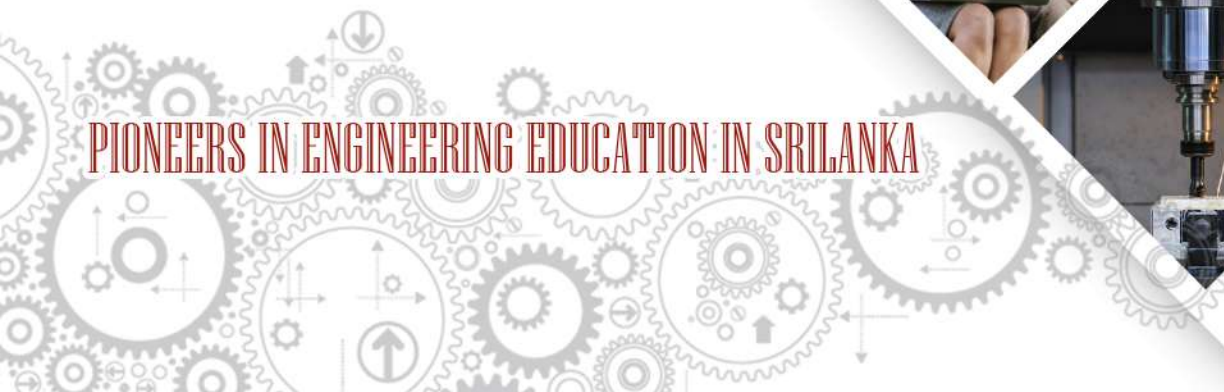


HANDBOOK 2022

FACULTY OF ENGINEERING
UNIVERSITY OF PERADENIYA



PIONEERS IN ENGINEERING EDUCATION IN SRILANKA



Faculty of Engineering, University of Peradeniya



(Photo credit to the staff of the Survey lab of the Department of Civil Engineering)

1. Administration building: Dean, Assistant Registrar, Assistant Bursar, Department of Civil Engineering and Department of Electrical and Electronic Engineering offices, Seminar Rooms 1-3, Conference Room, Audio-Visual Studio & Engineering Education Unit (EEU), PEFAA office, Faculty Boardroom, Senior Common Room,QA Cell.
2. Twin Lecture Rooms 2 & 3, Security Office
3. E.O.E. Pereira Theatre
4. Drawing Office I, Classrooms 12-21, English Language Teaching Unit (ELTU)
5. Department of Engineering Mathematics, Department of Engineering Management, Industrial Training and Career Guidance Unit (ITCGU), Computing Center, Network and Communication Services Unit (NCSU), Centre for Engineering Research and Postgraduate Studies (CERPS) and a few lecture rooms

6. Department of Chemical and Process Engineering
7. New Electrical and Electronic Engineering Laboratory
8. Car Park.
9. Department of Electrical and Electronic Engineering
10. Electrical and Electronic Workshop
11. Department of Computer Engineering
12. High Voltage Laboratory
13. Geotechnical Engineering Laboratory, Surveying Laboratory
14. Materials Testing Laboratory, Metallurgy Laboratory
15. New Environmental Engineering Laboratory
16. Fluid Mechanics Laboratory & Environmental Engineering Laboratory
17. Applied Mechanics Laboratory
18. Mechanical Systems Laboratory
19. Office of the Department of Mechanical Engineering, Applied Thermodynamics Laboratory
20. Engineering Workshops I
21. Engineering Workshops II
22. Car Park
23. Canteen
24. Department of Manufacturing and Industrial Engineering
25. Engineering Library. 24x7 Reading Room
26. Lecture rooms 10 & 11
27. Structures Laboratory, Lecture room 9, Male/Female washrooms
28. Drawing Office II, Lecture rooms 7 and 8, Engineering Design Center (EDC), Engineering Technology Incubation Center (ETIC), Students' Common Room

OFFICERS OF THE UNIVERSITY OF PERADENIYA

Vice-Chancellor : <https://www.pdn.ac.lk/vice-chancellor>

Deputy Vice-Chancellor: <https://www.pdn.ac.lk/deputy-vice-chancellor-2>

Deans of Faculties: <https://www.pdn.ac.lk/deans>

Registrar : <https://www.pdn.ac.lk/registrar>

Librarian: <https://www.pdn.ac.lk/librarian>

Bursar: <https://www.pdn.ac.lk/bursar>

OFFICERS OF THE FACULTY OF ENGINEERING

Dean

<https://eng.pdn.ac.lk/deans-message/>

Heads of Departments

Chemical and Process Engineering

https://eng.pdn.ac.lk/chemical/?page_id=314

Civil Engineering

<https://eng.pdn.ac.lk/civil/people/academicstaff.php>

Computer Engineering

<https://people.ce.pdn.ac.lk/staff/academic/>

Electrical and Electronic Engineering

<https://web2.ee.pdn.ac.lk/people/AcademicStaff>

Engineering Management

<https://eng.pdn.ac.lk/management/>

Engineering Mathematics

<https://eng.pdn.ac.lk/mathematics/otherpages/staff/staff.html>

Manufacturing and Industrial Engineering

<https://dmie.eng.pdn.ac.lk/academic-staff.html>

Mechanical Engineering

<https://eng.pdn.ac.lk/ME/About/#MeettheHead>

Assistant Registrar and office staff

<https://eng.pdn.ac.lk/deans-office/>

Senior Assistant Bursar and office staff

<https://eng.pdn.ac.lk/deans-office/>

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VISION AND MISSION

Vision

Faculty of Engineering will be the centre of excellence in engineering education and research in South Asia. The best student representative of geographical and cultural diversity, academic staff of the highest caliber, and excellent learning and research environment will ensure academic excellence and highest professional standard, nationally and internationally.

Mission

The Mission of the Faculty of Engineering is to acquire, promote, develop and disseminate knowledge of engineering sciences and its application to improve the quality of life and, in particular, to equip present and future generations with skills and attitudes to attain competence as professional engineers, and to interact with industry and community for sustainable development of humankind.

THE FACULTY OF ENGINEERING, UNIVERSITY OF PERADENIYA

The Faculty of Engineering, University of Peradeniya is the first engineering faculty in Sri Lanka. It was founded in 1950 and shifted to the present location at Peradeniya in 1964. The Faculty of Engineering is one of the nine Faculties of the University of Peradeniya, the most prestigious and most comprehensive university in Sri Lanka, located in a salubrious environment on the banks of the Mahaweli River and at the foothills of the Hantana mountain range.

The Faculty maintains its long-standing reputation for excellence in engineering education. The nationally and internationally accredited curriculum of the four-year full-time undergraduate degree programme of the Faculty leads to the degree of the Bachelor of the Science of Engineering Honours (BScEngHons). The curriculum has been planned to offer the students a rich engineering education through technical courses and non-technical courses of cross-disciplinary breadth, laboratory and design experience, project work, fieldwork and industrial training. The first semester covers common courses to all students and the subsequent seven semesters are devoted to courses in one of the six specialization programmes of engineering; Chemical & Process, Computer, Civil, Electrical & Electronic, Manufacturing and Industrial and Mechanical Engineering.

The Faculty also has several full-time and part-time postgraduate programmes leading to Postgraduate Diploma, Master of Engineering, Masters Degree, Master of the Science of Engineering, Master of Science, Master of Philosophy and Doctor of Philosophy. Postgraduate programmes are greatly supported by our collaborations with industry and several foreign universities. The Faculty keeps abreast with advancing technologies through research and development activities, staff training, hosting international conferences and meetings. Students and staff work closely with the industry through consultancy services, research projects, testing services and offering short courses and training programmes in various topics relevant to the industry.

There are eight established Departments of Study at the Faculty; Department of Chemical & Process Engineering, Civil Engineering, Computer Engineering, Electrical & Electronic Engineering, Engineering Mathematics, Engineering Management, Manufacturing and Industrial Engineering, and Mechanical Engineering. The academic programmes and services are conducted by these Departments and are supported by the Computing Centre, Engineering Library, Engineering Workshops, Electrical and Electronic Engineering Workshops, Engineering Education Unit, Industrial Training and Career Guidance Unit, English Language Teaching Unit and the Centre for Engineering Research and Postgraduate Studies.

In this residential university, students are blessed with a conducive environment to nurture rich human qualities, to broaden their horizon by interacting with fellow students of all the communities and all the faculties while enjoying student life. There are students from all parts of the country representing a wide cross section of society within this university. Moreover, engineering students have a proud tradition of active involvement in sports, societies and community services. Needless to say, all these provide an invaluable experience for the students in their future endeavours. Also, this welcoming experience from the diverse cultural and intellectual climate undoubtedly moulds them to live in harmony in our pluralistic society respecting social and cultural values and to be ethical citizens of Sri Lanka.

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UNDERGRADUATE PROGRAMME



The Faculty of Engineering offers a four-year full-time undergraduate programme leading to the degree of The Bachelor of the Science of Engineering Honours (BScEngHons). Admission to the undergraduate programme in the Faculty of Engineering is based on government policy on university admissions. The minimum requirements are passes in Combined Mathematics, Physics, and Chemistry at the GCE (Advanced Level) Examination.

The four-year full-time BScEngHons degree programme at the Faculty of Engineering comprises a common first semester and Specialization Programmes in the remaining seven semesters. A student can pursue studies in one of the following fields of specialization:

- * Chemical and Process Engineering
- * Civil Engineering
- * Computer Engineering
- * Electrical and Electronic Engineering
- * Manufacturing and Industrial Engineering
- * Mechanical Engineering

The structure of the undergraduate degree programme at the Faculty of Engineering is illustrated below in Fig 1.

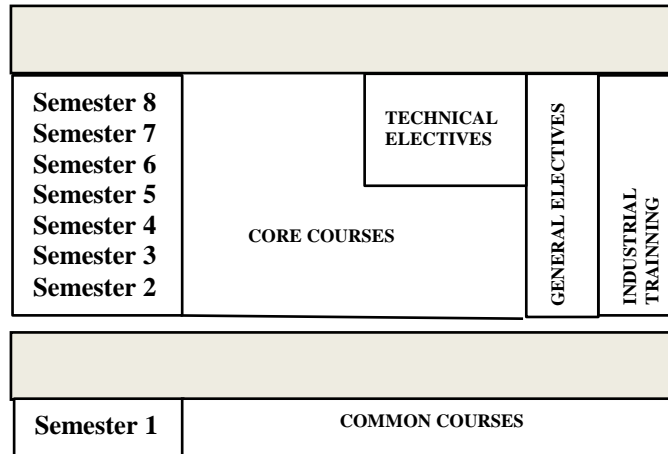


Fig 1 Programme structure

Each academic semester is normally made up of 14 weeks of teaching, a recess week and two-weeks long end-of-semester examination. The evaluation of the performance of a student in each course is carried out through continuous assessments and end-of-semester examination. The medium of instruction at the Faculty of Engineering is English.

The Rules and Regulations relating to the Degree of the Bachelor of the Science of Engineering Honours at the Faculty of Engineering are given in Annexure I.

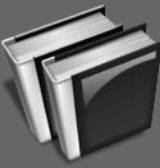


FIRST SEMESTER COMMON COURSES IN ENGINEERING

The first semester is common to all the students at the Faculty of Engineering. There are 6 courses to be completed under the engineering programme, which are given in Table 1 below.

Table 1: First Semester Common Courses

Course	Code	Credits
Engineering Mechanics	CE1010	3
Programming for Engineers I	CO1010	3
Electricity	EE1010	3
English for Communication I	EF1010	3
Ethics and Sustainability	MA1100	2
Calculus I	EM1010	4
Total		18



REMAINING SEVEN-SEMESTER PROGRAMME IN ENGINEERING

During the second, third, fourth, fifth, sixth, seventh and eighth semesters of the degree programme, the engineering students follow courses depends on the specialization field they have chosen at the end of their first semester of study. During seven semesters, they follow courses recommended for their respective fields of specialization and industrial training for a period of not less than 24 weeks, as specified in the Rules and Regulations given in Annexure I. These courses are grouped into two major categories as core courses and elective courses.

Core courses contribute to about 75% of the total credits earned during these semesters. Core courses are specific to the chosen field of study and are compulsory. Research and comprehensive design projects are open-ended projects carried out by an individual student or by a small group of students under supervision.

Elective courses are divided into technical elective courses and general elective courses. Technical electives are designed to give a deeper understanding of some selected areas within the core or to provide technical knowledge to supplement the core and are opened to the choice of the students. The core courses and technical elective courses offered by different departments are listed under each Department of Study. General elective courses offer the complementary study areas for the engineering degree programme and are listed under the Engineering Education Unit (EEU).

Students may also have the opportunity to register for a Minor Programme after their fifth semester of study - subject to availability and the approval of the Senate. The Minor will usually comprise 15 elective course credits.

