Institutional Support and Leadership

The Institute must demonstrate that it regards a quality engineering education as a significant and long-term component of its activities. This would most commonly be reflected in the Institute's mission statement and in its strategic plans. It must have adequate polices and mechanisms for planning, development, delivery and review of engineering education programmes, and for academic and professional development of staff.

The Institute must have in place adequate policies and mechanisms for funding the programme; for attracting, appointing, retaining and rewarding well-qualified staff, and providing for their ongoing professional development; and for providing and updating infrastructure and support services. It must ensure that creative leadership is available to the Institute through the appointment of well-qualified and experienced senior staff in sufficient numbers.

R7.4.2 Scheme of Assessment of the Programme of Study

The Rules and Regulations for assessment procedures of the programme of study approved by a high level academic body must be made available and maintained by the Institute.

The Institute should be able to demonstrate its management system for assessment of students, which should include:

(a.) examination regulations;

(b.) system of assessment and criteria for a Pass and Grades;
(c.) procedures for preparation of examination papers;
(d.) standard of examination papers;
(e.) assessment and moderation procedures for final year projects, and;
(f.) assessment of industrial training.

The Institute should have one or more external examiners for each programme of study to independently scrutinise and report on examinations and assessment in each academic year. All external examiners' reports shall be made available to the panel.

R8.0 RECOGNITION PROCEDURE

Any study programme in engineering aiming at producing graduates who are expected to be employed as engineers in Sri Lanka should be of at least four year duration, which should be recognized or accredited by IESL in order for its graduates to be eligible for registration as graduate engineers and subsequently registered as Chartered Engineers.

Institutions offering engineering degree programmes for the first time are advised to intimate details of program content, facilities, staff and delivery plan with IESL to receive constructive comments at the beginning, but this is outside the formal recognition process and cannot be claimed as any agreement for subsequent recognition of the program. The cost of such process shall be borne by the Institute concerned.

The recognition procedure of the IESL normally comprises the steps indicated in the following sections.

R8.1 APPLICATION FOR RECOGNITION

A study programme in engineering offered by an engineering faculty or a similar entity which is approved by the Ministry of Higher Education/ University Grant Commission is eligible to forward an application for recognition. An assessment is initiated only at the request of the Institute that conducts the programme of study concerned. Recognition for a program can be obtained only after a batch of students following the program has been graduated, and since the process of recognition normally takes about six months, the institutions are advised to forward the request for recognition about six months before the expected date of graduating the first batch of students.

- In the case of a programme of study applying for recognition for the first time, the request must be made about six (6) months before a batch of students is graduating, in order for the graduating batch to be recognized for graduate registration.
- In the case of a programme of study that has previously been recognized, such request must be made about six (6) months before the recognition lapses.

Once the request is received, the IESL Secretariat sends to the applicant institution the format and information on the documentation required for the evaluation. This documentation includes information on the Institute, the programme of study, the staff, students, teaching facilities and quality assurance systems (Appendix A). The completed documents along with any additional supporting documents must be returned to the IESL, which will acknowledge receipt of the same. The documentation should be sent in both electronic and hard copy format (5 copies), at least twelve (12) weeks before the proposed date of the evaluation visit.

If the IESL is satisfied that the information provided is adequate, the Executive Secretary will communicate to the relevant institution details regarding the visit. Any additional information requested must be received within two (2) weeks. If the information is considered to be inadequate, further information is requested from the institution before an evaluation visit could be scheduled. If the requested information is not received within a further period of two (2) weeks, the application shall be deemed to have been withdrawn.

The Evaluation Panel (Visiting Team) appointed by the IESL, would normally meet four – five (4-5) weeks prior to the evaluation visit. The purpose of the meeting is to provide an opportunity for panel members to share their initial findings after consideration of the submitted documentation. It would also enable the panel to collectively identify matters targeted for detailed investigation during the visit and to identify any additional data or materials that may be required in order to facilitate the evaluation process. The panel will also discuss a draft schedule for the visit proceedings.

A brief meeting report will be normally be compiled, recording any issues of concern, key matters to be addressed during the visit and any request by the panel for additional supporting information. The Executive Secretary will communicate the request to the Institute. This requested material must be received at least one (1) week prior to the evaluation visit.

Included with the meeting report will be a draft visit schedule detailing various sessions and activities proposed for the visit. This schedule will be subsequently finalised in negotiation with the Institute.

A meeting of the Evaluation Panel will normally be held on the evening prior to the commencement of the visit. This meeting will enable the panel to make final preparations for the visit, to consider any additional supporting information submitted by the educational institution and to prepare strategic questions in readiness for each of the visit sessions.

The full cost of evaluation for recognition must be borne by the Institute requesting evaluation for the programme.

R8.2 EVALUATION VISIT

The Evaluation Panel makes the visit to the Institute that offers the programme. The visit will extend over a period one to three days, during which the visiting team gets an opportunity to assess qualitative factors such as intellectual atmosphere and morale in the Institute, professional attitudes and the quality of staff and students. During this visit the team gets the opportunity to carry out the following activities.

- Interviews with senior administrative officers including the Vice-Chancellor/ Head of Institute, the Dean of Engineering and the Head of the Department responsible for conducting the programme of study.
- The Head of Department or Dean is expected to make a 5 minute presentation, summarising, but not repeating the submission documentation.
- Interviews with members of the academic staff to evaluate professional attitudes, motivations, morale and their opinions on the theoretical and practical elements of the curriculum.
- Interviews with students, individually and in groups.
- Interviews with non-academic staff to assess their competence is supporting the academic programmes
- Informal meeting with Alumni and employers
- Visits to physical features such as laboratories, workshops, libraries and computing facilities to evaluate their adequacy and effectiveness.
- A review of recent examination question papers, external examiners' reports. laboratory instruction sheets, student transcripts (anonymous, if necessary), student coursework and project reports, models or equipment constructed by students, any other evidence of student performance for every module covered in the programme, staff research publications etc.

R8.3 REPORT OF THE VISITING TEAM

The visiting team shall prepare a report of their findings on the programme of study and present to the IESL within a period of eight (8) weeks after the date of the visit (Appendix RD). This report covers perceived strengths and weaknesses of the programme, areas in which it conforms to and deviates from the evaluation criteria, as interpreted by the team, with recommendations on matters of concern and suggestions for improvement.

After review of the visiting team's report by the Programme Evaluation Subcommittee (PES) of the Education Standing Committee of the IESL, it will be sent to the Institute concerned by the Executive Secretary for their comments, and to ensure accuracy and completeness. The response of the Institute must be received by the IESL Secretariat within a period of four (4) weeks.

The Appendix RD revised by the PES will then be submitted to the Education Standing Committee of the IESL.

R8.4 DECISION ON THE EVALUATION

The Education Standing Committee of the IESL makes a recommendation on the recognition to the IESL by considering the visiting team report (Appendix RD) and any further clarifying correspondence by the Institute. The Education Standing Committee of the IESL may recommend one of the following.

- To grant full recognition for a period of five (5) years.
- To grant conditional recognition for a shorter period (not more than two years).
  Before the expiry of the period the institute should submit a report that convinces the IESL that matters giving rise to its concerns have been adequately resolved. After reviewing this report, the IESL may recommend extending the recognition to the full five (5) years, or to terminate conditional recognition at the end of the period granted.
- To decline or terminate recognition, depending on whether it is a new programme or an already recognized programme.
-

Based on the recommendation made by the Education Standing Committee, and any other relevant submissions, the IESL Council makes its decision on recognition of the programme of study concerned.
The Institution's decision is conveyed to the Institute through the Dean of Engineering or equivalent Officer in the institute, who will be provided with a comprehensive explanation for it. The Institute is expected to inform the staff and the students of the recognition process and the recognition status of the programme of study.
When a particular programme of study is offered at different locations and / or through different modes of delivery, recognition status will apply only to the location and / or mode of delivery that has been reviewed. A separate application needs to be made in respect of the same programme offered at another location and / or through a different mode of delivery.

R8.5 APPEALS FOR REVIEW

In the event of a decision by the IESL to terminate the recognition of a programme or to decline recognition to an unrecognized programme, the Institute may appeal to the President of IESL for a review of its decision. This appeal must be made within four (4) weeks of receiving the decision of the IESL, stating the grounds on which it is based.

The IESL Council may then instruct the Education Standing Committee of the IESL to subject the programme to a second evaluation visit by a newly constituted visiting team, upon receipt of payments to cover re-evaluation costs. The same procedure will be followed by the new visiting team, which will report to the PES, for a recommendation to the IESL Council.

R8.6 INFORMAL EVALUATION OR VISIT

An Institute may request the IESL for an informal evaluation of a programme of study at an appropriate time during its development stage. The Education Standing Committee of the IESL will arrange an informal visit by a team for the purpose of providing comments and advice to the Institute with respect to the programme. However, no assurance will be given by the IESL as to the eventual recognition of the programme. The visiting team will present a report to the Institute, but no report will be presented to the IESL Council.
The cost of such evaluation / visit shall be borne by the Institute concerned.

R8.7 PUBLICATION OF RECOGNITION STATUS

The IESL will publish a list of recognized programmes of study, together with their effective years of graduating batches, on an annual basis. The list maintained by the IESL for public view includes only those programmes, which have received recognition. This list is available on request.

The records and deliberations of the Education Standing Committee of the IESL and the IESL Council concerning recognition of a programme of study shall be kept confidential.

R8.8 Termination of Recognition

The Council reserves the right to terminate the full or conditional recognition granted to a program if the information provided to obtain recognition were found to be false, or any subsequent direct or lateral entry of students are found to be made in contrary to the approved qualifications/policy.

R9.0 METHOD OF ASSESSMENT FOR INDIVIDUAL APPLICANTS

Individual applicants wishing to get their educational qualifications recognized for associate membership are required to submit an application in a separate form available at the IESL. The information to be furnished and the evaluation of the application are set on the same principles of recognizing a standard engineering program.

R10.0 ACKNOWLEDGEMENT

This Manual was prepared based on the Engineering Programme Accreditation Manual of the Institution of Engineers, Sri Lanka.

APPENDIX RA

DOCUMENTS TO BE SUBMITTED AND

FORMAT OF SELF EVALUATION REPORT

APPENDIX RA

DOCUMENTS TO BE SUBMITTED BY THE INSTITUTE CONDUCTING THE PROGRAMME

RA.1 INTRODUCTION

The documents as prescribed below must be submitted in respect of the programme being evaluated for recognition. It is the responsibility of the Institute conducting the study programme (hereinafter referred to as the Institute) to provide accurate information and sufficient evidence for the purpose of evaluation.
The documents must contain information on, but not limited to the following:

- general information and the objectives and outcomes of the programme;
- the ways in which the programme achieves the objectives, including development of the generic graduate attributes and the attributes appropriate to any specialist title, and assists each student to meet the required outcomes;
- teaching staff and students;
- teaching facilities;
- assessment and quality management system, and how it ensures that each graduand has met the required outcomes;
- the methods used to secure external validation and critical comment on the programme objectives and outcomes, and to apply such comment to the continual improvement of the programme and the Institute, and evidence of their effectiveness;
- any other relevant information.

It should not be necessary to develop extensive documentation specifically for the purpose of recognition. The purpose of recognition is to evaluate the systems already in place, not to require their creation. In a well-managed Institute, most of the documentation requested should already exist.

An acceptable submission is likely to comprise a collection of existing documents, including a text providing a coherent overview. The overview text should address each of the criteria, and refer to the relevant supporting material to the extent that existing documentation provides evidence that the criteria are met.

Submission must be comprehensive, easily readable, and free-standing. The overview text must address each major point in a definitive way. It will not be sufficient merely to provide a collection of disparate items, or point to a web site, and leave the Panel to find the relevant information and make the connection for itself. Supplementary information (such as QA policies, staff CVs, module outlines etc) can be provided on a CD.

RA.2 DOCUMENTS TO BE SUBMITTED

The Institute offering the programme should submit five (5) copies of its Self Evaluation Report (SER) based on Section RA.3 for recognition. The SER should be concise, but of sufficient depth and detail, preferably not exceeding **fifty pages**. Other detailed information should be included as appendices. Documentation should be bound in one or more volumes for convenience and should include a Table of Contents.
The documents should also include:

- The Institute Calendar;
- The Handbook, Calendar supplement, or other official publication relating to the Institute, and containing the public statement of programme's details; and
- Prospectus of the Institute.

These submissions shall also be made in electronic format (5 copies in CD's, DVD's or USB Drives).
The Board / Panel may at any stage request further information. If the submitted documents do not meet these guidelines, the applicants may be asked to resubmit new documents or reapply.

RA.3 FORMAT OF SELF EVALUATION REPORT TO BE SUBMITTED

RA.3.1 Organisation of the Institute

Outline the organisational structure of the Institute including:

RA.3.1.1 Title and name of Chief Executive Officer of the Institute (e.g. Vice-Chancellor);

RA.3.1.2 Name of the principal academic entity responsible for engineering education (e.g. Institute or Faculty of Engineering)

RA.3.1.3 Title and name of the Head of the Institute (e.g. Dean of Engineering)

Provide evidence of the Institute's long-term commitment to engineering as a discipline, for example through corporate mission statements and strategic plans, or otherwise.

Provide evidence of the Institute's engagement in long-term planning processes (excerpts from the strategic plan would be welcomed).

Statement of whether the Institute has prime responsibility (subject to Institute approval processes) for programme design; programme content; programme delivery; management of resources; appointment and supervision of staff; and professional activities of staff (research, consulting, staff development).