Table 3.1: Credits to be earned in each category of courses of the specialised field of study

Field of Specialization	Courses/ Projects	Credits for BScEng Hons Degree	
Chemical and Process Engineering	Core courses	102	
	Regular core courses and design project		87
	Research project		15
	Electives courses	24	
	Technical electives		12
	General electives		12
Civil Engineering	Core courses	106	
	Regular courses		96
	Integrated design project		04
	Research project		06
	Electives courses	20	
	Technical electives		16
	General electives		04
Computer Engineering	Core courses	94	
	Regular core courses and design project		87
	Research project		07
	Electives courses	32	
	Technical electives		23
	General electives		09
Electrical and Electronic Engineering	Core courses	96	
	Regular courses		90
	Research project		06
	Electives courses	30	
	Technical electives		15
	General electives		15
Manufacturing and Industrial Engineering	Core courses	97	
	Regular core courses and design project		91
	Research project		06
	Electives courses	29	
	Technical electives		18
	General electives		11
Mechanical Engineering	Core courses	86	
	Regular core courses and design project		77
	Research project		09
	Electives courses	40	
	Prescribed Technical Electives for each track		15
	Other Technical Electives		15
	General electives		10
	Industrial Training	06	
Total			132

DEPARTMENT OF CHEMICAL & PROCESS ENGINEERING

The department offers a BScEngHons degree programme in the field of Chemical and Process (C&P) Engineering. Chemical and Process engineering graduates have the knowledge, understanding and skills required for the safe, sustainable and economical design, modification, operation, control and the effective management of small- and large-scale physical, chemical and bioprocessing plants. The products from these plants are as wide ranging as refined fuels, chemicals, processed food, composite and specialized materials, electronics and pharmaceuticals.

The graduates of the department are conversant in the knowledge and skills required for working with refrigeration and air conditioning technology, combustion and emissions technology, sustainable processing technology, energy technology and environmental pollution control technology. They have the knowledge, understanding and skills required for the use of appropriate mathematical techniques, equipment, and pertinent software tools and appropriate programming languages.

Courses offered in the department are designed to prepare its graduates to be gainfully employed at petroleum refineries, chemical manufacturing facilities, pharmaceutical industry, food processing industry, biotechnology industry, process-software development businesses, quality control and management authorities, industrial pollution control and environmental pollution abatement organizations, sustainable development initiatives and strategic development cells, and composite material using industries such as aerospace, automotive, biomedical, electronic, environmental and space industry.

The department provides courses in the fundamentals of chemical engineering and separation processes, theory and design of process equipment and energy systems, reaction and biological process engineering, industrial process technology, industrial safety and health, energy technology for process industry, industrial pollution control system design, industrial and advanced fluid mechanics, instrumentation and measurement, petroleum engineering, food process engineering and in the environmental management systems. The complete design of a selected process industry is carried out through two project-based core courses offered in the final year of study under the close guidance of the academic staff at the department. The department also provides supervision for undergraduate research projects in the project-based courses Independent Study and Process Engineering Research Projects. Courses of a broader interest involving thermodynamics, heat transfer, materials science, strength of materials, mechanics of machines and electrical power are provided with the support of other departments.

The department has the following seven well-developed laboratories for undergraduate, postgraduate and research work:

- Analytical Chemistry Laboratory
- Analytical Instrument Laboratory
- Biochemical Engineering Laboratory
- Computer Simulation & Design Laboratory
- Energy Engineering Laboratory
- Food Engineering Laboratory
- Pilot-plant Laboratories

The department possesses analytical instruments such as Gas Chromatograph, HPLC (High Performance Liquid Chromatograph), Atomic Absorption Spectrophotometer and UV/Visible Spectrophotometer.



Current research interests and activities of the department include environmental pollution control, image processing techniques, green productivity, cleaner production, sustainable development, combustion, renewable energy, energy conservation, energy economics, nanomaterials synthesis, biopolymers, biodiesel and bioethanol production, gasification, fluidised bed technology, drying and dryers.

The department provides research supervision for higher degrees leading to PGDip, MSc, MScEng, MPhil and PhD in chemical and process engineering and related fields, and a specialized postgraduate programme in Environmental Pollution Control Engineering (EPCEng).

Academic Staff: https://eng.pdn.ac.lk/chemical/?page_id=314

Course Structure: https://eng.pdn.ac.lk/chemical/?page_id=1499

DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering is the largest department in the Faculty and has produced about 50 percent of the engineering graduates from the Faculty. Civil engineering graduates are expected to play key roles in planning, designing, constructing and managing roads, bridges, dams, buildings and public utilities, water supply, sewerage, irrigation, drainage and pollution control schemes etc. The Civil Engineering curriculum covers a wide range of courses in three main areas:

- Materials and Structural Engineering which includes Properties and Mechanics of Materials and Structures
- Geotechnical and Transportation Engineering which includes Geotechnical Engineering, Engineering Geology, Surveying and Highway & Transportation Engineering
- Water Resources and Environmental Engineering, which includes Fluid Mechanics, Hydrology, Hydraulics and Environmental Engineering.

The Department also offers specialized courses in Computer Applications in Structural Engineering, Foundation Engineering, Water Resources Engineering, etc. as elective courses in the final year. Field visits, seminars and research projects form a part of the curriculum. Practical aspects of civil engineering are emphasised through laboratory, field and design classes, multidisciplinary design projects and a field camp.

The Department has the following laboratories with specialized up-to-date facilities for teaching, research and consultancy services:

- The Materials Laboratory is equipped with facilities for investigation of the physical, mechanical and durability characteristics of diverse types of materials used for engineering applications. The materials that the laboratory can handle are inclusive of cementitious products, ingredients of concrete and asphalt, metals, timber, polymers and ceramics. Services are also provided to the industry for quality management purposes.
- The Metallurgy Laboratory is equipped with facilities for investigating the impact and hardness, microscopic analysis using metallurgical microscopes and the atomic absorption spectrometer, x-ray views for investigating metals and heat treatments of metals.
- The Structures Laboratory has a strong floor of 6 m x 12 m with reaction frames supporting 500 kN and 250 kN static hydraulic jacks and 100 kN dynamic actuator capable of testing medium-scale experimental models and precast products such as Hume pipes, Manhole covers, Steel gratings, etc for relevant SLS, BS and other similar standards. The laboratory can also provide on-site structural testing facilities to measure deflections, strains, accelerations with online monitoring and data logging facilities for both static and dynamic testing.
- The Fluid Mechanics Laboratory is equipped with state-of-the-art wind tunnels, hydraulic benches specifically designed for flow and pressure transient measurements, tilting flumes with fixed and movable beds, wave flumes, a towing carriage with a tank, and other facilities for testing scale models. Additionally, the laboratory contains test rigs for examining the behavior of pipes, pumps, turbines, and fans. The primary purpose of these resources is to provide a comprehensive learning experience to undergraduate and postgraduate students in fluid mechanics, hydraulic and hydrologic principles, as well as to support research activities. High-end computer servers are also available for hydraulic and hydrology based modelling and CFD analysis to facilitate the teaching and research. Expert services are provided to the industry with a special emphasis in the areas of



physical and computational modelling, field measurements and testing works related to water resources development projects.

- The Environmental Engineering Laboratory comprises facilities for water and wastewater analysis, and a microbiological laboratory. The Laboratory has been fully equipped with state-of-the-art analytical instruments that have the capacity to cater to a wide spectrum of analytical service needs. Besides, the laboratory is equipped with the advanced technical and academic expertise related to the environmental engineering domain to cater to academic and industrial needs. Following specialized instrumentations are available: Atomic Absorption Spectrophotometer, Gas Chromatograph, HPLC Ion Chromatograph, HPLC Carbamate Analysis System, Organic Elemental Analyzer, Total Organic Carbon Analyzer and general water & wastewater quality parameter testing (BOD, COD, TSS, turbidity, MLVSS, etc).
- The Geotechnical Laboratory is equipped with facilities to carry out field and laboratory tests in the specialised fields of geotechnical engineering and engineering geology. Field tests include SPT, SCPT, DCPT, Seismic Refraction Test, Resistivity Test and, laboratory tests include Classification Tests, UU, CU and CD Triaxial Tests, Direct Shear Test, Consolidation Test, Compaction Test, CBR test, Permeability Test, Rock Shear Test, LAAV Test, Slake Durability Test, Soundness Test and Determination of Shear Wave Velocity. In addition, the laboratory provides computing services using state of the art software such as FLAC, Geostudio and Plaxis for the numerical analysis of many geotechnical engineering problems. A wide range of consultancy services is offered to the industry in all aspects of geotechnical analysis, design and site investigation.
- The Surveying, Highway and Transportation Engineering Laboratory is equipped with Total stations, theodolites, levels and electronic distance meters and GPS/GIS facilities for comprehensive land surveying and contouring. Furthermore, Benkelman beam, variety of surface roughness/ resistance testing equipment and weight bridges for highway pavement evaluations and all laboratory testing related to bitumen and asphalt are available in this laboratory (Marshall test, penetration, elongation, softening point, flash and fire point).
- The Computer-Aided Structural Analysis Laboratory with more than one hundred computers is used for teaching and research on the analysis of structural systems using finite element programs. Mainly, licensed versions of SAP 2000 and Midas FEA are available for linear and nonlinear analysis of structures for static and dynamic loadings.

Research carried out in the department can be classified under final year student projects, postgraduate diploma and master's degree projects, graduate studies by research students, and research conducted by the academic staff. Some of the current areas of research include: Structural behaviour under seismic loading; Structural health monitoring and retrofitting; Fatigue damage assessment for bridges; Mechanical behaviour of novel materials; Condition assessment of existing structures; Stability of landfills and gas diffusivity characterisation; Strength characterisation of railway ballast subjected to fouling; Stabilisation characteristics of soft and coarse-grained soils; Down-scaling of climate projections and rainfall and runoff modelling; Hydrodynamics and sedimentation modelling of reservoirs; Coastal flood hazard and risk assessments and coastal sediment transport; Water and wastewater management technologies; Transport and traffic planning of small/medium cities.

Over the years the Department has conducted postgraduate courses leading to the Master's Degree and has admitted graduate students for research studies leading to MPhil and PhD. Part-time Postgraduate Diploma and Master's Degree programmes are offered by the Department to provide postgraduate level education in the fields of Structural Engineering, Environmental

& Water Engineering, Geotechnical Engineering, Highway and Traffic Engineering, Sustainable Built Environment and Disaster Management. There are also plans to expand the scope of the postgraduate programmes to other areas of Civil Engineering.

The Department maintains close links with industry through consulting work, CPD programmes, participation in professional activities and conferences and seminars conducted by the staff.

Academic Staff: <https://eng.pdn.ac.lk/civil/people/academicstaff.php>

Course Structure: <https://eng.pdn.ac.lk/civil/undergraduate/SPcourselist.php>

DEPARTMENT OF COMPUTER ENGINEERING

The Department of Computer Engineering (previously known as Computer Sciences) was established in the Faculty of Engineering in 1985. Although it is the youngest degree awarding department in the faculty, it is one of the premier Computer Engineering departments in the country's University system. Initially, the primary function of the department was to conduct computing-related courses to the students in all disciplines of the Faculty. Later, in the year 2000, the department started offering the Computer Engineering degree as a specialisation in engineering. Today it is a fully-fledged department, robust with a capable and energetic staff, rich in its resources and course content and showing maturity which belies its age.

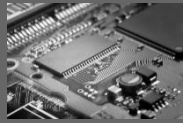
Computer Engineering degree is a unique combination of computer science and electrical and electronics engineering. It includes the science and technology of design, construction, implementation and maintenance of software and hardware components of modern computer-controlled systems and their networking. Computer engineers have in-depth knowledge of hardware, software design, hardware-software integration and the networking. They are involved in all aspects of computing, from the design and use of individual microprocessors, circuit design and large-scale system integration, to kernel hacking, databases, data science and engineering, artificial intelligence and machine learning, networking, security, and telecommunications.

Entrance to the Computer Engineering stream of study is highly competitive and its content, though challenging and demanding, is ultimately exceedingly rewarding. The courses offered to provide comprehensive coverage in Computer Engineering. Unlike many Computer Science/Engineering schools that tend to teach the details of the latest in-demand skills, skills that will soon be out-dated, we believe in providing a solid understanding of the foundations of Computer Engineering with computer systems perspective. These principles allow students to adapt to the inevitable changes in technology by developing practical skills on top of the foundations using leading-edge technologies. Such an approach inevitably makes the degree challenging and highly rewarding.

The curriculum of Computer Engineering specialization is a four-year programme with 150 SLQF credits including the General Programme and the Industrial Training. It provides the necessary theoretical background combined with hands-on practical experience in order to prepare graduates for their future careers. The programme focuses on computer architecture and design, computer networks, databases, software engineering, data science and engineering, artificial intelligence and machine learning and computer applications in industry. It is geared towards the needs of not only industries but also higher education sectors to ensure a smooth transition after a student's graduation.

The department continuously creates and strengthens its ties with other universities and industries. Our ongoing research are conducted in collaboration with researchers from leading foreign universities and global industry partners. Already, some of the courses are offered with industrial collaboration. The Department also houses the one and only NVIDIA GPU Research Center in the country. Computer Engineering graduates are highly sought after by local as well as international employers.