RA.3.2 Organisation of the Institute responsible for the programme
Describe the organisational structure of the Institute including titles and names of officers having responsibility across the Institute conducting the programme (e.g. Dean, Faculty Registrar etc); names of sub-entities (e.g. Department of Civil Engineering) and scope of their responsibilities; titles and names of the Heads of the sub-entities; and accountabilities in relation to educational programmes and to staff supervision

RA.3.3 General Information on the Programme to be Evaluated

RA.3.3.1 Title of Programme:

RA.3.3.2 Name of Head of Department:

Contact name / e-mail for visit if different from Head of Department:

RA.3.3.3 Address of Department

Tel:
Fax:
e-mail:

RA.3.3.4 Staff Member(s) Responsible for the Submission

Name of Main Contact(s) for the Programme(s):

Tel:
Fax:
e-mail:

(if different from A.3.1.4)

RA.3.3.5 Date of Submission

RA.3.3.6 Visit Date:
(if not yet agreed, leave blank)

RA.3.3.7 Names of Current / Most Recent External Examiners (Include affiliation of external examiner/s)

RA.3.3.8 Responses to Previous Evaluation Recommendations

(a.) Give the date of the last evaluation visit and your response to any conditions or recommendations attached to the last evaluation and how you have dealt with them.

RA.3.3.9 Programme Development Since Last Evaluation

(a.) Describe any major changes made to the Programme(s) since that date and give the date they were implemented. (Include changes such as conversion to modules and semesters)

Date:
Major Changes:

RA.3.4 Programme Information

(A separate submission of Section RA.3.4 is required for EACH programme for which evaluation is being sought but cross referencing of information should be used wherever possible)

RA.3.4.1(a) Title of Programme as it appears on the Degree Certificate:

Discipline as it appears on the Transcript:

RA.3.4.1(b) Type of Programme and Duration

Please give the date the course was first offered in its present form.

(i) Date of first implementation of the Programme	
(ii) Date on which Programme was first recognized	
(iii) Is it a new Programme?	**Yes / No**

(iv) Type of Programme

Identify whether the course is full-time, part-time or sandwich, and if the latter, thick or thin.
(complete all types for which evaluation is sought)

Full-time (F/T)		(tick if appropriate)	
Minimum number of academic years		Normal contact hours per year	
Part-time (P/T)		(tick if appropriate)	
Minimum number of academic years		Maximum number of academic years	
Minimum contact hours per year			
Sandwich (S)		(tick if appropriate)	
Minimum number of years		Type of Sandwich (state Thick/Thin)	
State the year(s) in which industrial experience takes place			

RA.3.4.1(c) Franchise Arrangements

(i) If the programme is franchised, please give the name and address of the principal institution and the conducting institution, year(s) of the programme that is / are franchised, period of study in each institution

(ii) Does the Degree Certificate specify where the study was undertaken?

(iii) Does the transcript specify the institution/s where the different sections of the programme were undertaken?

RA.3.4.2 Mission, Objectives and Outcomes of the engineering degree programme

State the mission and the programme objectives and relate how the programme objectives and programme outcome are consistent with IESL criteria on graduate attributes listed under section R5.0 of this Manual.

RA.3.4.3 Programme Structure

Provide a diagram for the programme structure for each mode of delivery, clearly showing core and optional subjects, and all possible routes through the overall programme

RA.3.5 Programme Content

A separate submission of Section RA.3.5 is required for EACH programme and for EACH year for which evaluation is being sought; however, please cross-reference information wherever possible)

RA 3.5.1 Content of Program

The Study Program shall prepare Table NT1 in the format given below.

Table NT1: CONTENT OF THE ACADEMIC PROGRAM

Module Code & Name	No. of Credits	Credit Distribution among different categories							
		Category (a) Mathematics, Basic Science and Computing			Category (b) Engineering Science and Engineering Designs			Category (c) Complementary Studies	
		Mathematics	Basic Science	Computing	Engineering Science	Design/ Projects	Training	Management & Economics Communication Professional Ethics	Humanities Social Sciences Arts
Compulsory Modules (Individual)									
Elective Modules (Baskets wise*)									
Total Credits									

*** Elective modules should be grouped in to baskets as per the curriculum and each basket should be treated as one composite-module having a Credit rating equal to the credit-norm for the basket. Elective modules may be considered for the categories (b) and (c) only. Optional modules should not be entered in this Table.**

RA.3.5.2 Syllabi / Module Descriptors
RA.3.5.2 Curriculum / Module Descriptors
Copies of curriculum and Module Descriptors for each year of the degree should be provided (five copies). Module Descriptor should show the module code & name, Credit rating, pre-requisites, co-requisites, lecture/tutorial/laboratory time allocations of delivery, intended learning outcomes (LO), content outline, student-references, assessment modes with relevant weightages etc. Each LO should be assigned with a per-unit weight (for example based on the number of hours allocated for each LO) to indicate the relative emphasis placed on the LO within the module (sum of all weights of LOs should be unity for a given module). Module Descriptor must include Table NT2 to show the linkage between individual LOs and the programme outcomes (POs), and also the linkage of the module as a whole with the POs. The curriculum should include Table NT3 to show the mapping between individual modules and POs, and finally the mapping of the total program with the POs.

Table NT2: Mapping of individual LOs of a Module to POs:
LO = Learning Objective or Intended Learning Outcome of each module, as stated in the Curriculum
PO = Programme outcomes as stated in the Curriculum
H = Level of mapping that indicates LO is directly fulfilling the expectations of the PO
M = Level of mapping that indicates LO is substantially fulfilling the expectations of the PO
L = Level of mapping that indicates LO is moderately fulfilling the expectations of the PO
The level of mapping of individual LOs of a module to the individual POs of the program should be indicated using one of H (High), M (Medium), L (Low) or blank if mapping is insignificant. The chosen level of mapping should be evident from the wordings of the LO (substantiated by the module content) with regard to its linkage with the PO.

Summing up of H, M and L in a given column of PO, in order to find the resultant mapping of the module to that PO, should be done according to the criteria given below.

Take the score of H, M and L as 100, 60 and 40 and add up the products of $(\text{Per unit weight of LO} \times \text{Score})$ for the column. If the (result $\geq$50) then the mapping will be H, if (50 $>$result $\geq$ 30) then M, if (30 $>$ result $\geq$ 20) then L, and if (result $<$ 20) then none.

Rational: At least 50% of the total no. of LOs should me making H level contributions to achieve an H level mapping of a module to a PO (referring to a case of equally weighted LOs).

(Each LO in this example Table is assumed to have equal weight of 0.25)

	PO1	PO2	PO3	PO4	PO5	PO6	PO6	PO7	PO8	PO9	PO10	PO11	PO12
LO1 (0.25)	H	H		M				L			M		L
LO2 (0.25)	H	M	L	M	L	H		L	L		M	M	H
LO3 (0.25)	M							M					H
LO4 (0.25)	M		H		M		L		L		L		
Module	H	M	M	M	L	L		M	L		M		H

Table NT3: Mapping of all modules of the entire program to POs:
Last row of each NT2 Table for individual modules (see Notes 1, 2 and 3) make up successive rows of NT3 Table. Summing up of H, M and L in a given column of PO, in order to find the resultant mapping of the full program to that PO, should be done according to the criteria given below. For a recognized program the resultant mapping of each column of PO should be H.