Research conducted by the department has greatly expanded over the years. The Embedded Systems and Computer Architecture Laboratory (ESCAL) is a research group whose interests concern on the architectural aspects of embedded systems and associated problems with a particular focus on the combination of the theory and practice. The Systems Engineering Group at Peradeniya (SEGPe) is a research group mainly focusing on the use of small kernel technology for secure and reliable systems construction and the application of formal methods to system design and implementation. The



Complex Reactive & Intelligent Systems (CRISL) group concentrates on model-based design and formal verification of complex reactive systems, Logic/Supervisory Control and fault diagnosis of Discrete Event Dynamic Systems, and issues related to reconfigurable control of these systems. The department also conducts active research on Cryptography and Network Security. The Cryptography Research Laboratory (CRL) primarily focuses on the research on cryptographic fundamentals that enable secure communications. CRL develops new cryptographic schemes and formally analyse their security, implement cryptographic schemes for secure communications and work on cryptanalysis. The department has a focused group in the area of data analytics. Machine learning based methods for inferring from various data such as computer games, social media, news articles and DNA sequencing data are been designed and are being applied in multiple contexts. There are number of Masters and Doctoral students following postgraduate study programs of the Department. The research carried out by these research groups are being published in internationally recognized journals and conferences.

Laboratory facilities in the department provide the means to experience and practice the Engineering skills acquired during the learning process. The department provides a general laboratory with sixty high-performance computers with fast Internet connectivity and this facility is open even after hours to aid self-learning. Special laboratories are equipped with proper equipment to get hands-on experience on networking, interfacing, digital design and embedded systems. A special laboratory environment is provided for students who participate in projects. They have the freedom to use these resources as required.

Independent student activities are encouraged via a student body, the Association of Computer Engineering Students (ACES), which aims to further the potential of students by catering to their professional and societal development needs and enhancing their competencies such as leadership skills. ACES together with Hackers Club annually organize various events thus providing opportunities to improve the students' skills. ACES Hackathon and ACES Coders are national level product development and coding competitions in which undergraduates of national and private universities participate. The Career Fair provides opportunities to the students to find training and employment opportunities. The Symposium provides a platform to present the undergraduate research to researchers and to the industry.

The department's greatest strength is perhaps in its energetic and passionate staff constantly driving undergraduates to excel in their studies. Academic staff of the Department of Computer Engineering has been and continues to be trained from higher education institutions all around the globe from the Silicon Valley in the US to the premier universities in the UK, Europe and the Asia Pacific. The warm and welcoming atmosphere created by the exuberant staff has formed family-like bondages that creates a strong cohesive unit and thus the Department of Computer Engineering has become a home for elites in engineering.

Academic Staff: <https://people.ce.pdn.ac.lk/staff/academic/>

Course Structure: <https://www.ce.pdn.ac.lk/undergraduate-courses/>



DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

The Department of Electrical and Electronic Engineering (DEEE) offers undergraduate and postgraduate programs in Electrical and Electronic Engineering. The vision of the department is to “acquire knowledge, promote research, and educate the student community in the applications of science of Electrical and Electronic Engineering in industry and academia for the benefit of the society at large”. The mission is “to provide an appealing environment for students and staff to acquire knowledge in broader sense for the benefit of mankind”.

The department provides basic courses for all engineering undergraduates on the principles of Electrical and Electronic Engineering, in appropriate depth, to acquire essential fundamentals, and also it offers several advanced courses to the specializing students in the areas of,

- Power High Voltage and Energy Systems Engineering
- Communication and Information Engineering
- Electronics and Instrumentation Engineering
- Control, Robotics and Automation Engineering
- Biomedical Engineering
- Artificial Intelligence, Machine Learning and Signal Processing.

Appropriate selection of technical electives that are available from within the above six subspecialisations, backed by the undergraduate research project and industrial training engagements, pave the way for the students of electrical and electronic engineering to specialize in one of the above subdisciplines. More importantly, the curriculum of the Electrical and Electronic Engineering study program has been designed in a flexible way that, students can obtain a major specialization in one of the above areas while obtaining a minor specialization in another area selected out of the same six sub-disciplines mentioned above. The department has an integrated laboratory environment covering the following clusters of laboratories:

- Elementary Laboratory
- Communication and Information Laboratory
- Electronics and Instrumentation Laboratory
- Power and Energy Laboratory
- Electrical Machines and Drives Laboratory
- Control Robotics and Automation Laboratory
- High Voltage Laboratory
- Optical Communication Laboratory
- Sri Lanka Telecom Research Laboratory
- Smart Grid Laboratory
- Power Electronics and Industrial Systems Laboratory
- RF and Microwave Laboratory
- PCB Fabrication Laboratory

- Bio Medical Engineering Laboratory
- Artificial Intelligence, Machine Learning and Signal Processing Laboratory

A project area with well-equipped laboratory setups for group based undergraduate activities is arranged for projects and research work of undergraduates. The department is aligning with the notion of green energy that it has 60 kW of roof-top solar installed for the benefit of the faculty. The department maintains its own autonomous computer network while being on the backbone university network. This infrastructure facilitates the students with advanced simulation tools for their laboratory, projects, and research work in a wide spectrum covering the vast discipline of electrical and electronic engineering.

Moreover, opportunities are arranged for students to showcase their projects to the public and industry through the annual student project symposium and Electrical & Electronic Engineering Research and Project Symposium (EEERaPS) organized by the department. The department has been organizing the International Conference on Industrial & Information Systems (ICIIS) for nearly two decades to bring intellectuals to the country aiming fruitful collaborations.

Academic Staff: <https://web2.ee.pdn.ac.lk/people/AcademicStaff>

Course Structure: <https://web2.ee.pdn.ac.lk/academics/undergraduate-education>

DEPARTMENT OF ENGINEERING MANAGEMENT

The Department of Engineering Management was established in the year 2002, in the Faculty of Engineering, University of Peradeniya in order to cater for multidisciplinary managerial roles that engineers are expected to perform in the industry.

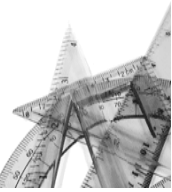
The need for the boundary-less organizational activities, which result from increasing competitive business environments as well as globalised technical advancements render it impossible for engineers to confine to a single discipline. In order to be in par with the growing demands of the role of the engineer as a manager, she/he has to be equipped with necessary managerial and soft transferable skills supplementary to the technical expertise gained through their relevant specialization. In addition, the engineering manager should link engineering advancement to economic development while being a socially and professionally responsible individual. Department is contributing to produce such professional engineering managers, well versed with requisite managerial & leadership skills with a broader perception of their professional responsibility and accountability towards the society and environment by integrating the engineering discipline and management concepts.

Secondly, the accreditation process for the degree programme in the field of engineering requires to develop, in engineers, the ability to function effectively as an individual and a member of multi-disciplinary and multi-cultural teams, with the capacity to be a leader or a manager as well as an effective team member. The understanding of social, cultural, global and environmental responsibilities of the professional engineer and the understanding of professional and ethical responsibilities and commitment to them are also required by the present day engineer. The Department of Engineering Management expects to satisfy these requirements of the accreditation process, while promoting the lifelong learning and building up capacity to do so, in the graduate engineers of the Faculty of Engineering, University of Peradeniya.

Finally, the department expects to fulfil the objective of blending all disciplines of engineering together to cater for a 'whole concept,' amalgamating the individual, vested interests of every department, which may result in a broader perception of the professional responsibility of an engineer.

Academic Staff: <https://eng.pdn.ac.lk/management/>

Course Structure: <https://eng.pdn.ac.lk/management/ugrad.php>



DEPARTMENT OF ENGINEERING MATHEMATICS

A strong background in Mathematics is essential for the degree programme of Bachelor of the Science of Engineering Honours in order to develop analytical thinking and the ability to use it as a tool to seek solutions to engineering problems. The courses in Engineering Mathematics have been designed keeping this in mind. In the first two years, Mathematics is taught as core course units for all undergraduates. The courses are continually updated by incorporating current techniques and new applications. As a result, most of the courses offered contain a strong computing component.

The students entering the Faculty have a wide spectrum of abilities and there are many students who are weak in Mathematics. Special attention is given to weaker students through small tutorial groups. A programme of remedial teaching for new entrants is also provided by the department every year. This is designed to help the students to bridge the gap between the school and the first year course in the Faculty. A particularly important aspect of each lecture series is the evaluation of the teaching performance, by the students, to provide the necessary feedback for improvements.

The department conducts a postgraduate diploma programme in Engineering Mathematics, which is currently a part time programme. This programme with a significant research component is designed especially to train engineering and science graduates to apply mathematical tools to solve problems in the industry. The department also provides research supervision to students reading for MPhil and PhD degrees in specified areas.

Several academic divisions have been established within the department in order to further the mathematics education of the engineers and to facilitate the development of research activities. Divisions have been established in areas in which the department has strong research potential. Currently, there are five distinct divisions within the department.

- Division of Operations Research and Optimization
- Division of Systems Modeling
- Division of Software Engineering
- Division of Decision Sciences and Statistics
- Division of Mathematics and Engineering Education

The members of the department are also involved in developing mathematical, management and educational software packages for use in the department and for undergraduate and postgraduate programmes. Some of the specific areas of current interest include computer-aided learning packages, optimization routines, mathematical modelling, real-time systems, databases for inventory and students' performance data, and timetable scheduling software.

The department is also involved in research programmes in collaboration with research groups in foreign universities. Several members of the department have addressed the national needs by publishing textbooks for the G.C.E. (Advanced Level) Examination and for undergraduates. These books have been widely acclaimed as being authoritative by the experts in the relevant fields.

Academic Staff: <https://eng.pdn.ac.lk/mathematics/otherpages/staff/staff.html>

Course Structure: <https://eng.pdn.ac.lk/mathematics/otherpages/undergraduate.html>

DEPARTMENT OF MANUFACTURING AND INDUSTRIAL ENGINEERING

The Department of Manufacturing and Industrial Engineering has originally been named as Department of Production Engineering. Since its establishment in 1976, the department has produced more than 1100 graduates. In 2017, the department name was changed to Manufacturing and Industrial Engineering. Subsequently, UGC gave the approval to change the name of the undergraduate specialization degree programme as Manufacturing and Industrial Engineering to better reflect the attributes of the graduates and to be in line with industry trends.

The department aims to develop the profile of the Manufacturing and Industrial Engineers in two major complementary areas: (i) mastery of manufacturing technology, including manufacturing processes and industrial automation, and (ii) mastery of the design and operation of manufacturing systems which includes Industrial and Manufacturing Systems Engineering.

Students specializing in Manufacturing and Industrial Engineering are free to make their choices in order to master in two main domains by selecting optional courses appropriately. The core courses are designed to suit both categories.

The department is well equipped with the following modern manufacturing and laboratory facilities:

- Machining Laboratory (Computer Aided Manufacturing (CAM) facility with two CNC Machining Centers, CNC Turning Center, Laser Cutters, Wirecut EDM Machine, Injection Moulding machine)
- Robotics and Automation Laboratory (ABB Robot, Computer Integrated Manufacturing (CIM) System complete with SCARA robots, machine vision, machining and transport systems, hydraulic/pneumatic trainer kits)
- Innovation and Additive Manufacturing Laboratory (3D Printers of both FDM and SLA type, 3D Scanner)
- Advanced Metrology Laboratory (including CNC Coordinate Measuring (CMM) facility, Laser Scan Micrometer, Surface Roughness Tester)
- Design Studio (Consist of 17 Computers with licenced version software such as SolidWorks & SolidCAM, FluidSim for CAD/CAM requirements and AR/ VR, Arena, Simul8 and Production Planning Software Suites (Siemens Tecnomatix Software Bundle) for manufacturing systems simulation.
- CAD/CAM Laboratory (Licensed software includes SolidWorks & SolidCAM, FluidSim, Simulation software (Arena, Simul8) and Plant layout and Material Handling software with Siemens Tecnomatix Software Bundle)

The Engineering Faculty Workshops are linked to the department. However, the former is run as an independent administrative unit with its own Director appointed by the Faculty. The Engineering Workshops house a variety of conventional machine tools for metalworking as well as a wood workshop.

The Department of Manufacturing and Industrial Engineering offers postgraduate programmes in:

- Manufacturing Engineering
- Engineering Management

The department has ongoing research programmes in the following main thrust areas:

- Additive manufacturing
- CAD-CAM integration
- Machining
- Robotics and mechatronics
- Sustainable design and manufacturing
- Product life cycle engineering and management
- Lean manufacturing
- Logistics and supply chain engineering
- Industrial automation
- Intelligent control
- Analytical and simulation modelling of manufacturing systems
- Six Sigma
- Adapting AR/ VR technology to manufacturing environments

The department provides consultancy services to the local industry in:

- Design, Assembly and Automation of Machines
- Technology Innovation
- Industrial Automation/ Robotics/ PLC Solutions
- System Design/ Evaluation
- CAD/CAM and Die & Mould Design
- Product Innovation and Prototyping
- Hydraulic/ Pneumatic Systems Design
- Machine Tools – Diagnostics/ Monitoring/ Innovative Machining
- Manufacturing Process Improvements
- Lean Manufacturing
- Sustainable Manufacturing
- Eco Design and Product Life Cycle Assessment
- Manufacturing Systems Modeling and Simulation
- Plant Layout Design
- Materials Selection and Processing
- Manufacturing Processes, Economics and Human Factors in Manufacturing
- Statistics-based Quality Improvement (Six Sigma) in Manufacturing Processes
- Manufacturing Process Control
- Logistics and Supply Chain Engineering
- Manufacturing Systems Simulation

Academic Staff: <https://dmie.eng.pdn.ac.lk/academic-staff.html>

Course Structure: <https://dmie.eng.pdn.ac.lk/ug-program.html>

DEPARTMENT OF MECHANICAL ENGINEERING

Mechanical Engineering is at the heart of today's global industry where electronics, computers, and mechanical devices are increasingly becoming more and more integrated. The Department of Mechanical Engineering provides a broad knowledge and training necessary for the development of new technology and devices required for the advancement of such a multidisciplinary global industry. The program provides a wide education opportunity required for the understanding and application of physical phenomena in specific areas such as robotics and automation, machine design, and thermo-fluids.

The Department of Mechanical Engineering has carried out a comprehensive revision of the specialization programme in Mechanical Engineering. The department will commence offering the revised Mechanical Engineering programme from 2020 onwards.

The new Mechanical Engineering programme was developed with the vision of making the specialization programme up to date and more flexible, which enable us to diversify the programme and thereby cater to the rapidly changing technological trends and requirements of the world. Accordingly, new subspecialisations in Mechanical Engineering are introduced under four deferent tracks: Design (General Mechanical Eng. programme); Mechatronics; Energy Systems; Mechanical Engineering with Business. Students opting to specialize in Mechanical Engineering have to specialize in one of these tracks of their choice.

The department houses state of the art laboratory equipment for developing a deeper understanding of the concepts. The Applied Mechanics laboratory has a unique collection of experimental and demonstration equipment, most of which were designed and fabricated in the Faculty. These are used in a problem-based student-centric fashion to develop a fundamental understanding of various resonance phenomena, advanced concepts in mechanics, and the operation of various machines. The Thermodynamics Laboratory houses both basic and advanced experimental facilities for heat transfer, combustion, engine testing and agricultural engineering. The laboratory also has several items of laboratory equipment in refrigeration and air-conditioning. It houses the best steam engineering facility in the country. Recent additions to the collection of laboratory equipment are unmanned vision based aerial and mobile robots, industrial mechatronic systems, multi-fuel test rigs, and ocean wave energy conversion systems. The department also has one of the largest computer-aided modelling and simulations facilities in the country. Graduates who undergo this learning experience typically find postgraduate opportunities in globally reputed programmes or employment in research and development institutions, or as Engineers in industries such as automation, manufacturing, generation and transmission of power, transportation, refrigeration and air-conditioning, design, and maintenance of machinery.

The department has carried out pioneering research of international standing in vibration analysis, geometric methods in control for robotic systems, decentralized control of multi-agent systems, CNC machining, solar energy, ocean wave energy, combustion control and wind power. The current research interests and activities in the department include vision guided intelligent robots, multi-agent systems, alternative fuels and fuel additives, modelling and analysis of ocean wave energy conversion systems, development of alternative methods for refrigeration and air-conditioning, corrosion, nonlinear control theory, mechatronics, automobile engineering and computational fluid dynamics. The department also has a strong postgraduate program in these areas leading to full-time MPhil and PhD degrees. It also runs a part time MSc program in building services engineering to cater to a popular demand in the local industry.

The department has also provided expert advice and consultancy services to industrial establishments in the state, corporate and private sectors in a number of areas relating to mechanical engineering. Among the services provided are the use of unmanned aerial vehicles for terrain mapping, testing of fuels and lubricants, calibration of equipment, design of mechanical systems, mitigation and measurement of noise and vibration, balancing of rotors, and design of industrial refrigeration systems for food & agriculture industry and post-harvest processing.

Academic Staff: <https://eng.pdn.ac.lk/ME/>

Course Structure: <https://eng.pdn.ac.lk/ME/Education/Curiculam.php>



GENERAL ELECTIVE COURSES

General elective courses are conducted in the Specialization Programme, for all fields. The overall coordination of these courses is done by the Engineering Education Unit (EEU) of the Faculty and individual course coordination is done by different departments. In addition, each department may offer a set of general elective subjects relevant to the field of specialization. Qualified staff members in the respective disciplines are channelled from or outside the Faculty to conduct the general elective courses. The general elective courses acceptable for claiming credits for each field of specialization are announced by relevant departments. A student has the freedom to choose his/her general electives from among the list of general elective courses recommended by his/her Department of Study.

The general elective courses offered at present are given in the URL below. The list is subject to periodic revision:

<http://eeu.pdn.ac.lk/GESNew>

INDUSTRIAL TRAINING AND CAREER GUIDANCE UNIT

Industrial Training and Career Guidance Unit (ITCGU) is responsible for arranging, monitoring and evaluation of industrial training in liaison with the National Apprentice and Industrial Training Authority (NAITA). This unit is also responsible for planning and organizing activities for developing other skills of undergraduates which are demanded by the engineering organizations and for guiding students for gainful employment prospects.

Industrial Training (EF4010)

EF4010 Industrial Training (6 credits) is a compulsory course and successful completion of the course is required for the award of the degree of Bachelor of the Science of Engineering Honours. Students are given Pass/Fail grades and the student who scores highest marks at the assessment is awarded the “J.B. Dissanayake prize for Industrial Training”.

A student who fails to satisfactorily complete the Industrial Training course will be required to undergo further training and appear for an assessment to be eligible for the award of the degree of Bachelor of the Science of Engineering Honours.

Placements in the participating industries are arranged for undergraduates during the industrial training sessions in the academic calendar of the Faculty so that, not less than 24 weeks of training in industry is achieved.

Undergraduates are expected to acquire hands-on experience not only in the engineering aspects of the work but also in related matters such as management, industrial safety, quality assurance, ethical practices, sustainability practices etc. Students have to maintain a daily diary during training and submit a comprehensive report covering each period of training. The assessment is done at an interview conducted by a panel consisting of a practicing engineer from industry, an officer from NAITA, lecturers from the relevant department and the ITCGU. This assessment is normally conducted during the final year of studies in each department.

Career Guidance

Career Guidance has been recognized as an important part of the education and training of the undergraduate. The undergraduates are assisted by the ITCGU to select their future careers to suit their abilities, wishes and expectations. The ITCGU liaises with these industrial sector establishments to organize capacity building sessions to develop the skills required to be successful in the job market. These include orientation of the undergraduates to develop the career related skills such as communication, leadership and teamwork. These programmes are initiated during the orientation period of new entrants and are continued throughout the four year course duration. The ITCGU maintains links with industry organizations and exchange information mutually benefiting each other.

The ITCGU plays a major role in organizing the annual Career Fair of the Faculty of Engineering. The major objective of organizing the Career Fair is to provide an opportunity for industrial organizations to get to know the potential of their future employees and for final year undergraduates to learn about the current trends in the employment market and the demands of the industrial sector.

Academic Staff: <https://eng.pdn.ac.lk/units/itcgu/AcademicStaff.php>

Courses Offered

Core Courses: <https://eng.pdn.ac.lk/units/itcgu/home.php>



FEES

Fees payable by students will be determined in accordance with the decisions made by the university authorities and are subject to revision from time to time. Concessions are available to teachers and officers of the University of Peradeniya. A refund of fees is made only under exceptional circumstances.

Sri Lankan students should pay fees to the credit of the relevant account of the University of Peradeniya at the People's Bank or Bank of Ceylon.

Foreign students should pay the fees in foreign currency, viz., US dollars. They could do so by sending a Bank Draft/Tele Transfer made in favour of the Registrar of the University of Peradeniya. Please contact Registrar of the University of Peradeniya for the latest fees. Non-citizens resident in Sri Lanka may pay the prescribed fees in local currency.

1 UNDERGRADUATE COURSES AND EXAMINATIONS

1.1 Fees Payable by New Entrants

Admission fee	Rs. 600.00
Registration Fee	Rs. 200.00
Laboratory Fee	Rs. 500.00
Other Fees*	Rs. 300.00
Total	Rs. 1600.00

*Other Fees:

Sports Facilities Fee	Rs. 100.00
P. S. U.	Rs. 25.00
Arts Council	Rs. 60.00
Hall Facilities	Rs. 15.00
Medical Fee	Rs. 100.00

1.2 Fees payable in each academic year

Renewal Fee	Rs. 200.00
Other Fees*	Rs. 300.00
Total	Rs. 500.00

1.3 Examination Fees**

The undergraduate student is not required to pay any fees for the first attempt of an End-of-Semester examination. Fees are payable for subsequent attempts of End-of-Semester examinations of the semesters. Fee payable for repeat exam is Rs. 500.00.

** The fees payable are reviewed by the Faculty and the rates that apply will be announced at the beginning of each semester.

POSTGRADUATE COURSES AND HIGHER DEGREES



The perception among some professional engineers that postgraduate courses are for those seeking academic careers has by and large been dispelled, and engineers in the field/industry are increasingly aware of the benefits of such courses to update and advance their knowledge. The Faculty has sought to meet the resultant demand for advanced knowledge by offering appropriately designed postgraduate courses, with combinations of lectures, coursework and research in varying proportions and scope that lead to diplomas/degrees. The courses are available at five SLQF levels:

- Postgraduate Diploma – PGDip (SLQF L8)
- Degree of Master of Engineering – MEng (SLQF L9)
- Masters Degree (SLQF L9)
- Degree of Master of the Science of Engineering – MScEng (SLQF L10)
- Degree of Master of Science – MSc (SLQF L10)
- Degree of Master of Philosophy – MPhil (SLQF L11)
- Degree of Doctor of Philosophy – PhD (SLQF L12)

The programmes are sufficiently flexible in structure to accommodate students with diverse professional backgrounds and varying degrees of financial and time constraints. Students are admitted to any one of the four distinct categories:

- Regular full-time postgraduate students
- Regular part-time postgraduate students
- Provisional students
- Casual students

Following postgraduate programmes are currently available in the Faculty of Engineering. Postgraduate programmes are conducted by the respective departments.

<https://eng.pdn.ac.lk/postgraduate-programmes/>

All the departments offer Postgraduate Diploma (by research)/ MPhil/PhD programmes.



ACADEMIC FACILITIES

1 THE ENGINEERING LIBRARY

The Engineering Library meets the needs of the undergraduates, graduates and academic staff of the Faculty. Its collection is part of the stock of the Library of the University of Peradeniya. It contains a wide range of books and periodicals in Civil, Electrical & Electronic, Mechanical, Manufacturing & Industrial, Chemical, Computer Engineering, Management and Mathematics. It also has a fair collection of books on the Natural Sciences. It is constantly being brought up to date with new accessions. The collection of some important reference journals goes back to the 1930s. Presently there are about 65,000 books and periodicals available in this engineering library. Some electronic journal packages are also provided by the library. The present library in the new building was opened in 2000 to provide more reading facilities for the increasing student population.

All students are required to get themselves registered at the Library at the beginning of the first year so that they can use barcoded University identity card for borrowing books. Orientation programmes are provided on the general use of the Library early in a student's career, followed by more specific instructions on the literature of particular subject fields, so that a student may have some insight into the depth and breadth of information available to him/her as and when he/she requires it.

Library Opening Hours

Monday to Friday 7.15 am – 6.30 pm
Saturdays and Sundays 7.15 am – 5.00 pm
Closed on public holidays
Library 24x7 study room Sunday to Saturday 24 hours

During the exam periods on students' requests
Monday to Friday 7:15 am – 9:00 pm
Saturdays and Sundays 7:15 am – 6:30 pm

Requirements of undergraduate students, postgraduate students and academic staff and will, of course, to some extent rely on the inter-library loan system. Every effort is made to obtain the required literature from other libraries in Sri Lanka and abroad. Ready assistance is available to all Library users. Further details of the Library services may be found on the library website <http://www.lib.pdn.ac.lk/libraries/eng/>.

Staff: http://www.lib.pdn.ac.lk/staff/academic_staff/index.php

2 ENGINEERING WORKSHOPS

The Engineering Workshops consist of the Machine Shop (metalwork), the Fitting Shop, the Foundry, the Smithy, the Welding shop and the Carpentry Shop.

The workshop has over 50 experienced and qualified staff/professionals including machinists, welders, mechanics, carpenters, storekeepers, technical offices, superintendent, workshop engineer and a director.

The Engineering Workshops have two main functions. Firstly, its resources and facilities are utilized for academic work and training of engineering undergraduates.

Experiments, as well as training sessions, are conducted for the first, third, and final year undergraduates in the areas of Workshop Practices, Fundamentals of Manufacture, Conventional Manufacturing processes and Technologies. In addition to these, the fabrication of the prototypes also carried out in the workshops. Furthermore, Wood workshop and Machine shop also used for 2nd, 3rd and 4th year Manufacturing & Industrial Engineering undergraduate practical programmes as well as research degrees.

The other function includes the manufacture of equipment for teaching and research, maintenance of machines and equipment, industrial training of undergraduates and NAITA (National Apprentice Industrial and Training Authority) trainees, industrial consultancy work (design, manufacturing of machines and mechanisms for industry), evaluation of craftsman and technical personnel, and a variety of fabrication work for the faculty.