Take the score of H, M and L as 100, 60 and 40 and add up $(\text{No. of Credits for Module} \times \text{Score})$ for the column of PO. If $\text{Result} \geq 1800$ then the mapping will be H, provided that at least one entry in the column is at level H.

Rational: At least 6 modules should be making H level contributions to achieve an H level mapping of the program to a PO (referring to a case of 3 Credits modules).

If $\text{Result} \geq 1800$ **but** not having an H level entry in the column then mapping will be M
If $1800 > \text{Result} \geq 1080$ then mapping will be M
If $1080 > \text{Result} \geq 720$ then mapping will be L
If $\text{Result} < 720$ then mapping will be none

(Each module in this example Table is assumed to be 3-Credit module.)

Module	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
M.1	H	H		M	L		H	L	H	M		L
M.2	H	M	L	M	H	H		M	M	M	M	L
M.3	M	L		L		H	M	M	L			L
M.4			H		H	L	L	H	L	L	H	L
M.5	L	H	H	L	M	L	L			H	H	L
M.6	M		M		L	L	H	M	M	H		H
M.7		M			L	L	L	M		H	M	L
M.8	H		M	M	M	L		M	L			M
M.9	H	L	H		H	L	L	M	L	L	L	L
			M	H		L	M	M	L		L	
		H		H	M		M	M	L	H	L	L
		L	M	H	M	M	L		M		M	
			L	M		M	L		L		H	L
M.40	M	M							L			H
Program	H	H	H	H	H	H	H	H	H	H	H	H

Note1: All compulsory modules must appear in NT3 Table.
Note2: Elective modules must appear as "elective-baskets" with respective Nominal number of Credits for the basket and representative mapping of the basket as a composite module. It is expected that modules in a given basket make similar contributions to POs.
Note3: Optional modules must not make rows of NT3 Table.

RA.3.5.3(a) Major Individual Project

Outline the arrangements for project allocation, supervision, marking and moderation. A list of final year project titles and marks, together with mean and standard deviation, should be given for the most recent year available. What are the implications for a student who fails the project?

RA.3.5.3(b) Comprehensive Design - Group Projects

Provide details of the Comprehensive Design Projects. State the average number of students in each group and show the marking arrangements for individual assessments. Also, outline the arrangements for project allocation, supervision and moderation. A list of Comprehensive Design Project titles and marks, together with mean and standard deviation, should be given for the most recent year available.

What are the implications for a student who fails a comprehensive design project?

RA.3.5.4 Progression of Engineering Design Experience

State how the concepts of engineering design are introduced into the programme and outline the progression of learning sequence of design exercises and individual / group projects, including any design-make-test work and how the design is assessed.

RA.3.5.5 Non-technical Subjects

Describe the opportunities offered for the study of non-technical subjects, such as business and social aspects of engineering, including law, humanities, finance, management development, health and safety, environmental responsibilities, foreign languages and any other complementary subjects, and give details of the assessment methods

RA.3.5.6 Communication Skills of Students

Describe briefly how the following skills are developed and assessed:

(a.) standard of English used in written work
(b.) oral communication skills
(c.) drawing and sketching abilities or other relevant forms of visual communications, including use of computer-aided design
(d.) group working skills
(e.) engineering problem-solving skills
(f.) project management skills

RA.3.5.7 Industrial Visits, industry speakers and / or Field Courses

Give brief details of industrial visits and / or field courses (particularly, residential field courses) or any other provision by the Institute for students to obtain relevant experience off the campus. How do these experiences contribute to the degree result? Give the names of staff members responsible.
Provide details of all presentations by industry specialists in the programme, and where in the programme structure these experiences are provided, for the last twelve months.

RA.3.5.8 Industrial Training, Placements / Experience, Sandwich Year

(a.) Industrial Training
Give brief details of industrial training and placements, how these are monitored and the names of staff members responsible. Does the industrial training or the sandwich year contribute to the degree result? How is this industrial training and placement assessed?

(b.) Full-time/Part time Programme
(i) Is there a compulsory element in the full-time/ Part-time programme for students to undertake an industrial placement or gain industrial experience?
(ii) If not, how many students have not had any experience on graduation? Give the figures for the last three graduating years

Industrial Experience - Full-time Programme	**20__**	**20__**	**20__**
Number of students on full-time programme who have not had any industrial experience			
Total number of students graduating from full-time programme(s)			

RA.3.5.9 Industrial Consultative Committee (ICC)

Please state membership, when it was established and how frequently the committee meets

(a.) Provide the agenda and minutes of the previous five meetings
(b.) Show how Industrialists contribute to programme design and content development
(c.) Outline the industrial input to the delivery of the programme(s)

Give details of Guest Lectures by visiting speakers from industry, and state whether attendance is compulsory

RA.3.5.10 Period of Study Overseas

Give brief details of any period of time spent overseas, indicating the length of time spent abroad and in which institution. Outline the arrangements to ensure that the study is compatible with that in the home Institute, and show how it is assessed. Does this period contribute to the degree result?

RA.3.5.11 Tutorials

Give brief details of tutorial arrangements including purposes of the tutorial system (e.g. subject, overall academic review, practical, etc. State the size of tutorial groups, student-staff contact hours etc.

RA.3.5.12 Inter-departmental Teaching, External Teaching / Lectures

(a.) State which subjects are taught by the staff from other departments or other institutions, and give brief details of any franchise arrangements. Give brief details of the arrangements for assessment
(b.) Give details of any lectures delivered off campus

RA.3.6 Entry Standards

RA.3.6.1 Published Requirements

Give the published entry qualifications requirement

RA.3.6.2 Student Entry Qualifications

(a.) Please give, for each of the last three years, the actual qualifications and subjects of each student admitted to each programme. Give details of the qualifications offered by overseas students.. (This information may be given as an annexure)
(b.) Please provide, for each of the last three years, a histogram of the entry points score for 'A' Levels

RA.3.6.4 Direct Entry to Second or Higher Years

Give the qualifications required for direct entry to each year of the programme other than the first year. Provide information on the credit transfer policy applicable to these students.

RA.3.6.5 Selection Procedures

(a.) Describe briefly the procedures adopted for admitting potential students. State whether all students are interviewed, and give the policy adopted for overseas applicants

(b.) Please indicate the following for each of the past three years' entries

	20__	**20__**	**20__**
1.Total number of applicants			
2.Number of students interviewed			
3.Offers made			
4.Planned intake			
5.Actual intake			

RA.3.7 Progression and Classification

RA.3.7.1 Progress through the programme

Please complete a flow diagram showing the last three complete cohorts (groups of students working together through the same academic curriculum) through the system and a separate sheet for the last three intake years if these are different. Show clearly the progress of students through the programme for each option:
(a.) direct entrants
(b.) repeat students from previous years (referred students and failures)

RA.3.7.2 Methods of Assessment

(a.) Give details of the programme assessment / examination procedures / systems including the relevant weighting for examinations, projects, industrial training and other coursework and the weighting for each year's results

(b.) Give details of pass marks, grades and any provision for compensation, together with referral procedures and opportunities to re-sit examinations. What are the arrangements for resubmitting coursework and project work? What are the arrangements for making up deficiencies in training?

(c.) What are the conditions governing progression from one semester/year to the next through the programme?

(d.) State the criteria for the award of Classes; e.g. predetermined percentages of candidates, predetermined boundaries as percentage marks

RA.3.8 Student Involvement in Professional and Other Bodies

RA.3.8.1 Professional Bodies

(a.) Explain how students are introduced to their relevant Professional Institutions

(b.) What proportion of the cohorts are members of Professional Institutions or Societies?

20__			20__			20__		
Inst./Soc.	**Number**	**Percent**	**Inst./Soc.**	**Number**	**Percent**	**Inst./Soc.**	**Number**	**Percent**

RA.3.8.2 Institute, Faculty and Department Societies/ Committees

Please provide details of activities and number of students involved

RA.3.9 Destination of Graduates

Please indicate the employment category of the graduates for each of the last three years

	20__	**20__**	**20__**
1. Employment in the engineering discipline oroccupations relevant to the degree programme			
2. Commercial, financial, non-engineering employment			
3. Engineering education / research / further study			
4. Unemployed / temporary work			
5. Returned to own country			
6. Not known			
Total number in the cohort			

RA.3.10 Staff

A.3.10.1 Staff Profile

Provide a listing of all academic staff who teaches in the Institute of Engineering, indicating their qualifications (degrees, professional memberships, honours and other post nominal). Include adjunct staff, and visiting or part-time staff who have principal responsibility for subjects. For the adjunct and visiting staff, give the titles of their substantive appointments.

Indicate numbers of visiting staff who perform supporting roles (i.e., do not have principal responsibility for subjects) and typical occupational categories e.g., practising engineers, other professionals, research students.
Discuss the competency of the teaching staff to cover all areas of the curriculum, and indicate any strategies for reinforcing areas of weakness, staffing new areas of specialisation, and succession planning for academic and organisational leadership.

Provide information about other units of the Institute, which teach subjects in the engineering programme(s), and about any staff outside the Institute who have responsibility for substantial elements of the engineering programme(s).

For any programme or pathway conducted substantially outside the Institute (e.g., contracted to another Institute, or remote campus with different staff), describe the staffing arrangements that apply, and the methods used by the Institute to assure itself of the capabilities of the staff involved.

RA.3.10.2 Staff Policy

Outline the Institute policies in relation to staff, including:

- appointment;
- promotion;
- supervision and staff counselling;
- appointment, supervision and counselling of visiting staff;
- professional development of staff; and
- any merit-based reward systems

Describe the Institute's arrangements for managing staff workloads indicating the approximate proportions of academic staff activity devoted to undergraduate teaching, postgraduate teaching, student consultation and counselling, research and research supervision, consulting and other professional activity, developmental programmes and administration.

Provide information about the number of staff undertaking professional development programmes, and the range of programmes undertaken.

RA.3.10.3 Teaching and Research Staff

Please provide the details shown below for each member of the academic staff and visiting industrial lecturer involved in the programme.
Ensure that details of all industrial experience are provided.
This information may be presented in any format suitable to the Department provided that it is brief and addresses all the requirements.
Under 'Research' the columns refer to
(a.) the number of research students currently supervised
(b.) the number of refereed research papers published in the last five years
(c.) the number of non refereed research papers published in the last five years

Name	Present post & date of joining establishment	Academic Qualifications	Membership of Professional Bodies or Societies	Professional Duties (eg External Examiner)	Brief résumé (with approx. dates of industrial experience incl. any current activities	Present teaching subject(s) and student contact hours per year	Research		
							a	b	c

RA.3.10.4 Summary of Professional Qualifications of Teaching and Research Staff

The total number only for each Institution or Society is required

Institution / Society	Chartered Engineers	Graduate Engineers(minimum 4 year degree)	Other membership

RA.3.10.5 Staff Development Policy including Continuing Professional Development (CPD) Requirements

Brief details of Policy

(a.) Please specify funding details for staff training / development
(b.) Give examples of staff attendance at conferences and seminars (in the past two years)
(c.) What is the take-up of staff development opportunities?
(d.) Are all staff eligible, or, is staff training / development confined mainly to new members?

RA.3.10.6 Student / Staff Ratio

(a).Give the departmental equivalent full time staff / student ratio based on full-time equivalent staff involved in delivering the programme and students. Department full time staff, staff teaching support subjects from other departments and industry/sessional/part time staff must be clearly distinguished

EQUIVALENT FULL TIME ACADEMIC STAFF TO STUDENT RATIO	TOTAL EQUIVALENT	DESCRIPTION
A) Total number of full time active staff for undergraduate teaching into this programme. (Note: this does not include staff on study leave or research only staff. For staff on sabbatical leave, 0.2 deduction should be made per member for each year of leave falling within the 5 year period considered for recognition)		Attach evidence of EPF or pension scheme of each member.
B) Full time equivalent of academic staff serving on sabbatical leave, or contract basis		0.2 contribution per member per year within the 5 year period considered for recognition
C) Full time equivalent of academic staff from other programmes serving this programme		0.2 contribution per year for teaching at least one full module in each semester (Pro-rata, if not)
D) Full time equivalent of part time academic staff serving this programme		0.2 contribution per year for teaching at least one full module in each semester within the 5 year period considered for recognition. (Pro-rata, if not). (Claim from this category is limited to 10% of the total fulltime equivalent staff)
E) Total Full time equivalent academic staff = A + B + C + D		
F) Total Full time equivalent students		
G) Full time equivalent staff to Student ratio = E:F		When an academic department offers more than 1 degree program, and when the staff cannot be uniquely identified to individual degree program, the staff:student ratio must be computed with respect to the entire student population in the department and the entire no. of equivalent full time academic staff in the department.

RA.3.10.7 Support / Technical Staff

(a.) Please give the technical staff / full time academic staff ratio for the Department.

(b.) Explain clearly how this figure is derived

(c.) Give details of all relevant technical staff, differentiating between permanent [P] and short-term research support staff (R). In a large department, a summary by grade will suffice

Name	Qualifications

RA.3.11 Research, Consultancy and Postgraduate Programmes

RA.3.11.1 Research

Give details of the research and development projects carried out within the Department during the last three years. The details should include

(i) the title and focus of the project
(ii) the value and period of the project
(iii) the way research influences teaching and student work

RA.3.11.2 Consultancy

Give details of the consultancy work carried out within the Department during the last three years. Details should include

(i) examples of clients
(ii) the total value
(iii) the way consultancy work influences teaching and student work
(iv)

(The information in A.3.10.1 and A.3.10.2 may be presented in any format suitable to the Department, provided it is brief. However, item (iii) should be included on this submission form. For a large Department a summary is acceptable.)