Web site: <http://eng.pdn.ac.lk/units/workshop/home.php>

Staff: <https://eng.pdn.ac.lk/units/workshop/home.php>

3 COMPUTING CENTRE

The University Computing Centre (CC) was established in 1971 when the University acquired an IBM 1130 Computing System, the first in the country. In 1973 the CC was moved to a new building. The Computing Centre was absorbed into the newly established Department of Computer Sciences in 1985. Since 1995 it has been functioning as an independent unit.

During the eighties, the Centre began to acquire microcomputers. It now possesses a variety of hardware that includes the main file server, and about 155 networked workstations that are running on a 2000 Mbps switched Ethernet. Commonly used engineering application software, compilers and Internet services are available for its users.

The services provided by the Centre include

- The computing facilities for undergraduate and postgraduate courses which have computer based labs.
- Conducting the Foundation IT Course for the new entrants during their orientation period.
- Conducting supporting courses for academic and non-academic staff.
- Providing computer and peripheral repairs for the entire university.
- Developing Information Systems for the Faculty of Engineering.
- Coordinating and administrating the Faculty of Engineering e-Learning System (FEeLS).

Web site: <http://eng.pdn.ac.lk/cc/>

Staff: <https://eng.pdn.ac.lk/cc/staff.html>

4 ELECTRICAL & ELECTRONIC WORKSHOP

The central electronics workshop was set up in 1970 as a service unit attached to the Electrical and Electronic Engineering Department to undertake servicing and repairs to electronic equipment of a scientific nature belonging to all the faculties of the University. It has since extended its capabilities to the design and manufacture of small items of electronic equipment, with its services extended to scientific establishments outside the university. Currently, the centre works as a separate unit belonging to the university.

Web site: http://eng.pdn.ac.lk/units/elec_workshop/home.php

Staff: https://eng.pdn.ac.lk/units/elec_workshop/staff.php

5 ENGLISH LANGUAGE TEACHING UNIT (ELTU); THE LANGUAGE LABORATORY

The medium of instruction in the Faculty of Engineering is English. New entrants are therefore called upon to communicate effectively in English. Since 1968, the Faculty of Engineering has made special provision for the teaching of English as a second language to the new entrants. An English Language Teaching Unit was set up in the Faculty in 1985 for the purpose of teaching English to first and second year students, and now regular classes are held for third year students as well. Classes are held for fourth year students as well as technical and clerical staff, on request.

A well-equipped language laboratory, installed in 1985, with audio-video facilities for 30 students and a master control unit for teachers, meets the needs of undergraduates and staff of all faculties of the University. In addition to self-access material for learners of English and other languages, expert guidance is also available in the Language Laboratory.

Web site: <http://eng.pdn.ac.lk/units/eltu/home.php>

Staff: <https://eng.pdn.ac.lk/units/eltu/staff.php>

6 ENGINEERING EDUCATION UNIT (EEU); AUDIO-VISUAL FACILITY

The Engineering Education Unit was established at the Faculty of Engineering in 1985, to facilitate the continued education improvements in the Faculty of Engineering. Administratively, the EEU is under the purview of the Dean of the Faculty of Engineering. The management and development of the EEU is the responsibility of a committee consisting of the Dean, the Director of the unit and members of the permanent academic staff appointed by the Faculty Board. EEU is primarily involved in improving the quality of education provided at the Faculty of Engineering by facilitating effective teaching-learning strategies and resources. Activities of the EEU are categorized as follows:

- Staff development

- Curriculum development
- Provision of audio-visual facilities for educational purposes
- Academic administration of complementary studies

The EEU regularly conducts activities to engage the academic staff on modern educational paradigms. It identifies effective teaching-learning strategies and resources for the Faculty of Engineering in a timely manner, and provides training and support to the academic staff in implementing such strategies through the *EEU Support and Development Center*. It is also involved in the curriculum development and revisions which happens at the Faculty in regular intervals.

The EEU has a professional audio-visual studio equipped with a non-linear video editing and production system. The studio also has state of the art digital video and digital still cameras. Members of the teaching staff of the Faculty utilize these facilities to produce educational videos for use in their teaching and laboratory experiments, as well as other educational activities. Three seminar rooms of capacities 105, 86 and 70 equipped with smartboard facilities, interactive whiteboards, multimedia interfaces and audio systems are maintained by the EEU. In addition, the audio visual systems of the Faculty conference room and E.O.E. Pereira Theatre are maintained by the EEU. The conference room has a seating capacity of 28 and is equipped with multimedia facilities and a video conferencing system. The E.O.E. Pereira Theatre has a seating capacity of 582 and is equipped with multimedia facilities, large screen, advanced audio facilities and an advanced stage lighting system. The EEU has also installed multimedia facilities at all lecture rooms and Drawing Office I of the Faculty. In addition, the EEU maintains and operates the public address system within the Faculty.

From the year 2014, the EEU has been managing the overall coordination of the General Elective (GE) courses offered to students of all specializations at the Faculty.

Web site: <http://eeu.pdn.ac.lk/>

Staff: <http://eeu.pdn.ac.lk/PresentStaffNew>

General Elective courses offered by EEU: <http://eeu.pdn.ac.lk/GES>

7 CENTRE FOR ENGINEERING RESEARCH AND POSTGRADUATE STUDIES (CERPS)

The Engineering Research Unit originally established in 1990 was transformed to the Centre for Engineering Research and Postgraduate Studies in 2001. Since then CERPS, as it came to be known thereafter, has coordinated Research Activities and Postgraduate Studies in the Faculty of Engineering, and has been instrumental in the drafting of basic policy framework in this regard along with the Faculty Regulations governing postgraduate studies.

Activities of the Centre are organised along two axes:

- The Postgraduate Studies Arm of CERPS and
- The Research Arm of CERPS.

(a) The Postgraduate Studies Arm of CERPS

Mission: The mission of the Postgraduate Studies Arm of CERPS is the facilitation of Postgraduate Studies and related activities in the Faculty of Engineering by networking and coordinating all matters related to policy formulation, establishment, running, funding and development of individual Postgraduate Programmes in the Faculty to foster unhampered development of intra- and inter-departmental Postgraduate Programme initiatives.

The postgraduate studies organisation within the Faculty of Engineering is a network of Postgraduate (PG) Programmes each with a Programme Coordinator.

The Postgraduate Arm of CERPS provides the forum for policy formulation in postgraduate studies in Engineering.

(b) The Research Arm of CERPS

Mission: The mission of the Research Arm of CERPS is the facilitation of research activities in the Faculty of Engineering by networking and coordinating matters relating to policy formulation, establishment, running, funding and termination of individual Research Groups in the Faculty to foster unhampered development of individual and collective research initiatives by faculty members.

The research organisation within the Faculty of Engineering is a network of research groups and research teams.

The Research Arm of CERPS provides the forum for policy formulation in Engineering research.

The Research Arm coordinates Sessions on Engineering & Built Environment as part of the Peradeniya University International Research Sessions (iPURSE). Coordination of the award and administration of University Research Grants for the Faculty of Engineering is also handled by CERPS.

Web site: <http://eng.pdn.ac.lk/cerps/>

Staff: <https://eng.pdn.ac.lk/cerpsnew/people.php>

8 ENGINEERING DESIGN CENTRE (EDC)

The Engineering Design Centre (EDC) of the Faculty of Engineering, University of Peradeniya was established with the assistance from the Commonwealth Science Council in 1993, with the objective of supporting Sri Lankan industries through industrial consultancy, sponsored research and continuing professional development.

Vision: To become the leading commercial entity in the field of Engineering among the Universities of Sri Lanka.

Mission: To strengthen research and development (R&D) capacity of the University of Peradeniya by establishing sustainable partnerships with industries, while supporting to upgrade the science and technology (S&T) education system of the University.

The Engineering Design Centre was funded by the Asian Development Bank (ADB) Science and Technology Personnel Development (STPD) Project under the Ministry of Science and Technology and its director heads the Centre. Policy decisions with regard to the management and operation of the Centre will be conveyed to the Director by the EDC Management Committee. This Committee consists All Heads of Departments, two nominees from the Engineering Faculty Board and two members representing the industry and approved by the Engineering Faculty Board. Director/EDC acts as the secretary for the meetings.

EDC directly involves in industrial activities and carries out administrative and financial aspects of engineering projects undertaken by the Faculty. The Faculty works with EDC project engineers to provide technical and engineering inputs to the Projects. These projects handle problems in the industry related to a wide spectrum of specialties in engineering.

The EDC became a self-supporting commercial entity with its own full-time staff with effect from 01.10.2004. Currently EDC consists of full-time (contract basis) engineers in the sections of promotion, services and administration. The Director is a permanent faculty member, Senior Lecturer or above.

Web site: <http://eng.pdn.ac.lk/pages/Centers/edc/>

Staff: <https://eng.pdn.ac.lk/pages/Centers/edc/>

9 THE ENGINEERING TECHNOLOGY INCUBATION CENTRE (ETIC)

With the vision to be a recognized product incubation and development center of the country and, with the mission to facilitate and promote innovation and develop innovative ideas of faculty community into commercially viable products, the Engineering Technology Incubation Centre (ETIC) in the Faculty of Engineering, University of Peradeniya, was established in February 2020 by approval of the university council and declared open by the Vice Chancellor on the 30th March 2021.

Initially started with the generous financial support of the faculty alumni, the ETIC will provide an ecosystem where the projects and research completed in the Faculty of Engineering by the undergraduates, postgraduate and the academic staff will be developed into commercial products. The centre is to facilitate Pre-Incubation, Incubation, Commercialization and Start-Up phases of innovative product development while it operates as the faculty arm of the Business Linkage, Innovation Incubation and Technology Transfer Office (BLII-TTO) of the University of Peradeniya.

Applications for project facilitating can be obtained from the centre web site at <http://eng.pdn.ac.lk/etic/>

Staff: <https://eng.pdn.ac.lk/etic/etic-team.php>

GENERAL FACILITIES

1 HALLS OF RESIDENCE

The University of Peradeniya is essentially a residential university and most of the students are given comfortable living accommodations and easy access to a wide range of facilities for recreation and relaxation in the University Park that are open to all students. There are thirteen Halls of Residence for men, ten Halls of Residence for women, and two Halls of Residence for bhikkus. The expansion of accommodation has not kept pace with the increase in student intake.

2 SPORTS AND RECREATION

The campus has extensive facilities for sports and recreation, the hub of which is a large gymnasium for indoor sports such as badminton, basketball, netball, table tennis, weight lifting, wrestling etc. Outdoor sports grounds with ample space exist for cricket, rugby football, soccer, hockey, tennis, volleyball and other games. There are separate grounds for track and field athletic activities. Most significantly the 50 m swimming pool at Peradeniya is the only University swimming pool in Sri Lanka. It is available to all members of the University and to the public at large. All sports activities are supervised by the Department of Physical Education, and instructors and coaches are available to help students in their training.

3 STUDENT SOCIETIES

The diverse interests covered by societies open to students comprise a major attraction of life in a residential university. These societies are either university-based or faculty-based. The larger societies in the Faculty of Engineering are departmental groups, which have been in existence long enough to develop their own conventions and traditions. They are the Society of Chemical and Process Engineering Students (SCaPES), the Civil Engineering Society (CES) Association of Computer Engineering Students (ACES), the Electrical and Electronic Engineering Society (EEES), the Mechanical Engineering Society (MES), and the Manufacturing Engineering Association (MEA). Students interested in music, drama, literature, politics, religion etc. join in the activities of the appropriate university societies or faculty societies based on extra-mural and, sometimes, esoteric interests.

4 RELIGIOUS ACTIVITIES AND PLACES OF WORSHIP

Religious activities are organised for the university as a whole, and there are five registered student societies:

- The Buddhist Brotherhood
- The Hindu Society
- Newman Society (for Roman Catholics)
- The Student Christian Movement
- The University Muslim Majlis

The University Park has places of worship for each of the five major religious denominations.

5 THEATRE

The E.O.E. Pereira Theatre in the Faculty of Engineering, with a seating capacity of 582 and excellent acoustics, is the largest theatre in the campus. Although built primarily for academic gatherings of engineering students, it is also a popular centre for dramas and musical concerts, and the venue for Special Convocations and meetings of learned societies.

6 STUDENTS' CENTRE

The Faculty has a Students' Centre with a range of facilities and is freely accessible to the students. It is also a popular venue for social gatherings of students.

7 HEALTH SERVICES

A team of medical officers and supporting staff at the University Health Centre provide health care for the campus community –students as well as staff. The Health Centre also has a medical laboratory. Health care takes the form of daily OPD service, IDP for minor ailments whilst emergency cases are referred to the Peradeniya Teaching Hospital or to the General Hospital, Kandy. Dental care is provided by the Faculty of Dental Sciences.

8 STUDENT COUNSELLING

The University provides counselling service, with the assurance of complete confidentiality, to students facing problems of a personal, social or academic nature. The team of counsellors comprises several members of the senior academic staff of the different faculties and the medical officers of the Health Centre. Five of the counsellors belong to the Faculty of Engineering, and attend to the special needs of the engineering students.