RA.3.11.3 Postgraduate Programmes and Short Courses

Give details of related postgraduate programmes and in-career courses offered by the Department, including the number and duration of courses and the total number of students on each course, for the past three years.

RA.3.12 Resources

RA.3.12.1 Facilities

Give briefly, details of the resources, which are available to students, in each of the areas designated, and any changes since the last visit. Indicate how many students can be accommodated in laboratories / workshops, design / drawing facilities, library and computer facilities at any one time. What facilities are available for students for their final year projects and comprehensive design projects?

Resources – Provide brief details	Access (availability other than for timetabled work i.e. evenings, weekends)
Laboratories / Workshops	

Details of annual expenditure on equipment or major expenditure on laboratories / workshops Explain how the laboratory equipment is being sustained/upgraded.	
Drawing / Design Facilities including special software applications	
Provide details of annual expenditure on equipment or major expenditure on drawing / design facilities	
Library	
Please give details of annual expenditure on (a.) journals (b.) books (c.) other Give details of the online journals that students and staff can access	
Computing Facilities	
State (a.) number of computers within the Department (for students and staff separately) (b.) number of computers within the Institute to which students have access (c.) How often is equipment replaced? (d.) Specialist software available to students and staff	

Resources – Provide brief details Include details of what facilities are available in these rooms, i.e. computers, overhead projects, data projectors etc	**Access** (availability other than for time tabled work i.e. evenings, weekends)
Study Rooms	
Lecture Rooms	

Details of space of Facilities

Space of Laboratories

Laboratory	Number of lab-sessions per batch	Number of students per lab-session	Floor area in m2
1.			
TOTAL			

A session to be minimum of 2 hours duration

Teaching and other student spaces

Facility	Usage Description such as lecture hall, examination hall, study area, library, restrooms, circulation space etc.	Number of student occupied by the facility at a time	Floor area in m2
1.			
TOTAL			

In the case of common facilities with other programs the effective space shall be calculated based student numbers (the student number of program applied/Total number of students of the Faculty)

** Generally, the world universities maintain an approx. space of 10m2 per student.

RA.3.12.2 Income to Support the Teaching Programme

Please give figures for the last five years

	20__	**20__**	**20__**	**20__**	**20__**
Income					
Government					
Research / Consultancy					
Student Fees					
Other – Please specify					
Total					

RA.3.12.3 Resource Changes

Please state anything distinctive or unusual about the resources for the programme - e.g. new or refurbished accommodation or major equipment, shortage of space or difficulties over sharing space.

RA.3.13 Quality Assurance and Systems

(i).Give a brief statement on teaching quality assurance procedures within the Department and state how they relate to the institutional QA requirements. Include information on

(a.) maintenance and improvement of standards of lectures and other modes of teaching and learning, assessment and examinations;
(b.) programme review procedure;
(c.) moderation of examinations, students' work, including monitoring and feedback;
(d.) assessment of industrial training
(e.) the role of the External Examiner

(ii). Provide records of the examination, curriculum development or other meetings as evidence on how QA procedures have been developed and the action taken by the Department to implement QA procedures.

(iii) Provide in digital form the QA policies for the above procedures.

Description	Number (achieved)	Total Number (declared)	Percentage
Field visits			
Moderation Examination papers			
Model answers Examination papers			
Peer Review of Modules			
Student feedback of Modules			

RA.3.14 Future Plans

RA.3.14.1 Planned Changes

Give details of any major changes planned or intended in the programme structure or content, facilities, equipment, staff or student intake. What are the implementation dates?
(Changes to the curriculum that are agreed department policy and to be implemented within the period for which recognition is being sought should appear in Section 3).

RA.4 INFORMATION TO BE MADE AVAILABLE

As a guide for the applicants, the following sections describe the format of information to be made available to the Panel. Additional information may be provided in support of the application.

For the Evaluation Panel visit the following information must be made available:

- Copies of all current promotional literature
- A list showing the name/s of the staff member/s currently responsible for delivery of each academic module
- For a full range of example academic modules at each year level and for each module, a dossier of materials including the module outline document distributed to students, examples of teaching materials and resources, examples of formative and summative assessment materials including examination papers, and specifications for assignments, projects and laboratory activity, examples of a range of graded student work including submissions and examination scripts, journals and portfolios, professional practice log books. Examples of low, medium and high achievement should be available, demonstrating a distinction in grading across the various performance thresholds. A full list showing the range of grades awarded for this module last time it was run.
- Of particular interest are graded student design and project reports/thesis submissions at various year levels. Displayed materials should be organised clearly against year levels and the records for each academic module separately identified. The range of displayed materials should be selected in order to demonstrate the delivery of the full range of generic capabilities in graduates including a clear indication of the standard of technical competence.
- Prime documentation associated with teaching and learning planning, review, management and quality improvement should be made available. Any appropriate records of formal proceedings, reports and submissions, trend and data analysis, quality system records or evidence of action implemented should be presented for perusal. This should include records of meetings of programme teaching teams, staff-student consultative forums, industry consultative committees body meetings, key documents associated with formal programme reviews as well as appropriate meeting records and documented action follow ups at all organisational levels.
- Details of any stakeholder surveys including teaching quality and module/programme evaluations, student destination surveys, employer or graduate surveys. As well as access to the survey instruments, any outcome summaries, subsequent reporting, follow up action and information describing influences this data has had on the continuous improvement processes should be presented.

- Available department and/or research annual reports.
- Access to the department's records management system.
- Access to the institution's and/or engineering department's human resource policy documents, including:
  - appointment and tenure (an example of selection criteria would be welcome);
  - promotion (an example of promotion criteria would be welcome);
  - professional development – as an engineering academic and professional educator;
  - supervision and staff counselling;
  - appointment, training, supervision and counselling of sessional staff; -any merit-based reward systems.

APPENDIX RB

TYPICAL ACADEMIC PROGRAMME CONTENT

APPENDIX RB

ACADEMIC PROGRAMME CONTENT

Note: These subject combinations are typical examples provided for information only. The specific programmes may select their own curriculum to deliver the programme outcomes.