9 THE FACULTY CANTEENS

There are two canteens in the Faculty that provide meals and refreshments. The Faculty of Engineering Canteen Committee, comprising staff and students of the Faculty, manages both canteens. The second canteen was opened in 2003 in response to the demands due to the increase in student intake. Canteens have counters for the sale of stationery, drawing instruments etc. as well as facilities for photocopying and bookbinding.

10 ROAD, RAIL AND POSTAL SERVICES

The university community is served by the Sarasavi Uyana railway station and a Special Grade Post Office both located on the perimeter of the campus. There is also a small post office in the heart of the campus. Public roads run through the campus and carry bus services that link the Colombo-Kandy trunk road, which skirts the University Park. The Engineering Faculty is located between the lower Gampola road and upper Gampola road. Both routes have regular bus services. The Peradeniya Junction railway station is within walking distance, around 500 meters, from the Faculty. The distance by road is, however, longer at around 1.5 kilometers.

11 BANKING

The two major state banks, the Bank of Ceylon and the People's Bank, have had their branches within the campus for many years, but, a few years ago, the former moved into larger premises just outside the perimeter of the University Park. However, sub-branches of both banks, located in the Senate Building Extension, are open during the regular banking hours of working days.

OTHER DETAILS OF THE FACULTY

1. ENGINEERING GRADUATES

Number of Graduates as of 30 th September 2023	
Chemical & Process Engineering	529
Civil Engineering	7105
Computer Engineering	1029
Electrical & Electronic Engineering	2,881
Mechanical Engineering	1,686
Manufacturing & Industrial Engineering	1,233
Total	14,463

2. THE FACULTY COLOUR

The official colour of the Faculty is pink, and is displayed by the garland that the engineering graduand receives at the Annual University Convocation. Since the colours of the University are gold and maroon, the Faculty uses pink and maroon on the covers of its publications.

3. PAST DEANS OF THE FACULTY

Prof. EOE Pereira	1950-65 & 1966-69
Prof. RH Paul	1965-66
Prof. JCV Chinnappa	1969-71
Prof. HB de Silva	1972-75
Prof. A Thurairajah	1975-77 & 1982-85
Prof. WP Jayasekara	1977-82
Prof. CLV Jayatilleka	1985-86 & 1988-89
Prof. M Amaratunga	1986-88
Prof. MP Ranaweera	1989-94
Prof. RJKSK Ranatunga	1994-99
Prof. WJN Fernando	1999-2002
Dr. SD Pathirana	2002-2005
Prof. SBS Abayakoon	2005-2009
Prof. SB Weerakoon	2009-2012
Prof. L Rajapaksha	2012-2018
Prof. GBB Herath	2018-2021

4. PAST PROFESSORS OF THE FACULTY

Prof. EOE Pereira	Civil Engineering
Prof. RH Paul	Electrical & Electronic Engineering
Prof. JCV Chinnappa	Mechanical Engineering
Prof. EF Bartholomeusz	Engineering Mathematics
Prof. WP Jayasekara	Electrical & Electronic Engineering
Prof. S Mahalingam	Mechanical Engineering
Prof. A Thurairajah	Civil Engineering
Prof. WMG Fernando	Electrical & Electronic Engineering
Prof. HB de Silva	Civil Engineering
Prof. M Amaratunga	Civil Engineering
Prof. JA Gunawardena	Electrical & Electronic Engineering
Prof. CLV Jayatilleke	Mechanical Engineering
Prof. R Galappatthi	Civil Engineering
Prof. RJKSK Ranatunge	Manufacturing & Industrial Engineering
Prof. WJN Fernando	Chemical Engineering
Prof. TDMA Samuel	Engineering Mathematics
Prof. GE Amirthanathan	Civil Engineering
Prof. MP Ranaweera	Civil Engineering
Prof. S Sivasegaram	Mechanical Engineering
Prof. SRH Hoole	Electrical & Electronic Engineering
Prof. SB Siyambalapitiya	Engineering Mathematics
Prof. EMN Ekanayake	Electrical & Electronic Engineering
Prof. KGHCN Seneviratne	Civil Engineering
Prof. SD Pathirana	Manufacturing & Industrial Engineering
Prof. UdeS Jayawardena	Civil Engineering
Prof. KPP Pathirana	Civil Engineering
Prof. KS Walgama	Engineering Mathematics
Prof. K Perera	Engineering Mathematics
Prof. R Shanthini	Chemical and Process Engineering
Prof. SBS Abayakoon	Civil Engineering
Prof. KDW Nandalal	Civil Engineering

5. EMERITUS PROFESSORS OF THE FACULTY

Prof. RH Paul	1967
Prof. EOE Pereira	1971
Prof. WMG Fernando	1990
Prof. WP Jayasekara	1996
Prof. S Mahalingam	1996
Prof. JA Gunawardena	2003
Prof. CLV Jayatilleke	2004

Prof. TDMA Samuel	2006
Prof. MP Ranaweera	2008
Prof. WJN Fernando	2011
Prof. EMN Ekanayake	2012
Prof M Amaratunge	2017
Prof. KGHCN Seneviratne	2019
Prof. SD Pathirana	2021
Prof. KPP Pathirana	2023
Prof. UdeS Jayawardena	2023
Prof. KS Walgama	2023
Prof. RS Shanthini	2023

6. HONORARY DOCTORATES OF SCIENCE

Prof. EOE Pereira	1978
Prof. RH Paul	1981
Prof. A Thurairajah	1994
Eng. ANS Kulasinghe	2005

ANNEXURE I

RULES AND REGULATIONS RELATING TO THE DEGREE OF BACHELOR OF THE SCIENCE OF ENGINEERING HONOURS

REGULATIONS RELATING TO THE DEGREE OF BACHELOR OF THE SCIENCE OF ENGINEERING HONOURS



1. This Regulation may be cited as the University of Peradeniya, Sri Lanka, Regulation Number 488.10.1.2.1.1 and amendment for the Degree of Bachelor of the Science of Engineering Honours (BScEngHons) that will come into effect from 15/11/2023.
2. Subject to provisions of this Regulation, the Faculty Board of the Faculty of Engineering shall make appropriate Rules for the conduct of the Degree of Bachelor of the Science of Engineering Honours (hereinafter referred to as the Degree Programme)
3. The Degree Programme shall be of four academic years' duration and shall consist of a common first semester and seven semesters or equivalent in a field of specialisation as prescribed by this Regulation and the Rules hereunder.
4. A candidate may be admitted to the Degree Programme if he/she
 - a. has been admitted as a student of the University under the Statutes of the University governing the admission of students to the University and
 - b. has thereafter followed to the satisfaction of the Senate the courses of study prescribed by this Regulation and the Rules hereunder.
5. Contents, assessment strategies and credit values for each course in the Degree Programme shall be prescribed by the Faculty Board on approval of the Senate.
6. Courses shall be offered in semesters scheduled during the Degree Programme, and students shall register for courses they wish to follow each semester.
7. In order to obtain credits from a course, a student must follow the course satisfactorily and attain a minimum specified standard in the course evaluation as prescribed by Rules.
8. The credit load (also known as the volume of learning) of a student in a semester should be, at most, a maximum number specified by the Rules.
9. The Senate may prescribe courses and/or training, whether inside or outside the University, in addition to the courses specified by the Rules. A candidate shall not be deemed qualified for the Degree of Bachelor of the Science of Engineering Honours unless he/she has completed such courses and/or training to the satisfaction of the Senate.

10. A student registered to the Degree Programme shall follow it until he/she completes the Degree Programme subject to the maximum period stipulated for completion of the Degree Programme in this Regulation.
11. In the event of his/ her being prevented by the University from continuing the Degree Programme, the time of the interruption is included in the maximum period stipulated for completing the Degree Programme.
12. In the event that the student obtains approval for 'Deferment' or 'Leave of Absence', the granted time period is excluded from the maximum period stipulated for completing the Degree Programme.
13. In the event of discontinuity in following the Degree Programme without the approval of the Dean as prescribed by Rules, the student will be considered to have abandoned the Degree Programme. A student who has abandoned the Degree Programme will only be readmitted with the approval of the Senate on the recommendation of the Faculty Board.

Course Assessment

14. The Faculty Board, with the approval of the Senate, shall appoint an Evaluation Panel for each course offered in every semester.
15. The Evaluation Panel for a course shall comprise at least three members, including a coordinator, a moderator, and academic staff members and visiting lecturers teaching the course concerned.
16. Each Evaluation Panel shall be responsible for assessing students in respective courses by means of oral, practical and/or written assessments as necessary.
17. Due to compelling reasons, the performance of a student in a course may be re-evaluated by a Review Panel appointed by the Faculty Board on the recommendation of the Head of the Department concerned and/or the Dean with the approval of the Senate.
18. The Dean may authorise a makeup exam for a student who fails to face a scheduled exam for a valid reason as prescribed by Rules.
19. Under exceptional circumstances, the Dean may allow a student who fails to comply with a compulsory requirement of a course to fulfil such requirement at a later date as prescribed by Rules.
20. A student may be exempted from courses, provided that he/she has obtained an equivalent qualification or qualifications as approved by the Senate on the recommendation of the Faculty Board.
21. Streaming a student into a field of specialisation is based on available positions under different fields of specialisation and his/her preference, as well as the performance in the first semester as prescribed by Rules.

22. Where a prerequisite course or courses are prescribed, a student shall be permitted to follow that course only if he/she has attained the minimum requirement for the course or courses stipulated in the Rules. However, a student who has satisfactorily followed but has yet to attain the minimum requirements stipulated for the prerequisite course or courses for a given course may be allowed to follow that course with special permission granted by the Dean, based on a request from the student.
23. A student shall be deemed to have successfully completed the Degree of Bachelor of the Science of Engineering Honours if he/she has successfully followed the courses and reached the minimum standard required for the successful completion of the Degree Programme within eight academic years from the commencement of the Degree Programme, as prescribed by Rules.
24. A student who failed to complete a course as prescribed by Rules may register and follow the course in a subsequent semester in which the course is offered in order to complete that course.
25. A student, upon fulfilment of graduation requirements as prescribed by the Rules, shall apply to the Dean of the Faculty of Engineering for the award of the Degree of Bachelor of the Science of Engineering Honours.
26. A student shall be deemed to be eligible for the award of the Degree of Bachelor of the Science of Engineering Honours with First Class, Second Class (Upper Division or Lower Division), Pass with Merit or Pass if he/she has successfully completed the Degree Programme within four academic years from the commencement of the Degree Programme and has secured the minimum required Grade Point Average as prescribed by Rules.
27. A student who has successfully completed the Degree Programme but not within four academic years from the commencement of the Degree Programme as stipulated under the provisions of 26 above shall be eligible for the award of the Degree of the Bachelor of the Science of Engineering Honours with Pass if he/she has secured the minimum required Grade Point Average as prescribed by Rules.

Special Considerations

28. Notwithstanding the above provisions, each individual case may be dealt with on the basis of its own merit by the Faculty Board, subject to approval by the Senate.



RULES RELATING TO THE DEGREE OF BACHELOR OF THE SCIENCE OF ENGINEERING HONOURS

1. Degree Programme Duration

- 1.1. The Degree Programme for the Degree of Bachelor of the Science of Engineering Honours (hereinafter referred to as the Degree Programme) shall be of four academic years' duration in eight semesters or equivalent, with the first semester as a common semester and seven semesters or equivalent in the field of specialisation and an Industrial Training course of total duration not less than 24 weeks.
- 1.2. Each semester of the Degree Programme shall typically be 14 weeks in duration.
- 1.3. The Degree Programme may be preceded by a Foundation Programme of 6-10 weeks' duration.

2. Courses

- 2.1. One course credit is equivalent to 15 hours of lectures. An hour of tutorial work, demonstrations, small-group discussions, or two hours of practical classes or in-class assignments is equivalent to one lecture hour. The number of credits assigned to each course is in accordance with the total number of equivalent lecture hours associated with the course.
- 2.2. Following the Sri Lanka Qualifications Framework (SLQF), for lectures, tutorials, demonstrations, practical classes, in-class assignments, small-group discussions and field studies work, one credit (the measure of volume of learning) corresponds to 50 notional learning hours and in the case of industrial training, research project, and workplace-based learning (in suitable settings) one credit is equivalent to a minimum of 100 notional hours.
- 2.3. Respective evaluation panels are granted a degree of flexibility, allowing for up to two contact hours per one credit, where deemed necessary. This provides the opportunity to incorporate alternative teaching and learning activities or delivery modes within the specified lecture hours outlined in the course descriptors in recognition of the significance of adaptable course delivery and lecture hour allocation.
- 2.4. Each course shall be conducted within a single semester. However, the Senate may allow certain courses a longer duration on the recommendation of the Faculty Board.