(a) Engineering Science and Principles

RB 1: Recognized programmes will be expected to cover, at an appropriate level, the broad areas of:

CIVIL	MECHANICAL	ELECTRICAL	CHEMICAL	ELECTRONIC	COMPUTER	TEXTILE & CLOTHING	EARTH RESOURCES	MATERIALS
Strength and properties of materials	Manufacturing systems and industrial engineering	Circuits and systems	Chemical thermodynamics and kinetics, Process stoichiometry	Signals and systems	Computer systems	Properties of textile materials	Exploration, mining and testing of earthen materials	Engineeringmaterials,Mechanicsof materials
Applied mechanics: Statics and dynamics	Mechanics of machines and control systems	Electrical machines and drives	Transport phenomena, Heat, mass and momentum transfer	Electronics (analog, digital and physical)	Software engineering	Yarn and fabric manufacture	Applied mechanics	Applied mechanics: Dynamics
Structural analysis and design	Mechanics of solids	Electrical power systems	Separation process and particle technology	Communication systems	Operating systems	Textile engineering	Structural analysis of minerals	Mechanical behaviour of materials
Fluid mechanics and hydraulic engineering	Fluid mechanics	Electronics principles and power electronics	Chemical reactor engineering	Wave propagation	Computer architecture	Chemical processing of textiles	Remote sensing and GIS	Fluid mechanics and thermodynamics
Soil mechanics and geotechnical engineering	Thermodynamics	Computer systems, fields and waves	Process analysis and control, Safety analysis and control	Computer systems	Computer networks	Computer systems, fields and waves	Geology	Electrical & magnetic properties of materials
Construction planning, technology and management	Machine elements and design	Control systems	Material science and technology	Control systems	Theory of electricity, Principles of electronics	Textile testing and quality control	Gemmology	Failure analysis and selection of materials

RB 2: Alongside these basic subjects, there must be a study of the principles and applications of:

CIVIL	MECHANICAL	ELECTRICAL	CHEMICAL	ELECTRONIC	COMPUTER	TEXTILE &CLOTHING	EARTH RESOURCES	MATERIALS
Geology	Energy and the environment	Power system analysis	Material and energy balance flow sheeting	Electronic system analysis and design	Object oriented programming	Control systems and automation	Hydrology	Materials and ceramic sciences
Environmental engineering	Electrical power and machines	Electrical drives and applications	Polymer science and engineering	Computer architecture	Databases	Yarn and fabric Mechanics	Mining Methods	Characterisation of materials
Highway and transportation engineering	Measurement and Instrumentation	Measurement and instrumentation	Plant and equipment design, Piping and instrumentation	Electronic measurement	Data communication	Financial management, Human Resource management	Mine Ventilation	Process and Polymer Engineering
Water resources	Electronics and microprocessors	Electrical protection systems	Energy systems – conservation and management	Electronic control and instrumentation	Microprocessor based systems	Non-wovens and technical Textiles	Rock blasting	Ferrous/non-ferrous metals and alloys
Surveying	Automobile engineering	High voltage Engineering	Biotechnology, Biochemical and food process engineering	Internet technology and applications	MIS and professional practice	Environmental Management	Surveying, Environmental aspects	Design and fabrication of polymer products
Project management	Computer aided design	Electrical energy utilisation	Viability, legal framework and reliability		Data structures and algorithms	Operations management and MOT	Mine management	Degradation of materials

These are supporting studies without which an engineer will lack some of the understanding, which is necessary to be able to practice effectively across a broad spectrum of industries and functions.

(b) Mathematics, Statistics and Computing

RB 3: These subjects should be studied to a level necessary to underpin the engineering subjects of the programme and with a bias towards application in the teaching. The use ofnumericalmethods of solution is encouraged, with an appreciation of the power and limitations of the computer for modelling engineering situations. Wherever practicable, it ispreferred that mathematics, statistics and computing be taught in the context of their application to engineering problems, and it follows that some mathematical techniquesmay be learnt within other subjects in the programme. In addition to the use of computers as tools for calculation, analysis and data processing, courses should introduce theirapplication in such areas as:

CIVIL	MECHANICAL	ELECTRICAL	CHEMICAL	ELECTRONIC	COMPUTER	TEXTILE & CLOTHING	EARTH RESOURCES	MATERIALS
Computer aided analysis and Design	Computer aided design and manufacture	Mathematical applications	Computer aided analysis and design	Mathematical applications	Mathematical applications	Computer aided design	Computer aidedanalysis anddesign	Computeraided analysisand design
Economic analysis for decision making	Numerical methods	Statistical techniques	Economic analysis for decision making	Statistical techniques	Statistical techniques	Statistical techniques	Economicanalysis fordecision making	Economicanalysis fordecisionmaking
Data base manageme nt	Programming techniques	Computer aided design	Databases and information systems	Computer aided design	Numerical computations	Information systems	DatabaseSystems	DatabaseSystems
Manageme nt information systems	Operational Research	Electrical properties of materials	Operational research	Software engineering	Automation	On-line control of production systems	Minedevelopment	Operationalresearc h
Business and manageme nt systems	Industrial economics and management	Management systems	Business and management systems	Management systems	Systems analysis and design	Management and marketing systems	Managementsyste ms	Managementsyste ms
Statistical techniques	Mechatronics	Numerical computation	Numerical methods	Numerical computation		Operational research	Numericalcomputa tions	Numericalcomputa tions

(c) Engineering Applications - Materials, Design, Manufacture, Construction

RB 4: Emphasis on engineering applications in a degree programme aims to ensure that all engineering graduates have a sound understanding of up-to-date industrial practice, and in particular:

Civil Engineering

- To appreciate the characteristic and structural behaviour of materials in a variety of user environments;
- To be able to analyse and design structural components from these materials;
- To appreciate the range of construction methods currently available and the skills which they require in people;
- To appreciate the cost aspects of material selection, construction methods, operation and maintenance in their interaction with design and product marketing;
- To understand the whole process of industrial decision-making in design, construction and use, and how it can be influenced not only by technical ideas but also by the practical constraints of financial and human resources and by the business and social environment of engineering.

Mechanical engineering

- To appreciate the characteristic behaviour of materials in a variety of user environments;
- To appreciate the range of manufacturing methods currently available and the skills which they require in people;
- To appreciate the cost aspects of material selection, manufacturing methods, operation and maintenance in their interaction with design and product marketing to understand the whole process of industrial decision-making in design, manufacture and use, and how it can be influenced not only by technical ideas but also by the practical constraints of financial and human resources and by the business and social environment of engineering.

Chemical engineering

- To appreciate the characteristic and structural behaviour of materials in a variety of user environments;
- To be able to adopt these materials in process design and analysis;
- To understand the general sequence of processing steps for any given type of chemical process;
- To calculate and analyse the material and energy flows for a given chemical process;
- To understand the selection or estimation of process operating conditions, selection of process equipment, maintenance and process troubleshooting;
- To analyse the various types of unit operations and processing steps, and to decide on their relative advantages and disadvantages on the basis of environment, economics, safety and operability;
- To understand the various process control schemes for the purpose of maintaining production quality, ensuring process safety and preventing waste.

Electrical and Electronic engineering

- To appreciate the characteristic behaviour of materials in electrical and electronic systems;
- To be able to analyse and design electrical and electronic systems from devices / components made of various materials;
- To appreciate cost effectiveness of component / device / equipment / material selection, manufacturing process and integration process, operation and maintenance;
- To appreciate the range of manufacturing and processing methods currently available and the skills which they require in people;
- To understand the whole process of industrial decision-making in design, manufacture and use, and how it can be influenced not only by technical ideas but also by the practical constraints of financial and human resources and by the business and social environment of engineering.