- 2.5. Students shall register for the courses they wish to follow each semester from the courses offered in the relevant semester as recommended during the period announced for registration. The course selection may be changed during the add/drop period specified at the beginning of the semester. No change to course registration is allowed after the add/drop period except under special permission granted by the Dean based on requests from students with valid reasons.
- 2.6. A student, once registered for a course in a semester, will receive a grade for the course in his transcript at the end of the semester, and any registration for the same course at a later offering will be considered as repeating the course except where an incomplete grade has been awarded as described in Rule 5.1 below or a 'Leave of Absence' or a 'Deferment' has been granted.
- 2.7. The recommended load of a student in a regular semester is 18 credits, and the maximum number of credits allowed is 24 credits in a regular semester.
- 2.8. To be considered to have satisfactorily followed a course, a student is required to have at least 80% course participation that will be evaluated based on the teaching-learning components of the course specified by the Evaluation Panel and will be clearly announced at the beginning of the course.
- 2.9. End of semester examinations, when appropriate, shall be held from the second week following the end of each semester.
- 2.10. For a student to be eligible to be considered for a makeup examination for a scheduled examination in any course in the first, seventh and eighth semesters that he/she fails to attend for a valid reason, he/she is required to submit a written request stating the reasons to the Dean as early as possible but not later than one week from the date of the examination.
- 2.11. Any academic activities of courses, including assessments in the entire programme, shall be conducted in English medium.
- 2.12. A student may request with valid reasons for 'Deferment' or 'Leave of Absence' from the Degree Programme. The request shall be made in writing to the Dean as governed by the University Policy on Deferment of Registration and Leave of Absence for Registered Students.

3. Degree Programme Contents

- 3.1. The Degree Programme shall comprise Core, Technical Elective and General Elective courses and a mandatory Industrial Training course, as prescribed and recommended by the Faculty Board and approved by the Senate. The courses are subject to variation by the Faculty Board with the approval of the Senate with at least one year's notice to the students of any such change in the Core courses before it takes effect. Grades are awarded for all courses, excluding the Industrial Training course, which is offered on a pass/fail basis.

- 3.2. A student who has successfully completed the Degree Programme shall be deemed to have earned the required credits for the fulfilment of the requirements for the award of the Degree of Bachelor of the Science of Engineering Honours as set out in Rule 7 below.
- 3.3. Students are required to select Technical Elective and General Elective courses chosen from the list of courses recommended by the relevant department of study.
- 3.4. A student shall not be permitted to register or to have his/her performance evaluated in any course after the lapse of eight academic years from the commencement of the Degree Programme.
- 3.5. Students shall apply with their preferences to register for a field of specialisation at the end of the first semester. When the number of students applied for a field of specialisation exceeds the available positions in that field of specialisation, priority will be given to students based on the total of the Grade Points of the courses in the first semester. When two or more students have the same total of Grade Points, students with the highest total Grade Points of higher grades will be given priority.

4. Assessment Strategy

The assessment strategy shall provide a structured and comprehensive framework for evaluating students' academic progress and proficiency. This approach seamlessly integrates a diverse range of continuous assessments such as quizzes, assignments, group projects, case studies, mid-semester evaluations, laboratories, etc., which encourage active and sustained engagement with the course content, aligning with the specific Intended Learning Outcomes (ILOs) of the course. Additionally, final assessments, including written exams and viva voce evaluations, shall complement this strategy. The evaluation of these assessments, along with a transparent grading policy, shall ensure an equitable and precise reflection of students' academic performance.

5. Method of Grading and Grade Point Average

- 5.1 As shown in Table A1.1, Grade Points shall be awarded for each course with Grade Points allocated on a four-point scale. Table A1.1 also shows the recommended conversion from a percentage score to a grade where the assessment for a course is expressed as a percentage score.

Table A1.1: Recommended conversion from a percentage score to a Grade and Grade Points

Marks	Grade	Grade Points
≥ 85	A+	4.0
80 - 84	A	4.0
75 - 79	A-	3.7
70 - 74	B+	3.3
65 - 69	B	3.0
60 - 64	B-	2.7
55 - 59	C+	2.3
50 - 54	C	2.0
45 - 49	C-	1.7
40 - 44	D+	1.3
35 - 39	D	1.0
< 35	E	0.0

Normally, the minimum required grade to earn credit in any course shall be a grade C.

The maximum Grade Point accruing to a student repeating a course shall correspond to a grade C.

To be eligible to follow a course with prerequisites, a student should have a grade of D or above in every course that is stipulated as a prerequisite.

Under exceptional circumstances, acceptable to the Faculty Board, the Dean may authorise awarding an “Incomplete” grade to a student who fails to comply with a compulsory requirement of a course based on a written submission supporting compelling reasons. An “Incomplete” grade will enable the student to complete the course concerned at a later date with the approval of the Dean.

- 5.2 The Grade Point Average (GPA) is the weighted average of the Grade Points secured by the student in the courses that are valid for calculating the GPA for the programme concerned and is calculated as follows:

$$GPA = \frac{\sum_{i=1}^N C_i g_i}{\sum_{i=1}^N C_i}$$

where C_i is the credit of the i^{th} course, g_i is the Grade Point earned for the course and N is the total number of courses offered that are valid for the calculation of the GPA.

The GPA is rounded up to the nearest 0.01.

The General Elective courses and the Industrial Training course are not considered in the calculation of the GPA.

6. Academic Progression

6.1 The academic progression of a student is determined at the completion of each even semester based on two performance indicators as follows:

- i) Cumulative Grade Point Average (CGPA), a GPA defined as in Rule 5.2 for the courses completed up to the end of the even semester, and
- ii) Cumulative Credit Deficit (CCD), as defined in Rule 7.3.

6.2 A student having the following performance indicator criteria will be ineligible to proceed to the following academic year, and will have to improve the performance indicators to proceed to the next academic year:

- i) At the end of Semester 2: CGPA less than or equal to 1.
- ii) At the end of Semester 4: CGPA less than or equal to 1.5 or CCD greater than 36.
- iii) At the end of Semester 6: CGPA less than or equal to 1.5 or CCD greater than 24.

7. Requirements for the Award of the Degree of Bachelor of the Science of Engineering Honours

7.1 Successful completion of the Degree Programme in Engineering within the stipulated period with a minimum GPA of 2.00, and

7.2 Successful completion of mandatory training courses prescribed by the Faculty Board with the approval of the Senate, and

7.3 Securing a minimum total of 144 credits and satisfying the minimum credit requirements as stipulated by the Faculty Board and approved by the Senate excluding the credits from the Industrial Training course.

i) where the student may be deemed to have earned 144 credits, provided that the grade in any of the courses is not below a D and the CCD defined as follows, does not exceed 16.

ii) $CCD = \sum c_i d_i$ for all courses with a grade of D, D+ or C-,

where, c_i is the number of credits associated with a course in which the student has secured a grade of D, D+ or C- and d_i is the deficit weightage, defined as 1 for a D, 2/3 for a D+ and 1/2 for a C-.

- 7.4 The GPA calculated from the courses in the Degree Programme excluding General Elective courses and the Industrial Training course for the award of Classes/Passes are shown in Table A1.2.

Table A1.2: GPA requirements for the award of Classes/ Passes in the Degree Programme

First Class:	$GPA \geq 3.70$
Second Class (Upper Division):	$3.30 \leq GPA < 3.70$
Second Class (Lower Division):	$3.00 \leq GPA < 3.30$
Pass with Merit:	$2.70 \leq GPA < 3.00$
Pass:	$2.00 \leq GPA < 2.70$

8. Claiming of the Degree

- 8.1 A student who has satisfied the requirements for the Award of the Degree of Bachelor of the Science of Engineering Honours as specified in Rule 7 above shall claim the degree by submitting the duly completed degree claim form within the period announced for claiming the degree.
- 8.2 A student is permitted to claim the total credits specified for elective courses either by claiming to the exact figure or to the nearest highest figure in a combination of courses acceptable to the Dean of the Faculty. The GPA is based on the total credit values of the courses claimed.

9. Special Considerations

Notwithstanding the above provisions, each individual case may be dealt with on the basis of its own merit by the Faculty Board, subject to approval by the Senate.

ANNEXURE II

**STUDENT GUIDE TO REGISTRATION AND COURSE
COMPLETION**

STUDENT GUIDE TO REGISTRATION AND COURSE COMPLETION

The students should conform to the Rules and Regulations of the Undergraduate Programme of the Faculty of Engineering given in Annexure I. Any clarification on the contents therein may be sought from the Dean or Assistant Registrar of the Faculty. The following section provide answers only to frequently asked questions.

- a) The course selection may be changed during ADD/DROP period, after which no changes in registration are possible. The students who were unable to drop a course during the ADD/DROP period should follow the whole course and the grade will appear in the Academic Transcript.
- b) After the ADD/DROP period the total recommended workload from the registered courses for the Semester is 18 credits and should not exceed 24 credits. The credits from EF4010: Industrial Training Course which is normally conducted during the vacation is outside this limit.
- c) Students who fail to satisfy 80% course participation requirement of a course are considered to have not satisfactorily followed the course.
- d) Normally a grade of C is required to earn credit in any course. If the grade is poor (less than C) the course can be repeated in a subsequent semester provided that the timetable allows to fulfil the attendance requirement. However, the maximum grade awarded for a repeated course unit is a “C”.
- e) Specified number of credits should be obtained from the general elective courses recommended by your Department.
- f) Following a new elective course, the students have a chance of earning a grade as high as A+. Therefore, repeating an elective course which gives a maximum grade of C may not be productive.
- g) Students can follow more technical/general elective courses than the minimum number required for successful completion of the degree. All the credits and grades of courses including repeated courses followed by a student will be shown in the academic transcript. However, a student can select the elective courses in which he/she has obtained the best grades to satisfy the GPA and credit requirements for the degree, subject to the approval of the relevant Department.
- h) The sum of the credits of the selected electives (both technical and general separately) may sometimes exceed the minimum requirement by 1 credit due to different credit values from 1 to 3. This is allowed.
- i) The student can graduate with a Class if he/she completes the minimum graduation requirements within four academic year duration in eight semesters or equivalent. Any student who has failed to complete the minimum

graduation requirements within four academic year duration in eight semesters or equivalent is not eligible to get a Class unless if he/she has been granted special permission.

- j) The student should apply for graduation and demonstrate the completion of all requirements for graduation by filling the Degree Claim Form (DCF).
- k) If a student falls ill while in residence, he/she shall immediately get in touch with the Chief Medical Officer of the University Health Centre. If the student falls ill at home or elsewhere during sessions or examination time, his/her guardian should inform the Dean of the Faculty by a letter within one week stating the nature of the illness, the name of the attending doctor etc.
- l) If a student fails to attend an examination of a registered course due to illness or other exceptional reason and if he/she wishes to request for a makeup examination, he/she should make a request from the Dean of the Faculty for a makeup examination by a letter by the student himself or by a third person within one week of the examination of his/her absence with the valid reason for absence for consideration.*
- m) To be excused for absence from examinations, coursework etc. for medical reasons, the student shall submit to the Dean of the Faculty a valid Medical Certificate conforming to the format of a medical certificate issued by a Government Hospital.
- n) The medical certificate should be obtained from the Chief Medical Officer of the University or a District Medical Officer or, where treatment from a specialist is necessary, from a consultant specialist in the relevant field, or the Head of a Government Base Hospital, or the Medical Superintendent of a Provincial Ayurvedic Government Hospital. Under exceptional circumstances, the University Medical Board may accept medical certificates issued by a private hospital or by a registered private medical practitioner.
- o) A student seeking to get his/her registration deferred at the time of registration should inform the University, giving reasons for such deferment, and obtain permission from the University for such deferment.
- p) If a registered student is compelled to discontinue his/her course of study for any reason, he/she should notify the Dean of the Faculty as soon as possible to obtain permission to be away from the University. If a registered student of the University has abandoned his/her course of study without notifying the Dean, his/her request for readmission will not be entertained.
- q) A request for absence, where granted, is for a maximum of one academic year, except on approved medical grounds. A request granted on medical grounds is for a maximum of two academic years. Readmission of the student is subject to the availability of a place in the Faculty at the time of re-admission. If a student fails to have his/her registration renewed at the beginning of each academic year as required, his or her name will be deleted from the class list of the Faculty, and the student will be informed accordingly.

* *Subject to revision*

ANNEXURE III
FINANCIAL ASSISTANCE AND AWARDS

FINANCIAL ASSISTANCE AND AWARDS



Financial assistance is normally provided to needy Sri Lankan undergraduates in the form of Mahapola Scholarships and other awards by individuals and organizations.

1 MAHAPOLA SCHOLARSHIPS

This is a national scheme introduced by the Government of Sri Lanka to financially support deserving Sri Lankan students in institutions of higher education. The Mahapola Scholarship Trust Fund set up for this purpose offers two categories of Scholarships:

1.1 Mahapola Higher Education Merit Scholarships awarded on the basis of merit.

1.2 Mahapola Higher Education Scholarships awarded to needy students in the form of bursaries.

The general conditions on which these scholarships are awarded are:

- (a) Scholarship money are payable for only ten-months of the academic year.
- (b) A student receiving a Mahapola Scholarship cannot benefit financially from any other scholarship, but the student has the option to choose the scholarship from which he/she may receive financial support.
- (c) The Board of Trustees may withdraw the scholarship awarded to a student if his/her work, conduct or attendance is reported to be unsatisfactory by the University Grants Commission or if the student fails an examination at the first attempt.

2 ENDOWED ACADEMIC AWARDS

The following awards are available to students of the Faculty of Engineering. While merit is the sole criterion for the award of Medals, Prizes and Scholarships, financial need is an important consideration in the award of Studentships. The criteria to select the best suitable student for each award and studentship may be revised to suit the course unit system and the changes in syllabi.