Computer Science and Engineering

- To appreciate the characteristic behaviour of hardware, software and networking systems;
- To be able to analyse and design hardware, software and networking technologies, and to use them in the design of information systems to achieve required goals;
- To appreciate the range of methodologies available for the development of hardware, software and networking systems;
- To appreciate the importance of improving performance of hardware, software and networking systems;

- To understand the process of information technology, and how it can be influenced not only by technical ideas but also by the practical constraints of financial and human resources and by the business and social environment of engineering.

Textile and Clothing Process Engineering

- To appreciate the characteristics and structural behaviour of textile materials;
- To be able to use textile materials in analysing, designing and fabricating textile structures;
- To appreciate the range of manufacturing and processing methods currently available, and the skills they require in people;
- To understand the general sequence of processes and material flow of any textile / clothing manufacturing system;
- To understand the various process control schemes for the purpose of maintaining quality of production and optimising production;
- To understand the whole process of industrial decision making in the analysis, design, manufacture and use, and the influence of constraints such as financial, human and environmental, on the decision making.

Earth Resources Engineering

- To appreciate the characteristic behaviour of earth resources in a variety of user environments;
- To be able to understand the general sequence of steps in the processing of earth resources;
- To appreciate the range of mining, processing and testing methods currently available, and the skills that they require in people;
- To analyse and design ventilation systems for underground mines;
- To understand the environmental effects of mining and the mitigatory measures, surveying, remote sensing and GIS applications for decision making, and how it can be influenced not only by technical ideas but also by the practical constraints of financial and human resources and by the business and social environment of engineering.

Materials Engineering

- To be able to understand the structure-properties relationship of engineering materials and the basics of materials science in order to predict performance at the design, manufacture and in-service stages in the core areas of polymers, ceramics, metals and composites;
- To be able to apply scientific and engineering principles to ensure that materials are selected, processed, fabricated and used to achieve their intended performance;
- To appreciate the materials process technology with cost effective materials selection, manufacturing methods, product design and marketing and industrial maintenance;
- To develop competence in laboratory work, ability to use information technology and a high level of skills in communication and presentation;
- To understand the industrial environment for decision making, and how it can be influenced not only by technical ideas but also by the practical constraints of financial and human resources and by the business and social environment of engineering.

APPENDIX RC

EXTERNAL EXAMINER'S REPORT

EXTERNAL EXAMINER'S REPORT

The main objective for having an External Examiner is to benchmark each programme of study to internationally accepted levels. Therefore, the external examiner's report should contain, but not be limited to, the following:

(i) Assessment of staff quality including qualifications and industrial exposure. Also to assess loading of each staff in teaching, research, consultancy and supervision of student projects.

(ii) Assessment on staff / student ratio. If not sufficient, the corrective action to be taken by the Institute to correct as noted.

(iii) Assessment on the process of preparation of question papers i.e., procedures for setting, vetting, Quality assurance, confidentiality and security.

(iv) Assessment on the question papers and marking schemes set for the last two semesters of the course The standard of questions, coverage of syllabus, adequate balance between theory and application, questions set are of equal level, adequate choice of questions, appropriateness of marking scheme.

(v) Assessment on the marked answer scripts from a sample of good, average and weak candidates. Assessment of the fairness / disparity of marking, whether follow-through method is adopted where one section of the answer is incorrect; the response of the candidates to the questions, the distribution of marks.

(vi) Assessment on coursework, laboratory work, assignments, design projects and final year projects.

(vii) Assessment on examination regulations available

APPENDIX RD

EVALUATION REPORT FORMAT

APPENDIX RD

EVALUATION REPORT

RD I. GENERAL INFORMATION

A. INSTITUTE

1. Name of the Institute:
   .....
2. Title of Programme for Recognition:
   .....
3. Visit Date:
   .....

B. EVALUATION PANEL MEMBERS

1. Chairman: .....
2. Members:
   (a.) .....
   (b.) .....
   (c.) .....
   (d.) .....

3. IESL Official (if any):
   .....

C. ACTION SINCE LAST EVALUATION

1. Date of last evaluation: .....
2. Action taken to address shortcomings identified at the last review: Acceptable / Not acceptable

Comments:

.....

.....

RD 2. EVALUATION BASED ON CRITERIA

Please provide a brief description for each subheading relevant to each criterion and indicate the overall assessment on an ascending scale of 1 to 5 (1 – Poor, 2 – Satisfactory, 3 – Good, 4 – Very good & 5 – Excellent) under criteria 1 to 4

CRITERION No 1. Academic Programme	
Program Objectives and Outcomes:	
Program Structure:	**Overall Assessment**
Educational Process:	
Program Admin & Statistics:	
Staff:	

1	2	3	4	5

CRITERION No 2. Staff and Students	**Overall Assessment**
Educational Culture	**1** **2** **3** **4** **5**
Program Admin & Statistics	
Staff	

CRITERION No 3. Facilities available in Institute/Department	**Overall Assessment**
Educational Culture	**1** **2** **3** **4** **5**
Operational Environment	
Resources & Facilities	

CRITERION No 4. Quality Systems	**Overall Assessment**
Assessment	**1** **2** **3** **4** **5**
Quality Systems	
Operational Environment	
Programme sustainability inclusive of financial stability	

RD 3. EVALUATION PANEL ASSESSMENT REPORT SUMMARY

i) Commendations
ii) Strengths
iii) Weaknesses
iv) Concerns
v) Opportunities for improvement
vi) Any other comments

RD 4. RECOMMENDATION BY EVALUATION PANEL

A - Full Recognition for 5 years ☐

Comments:
……
……

B - Conditional Recognition ☐

Duration ☐ years

Conditions to meet:

(i)……
(ii) ……

- Comments,
  ……
  ……

D Not Recognized ☐

Comments:
……
……

Prepared and submitted by Evaluation Panel:

(i) Chairman……..Signature ……

(ii) Member……...Signature ……

(iii) Member……...Signature ……

(iv) Member……...Signature ……

(v) Member……...Signature ……

Date ……..

RD 5. ACTION BY EDUCATION STANDING COMMITTEE OF IESL (ESC)

A. Date Submitted to ESC:

……

B. Comments by the ESC:

(i) ……

(ii) ……

(iii)……

(lv)……

RD 6. ACTION BY INSTITUTION OF ENGINEERS, SRI LANKA

A. Report presented to the IESL Council on

……

B. Decision of IESL Council

……

C. Action to be followed:

……

(i) Finalize the 'Document to be forwarded to the Study Programme together with the Council Decision'.

This document should be the 'Conclusions' section of the Review Panel Report covering
(i) Commendations; and

(ii) Detailed Comments and Recommendations.

……
Signature
Executive Secretary, IESL
Date: ……

RD 7. ACTION BY THE SECRETARIAT

Recognition Certificate No.....was issued to .....

……

on :……