2.1 Medals

- (a) *The EOE Pereira Gold Medal* endowed by friends and well-wishers of Professor EOE Pereira and awarded to the most outstanding student graduating from the Faculty.
- (b) *The Ceylon Electricity Board Gold Medal and Prize for Electrical and Electronic Engineering* endowed by the Ceylon Electricity Board.
- (c) *The IFS Gold Medal for Excellence in Computer Engineering* endowed by the Industrial and Financial Systems Ltd.
- (d) Mr. Helarisi Abeyruwan Gold medal in Civil Engineering.

2.2 Prizes for Overall Performance

- (a) *The Ananda Amarasinghe Memorial Prize* endowed by Messrs B Amarasinghe and AJ Edwards.
- (b) *The Sri Lanka Tyre Corporation Prizes.*
- (c) *The Ranjan Herath Gunaratne Prize* endowed by students of the Faculty.
- (d) *The EOE Pereira Prize* endowed by friends and well-wishers of Professor EOE Pereira.
- (e) *The CA Hewavitharana Memorial Prize in Engineering* endowed by Mr WD Hewavitharana.
- (f) *The Ceylon Development Engineering Prize for Civil Engineering* endowed by the Ceylon Development Engineering Co. Ltd.
- (g) *The Channa Lalith Maddumage Memorial Prize for Mechanical Engineering.* endowed by Mr DS Maddumage.
- (h) *The Colombo Dockyard Prize for Production Engineering,* endowed by Colombo Dockyard Ltd.
- (i) *The Bieco-Link Carbons Prize for Chemical Engineering* endowed by Bieco-Link Carbons (Pvt.) Ltd.
- (j) *Professor T.D.M.A. Samuel Prize for Enthusiasm and Excellence in Engineering Mathematics* endowed by Prof. Rosabelle Samuel.

2.3 Prizes for Performance in a Subject

- (a) *The EOE Pereira Prize for Structures (i)* endowed by friends and well-wishers of Professor EOE Pereira.
- (b) *The EOE Pereira Prize for Structures (ii)* endowed by friends and well-wishers of Professor EOE Pereira.
- (c) *The T Sivaprasapillai Prize for Industrial Engineering* endowed to the Engineering Alumni Awards Fund by Mr JB Dissanayake.
- (d) *The JB Dissanayake Prize for Industrial Training* endowed to the Engineering Alumni Awards Fund by Professor AS Balasubramaniam.
- (e) *The EF Bartholomeusz Prize for Engineering Mathematics* endowed to the Engineering Alumni Awards Fund by Mr KK Gunawardana.
- (f) *The HB de Silva Prize for Surveying* endowed to the Engineering Alumni Awards Fund by Dr AGKdeS Abey Suriya.
- (g) *The A Thurairajah Prize for Geotechnics* endowed to the Engineering Alumni Award Fund by Mr PM Gunasekara.
- (h) *The M Amaratunga Prize for Strength of Materials* endowed to the Engineering Alumni Awards Fund by Professor MP Ranaweera.
- (i) *The Paul Prize for Electrical Power and Machines* endowed by friends and well-wishers of Professor RH Paul.

- (j) *The WMG Fernando Prize for Electronic Communications* endowed to the Engineering Alumni Awards Fund by Professor FVC Mendis.
- (k) *The JCV Chinnappa Prize for Energy Studies* endowed to the Engineering Alumni Awards Fund by Professor NE Wijeyesundera.
- (l) *The LRL Perera Prize for Thermodynamics* endowed by Mr LRL Perera.
- (m) *The S Mahalingam Prize.*
- (n) *The WP Jayasekara Prize* endowed by Mr Nihal Kularathne.
- (o) *The Sri Lanka Telecom Prize* endowed by Sri Lanka Telecom
- (p) *MP Ranaweera Prize for Finite Element Methods in Solid Mechanics.*
- (q) *MP Ranaweera Prize for Computer Aided Structural Design.*
- (r) *Samantha Kularatne Prize.*
- (s) *The Prof. TDMA Samuel Prize for enthusiasm and excellence for Engineering Mathematics* endowed by Prof. Rosabelle Samuel.
- (t) *Professor J.A. Gunawardena Prize for the best performance in Electronic Engineering.*
- (u) *Professor J.A. Gunawardena Prize for the best performance in Control Engineering.*

2.4 Deans' List

1. The Deans' List is an award to students who have shown academic excellence within a given academic year.
2. A student who is eligible to be included in the Dean's List shall have;
 - a. registered and completed courses of at least 15 credits each obtaining pass grades in the two semesters¹ of the academic year concerned of which at least a total of 21 credits should be from courses that are usually counted for the GPA calculations;
 - b. attained a GPA of not less than 3.70 from all the courses offered in the two semesters that are usually counted for the GPA calculation and
3. Those who are selected to be in the Deans' List will be awarded a certificate and their names with their qualifications will be published in the Faculty web page.
4. The preliminary selection to the Deans' List will be conducted by the Scholarship Committee of the Faculty of Engineering and the final list will be decided by the Faculty Board of the Faculty of Engineering.

5. Selection will be made within the first month of a new academic year.

Note: ¹ the 7th semester for students following Computer Engineering specialization will be considered as the combination of the two ‘Short Semesters’.

3 Open Studentships

Table A3.1: Open Studentships

	NAME OF THE STUDENTSHIP
1	Ananda Amarasinghe Memorial Trust
2	RH Gunaratne Memorial Scholarship Fund
3	M/S Ceylon Tobacco Co. Ltd Scholarship
4	EOE Pereira Studentship
5	RH Paul Studentship
6	Ceylon Oils and Fats Corporation Studentship
7	LRL Perera Fund
8	Colombo Dockyard Studentship
9	Sumitra Munasinghe Studentship
10	Eardly Perera Studentship
11	CL Maddumage Studentship
12	Siripala Jayasinghe Studentship
13	Engineering Jubilee Exhibition Distress Grant
14	Prof. WP Jayasekara Studentship
15	Prof. S Mahalingam Studentship
16	Sri Lanka Telecom Scholarship
17	N Wickramaratne Scholarship
18	Engineering Faculty Studentship
19	Gulamhussaina J Noorbhai Studentship
20	DS Gunasekara Studentship
21	LB Abeyratne Studentship
22	Engineering Faculty 1963/67 Batch Studentship (i)
23	NB Rambukkwellla Studentship

24	Engineering Faculty 1963/67 Batch Studentship (ii)
25	Prof. TDA Samuel Studentship
26	Prof. Sanath Ranatunge Studentship
27	K Ramachandra Studentship

ANNEXURE IV
OUTLINE OF SYLLABI

OUTLINE OF SYLLABI

Notation: L - Lectures; T - Tutorials; P - Practical classes; A - Assignments; SG-Small Group Activities

COURSES FOR THE FIRST SEMESTER COMMON PROGRAMME IN ENGINEERING

CE1010 Engineering Mechanics (3 credits)

Introduction: Force systems: Forces and couples; equilibrium of rigid body; **Analysis of simple structures:** structures and components; loads and supports; internal and external forces; free-body diagrams; statically determinate structures; analysis of trusses; beams and shear force and bending moment diagrams; stress and strain; Hooke's law, and deformation of axially loaded members; statically indeterminate problems; **Bending of beams:** Simple bending theory and its applications; **Work and energy methods:** work due to forces and couples; virtual displacements and virtual work; strain energy and potential energy; energy principles; **Kinematics of Particle Motion:** Description of particle motion in 3D Inertial frames and in moving frames. The use of the Euclidian group of translations in describing the relative motion of frames; **Kinetics of Particle Motion:** Concept of Space-Time, mass and conservation of linear momentum and its relationship to Newton's Laws; The concept of force, meaning of kinetic energy, the notion of spatial angular momentum; conservation of spatial angular momentum; **Newton's laws in Moving Frames:** The meaning of centrifugal, Coriolis, Euler, and Einstein forces. Application to the description of complex motion of systems that can be approximated as particles (L34, T6, P10 =45)

CO1010 Programming for Engineers (3 credits)

Basics: Variables. Operators and precedence. Data types. Number systems and numerical precision. **Control Structures:** Conditions and loops. **Modularization:** Standard libraries and functions. User-defined functions. **Input/Output:** Standard input/output. File input and file output. **Data Structures:** List and list comprehension. String processing and formatting. Stack and Queue. Dictionaries. **Object-Oriented Concepts:** Classes and Objects. Accessing variables and functions within objects. **Quality Assurance:** Good programming practices. Testing. Debugging. Exception and error handling. **Algorithms:** Developing algorithms and writing programs for the solution of well-defined problems related to Engineering. **Numerical Computations:** Introduce concepts of numerical packages/libraries such as numpy and the use of mathematical software such as Matlab to solve problems such as those listed under Algorithms. (L15, T10, P30, A10 =45)

EE1010 Electricity (3 credits)

Introduction: Field theory as a tool to understand the universe, Fundamentals of Fields, Introduction to field theory. **Electrostatics:** Electric Charge and Coulomb's Law, Permittivity, Electric field, Gauss law, Electric flux, Electric potential, Energy stored in a static electric field, Dielectric polarization, boundary conditions, Capacitance. **Magnetism:** Magnetic flux and Flux density (B), Permeability, Magnetic field intensity (H), Biot-Savart law, Ampere's law, Gauss law for magnetic fields, Magnetic force and torque, Self and mutual inductance, Faraday's law of Induction, Lenz's law, Stored energy in the magnetic field, Magnetic properties of materials, B-H curve, Reluctance and magnetic circuits, eddy current, hysteresis and iron losses. **Linear Electrical Circuit Analysis: Steady state analysis:** Charge flow - ohms law, current and current density (J), resistance and resistivity, impedance and admittance, Mesh and nodal analysis, Thevenin's theorem, Norton's theorem, Maximum power transfer theorem. **Linear Electrical Circuit Analysis: Transient analysis:** Analysis

of RC, RL and RLC circuits under dc excitation. **Advances in modelling techniques:** Recent developments in modelling electrical phenomena. **Introduction to the state-of-the-art analysis tools:** Modern tools for electrical and magnetic field analysis, electrical circuit analysis. **Electrical Engineering Mini Project** (L29, T4, P24 =45)

EF1010 English for Communication I (3 credits)

Listening Comprehension: Listening comprehension on dialogues, short & long lectures, talks, documentaries; method of taking down notes for comprehension, tabulate information, paraphrase and summarize content through listening exercises. **Reading Comprehension:** Reading passages and articles from various disciplines to acquire reading skills such as skimming & scanning; reading comprehension, paraphrasing, improve vocabulary and critical analysis of content. **Writing:** Composing a structured discourse on general descriptions, processes, essays, graph descriptions and lab reports; writing with cohesion using relevant grammatical components. **Speech:** Effective use of the English language to communicate in different contexts such as dialogues, impromptu & prepared speeches, debates, discussions and presentations. (L10, A70 =45)

MA1100 Ethics and Sustainability (2 credits)

Ethics and Morality: Concept of morality; personal morality; common morality; core values. **Academic integrity:** Usage of information; citation and acknowledgement; plagiarism; impersonation. **Professional Ethics:** Engineers in an organisation; introduction to IESL Code of Ethics. **Ethics and Sustainability:** Ethical considerations in decision making for sustainable development projects – application of IESL Code of Ethics. **Global environmental and social issues:** Global environmental issues with particular emphasis on global warming and recourse limitation; Contribution from present development practices to these issues. Need for different approaches for development. **Concept of Sustainable Development:** Concept of sustainable development, three pillars of sustainability, the need for a sustainable approach to development; Sustainable development goals (SDGs). **Introduction to Tools and Concepts for sustainable development of Industries:** Concepts of Life Cycle Thinking, design for sustainability, cleaner production, sustainable consumption and production, circular economy. (L15, SG15 =30)

EM1010 Calculus I (4 credits)

Functions of a Single Variable: Functions and Limits, Continuity and Differentiability of real valued functions, Intermediate value theorem, Rolle's theorem, Mean value theorem, Leibnitz theorem, and tangent line approximation, extreme values, integration of single variable function. **Sequences and Series:** Monotonic and bounded sequences, Convergence, divergence and oscillation of a sequence, Series and their convergence, Real power series and their convergence, Maclaurin and Taylor series approximation. **First order Ordinary Differential Equations:** Differential Equations as a mathematical model and Classification, Separable, Linear, Exact, Reducible forms. **Vector approach to geometry in space:** Vectors, Determinant, Vector equations of lines and planes and their geometry, Parametric representation of curves in planes, Curvature, radius and centre of curvature, Derivatives of vector valued function in parametric form. **Functions of Several Variables:** Limit and continuity of functions of two and three variables, Partial derivatives and total differential, Chain rule and higher order partial derivatives. **Functions of Complex Variables:** Roots of unity and functions of complex variables, Mapping of complex variables, Derivatives of complex functions, Cauchy Riemann equation, Holomorphic functions, Harmonic functions. (L48, T6, A12 =60)

GENERAL ELECTIVE COURSES (Subject to periodic revision)

General Elective courses are listed in <http://eeu.pdn.ac.lk/GESNew>

ANNEXURE V

ENGINEERING EDUCATION AND UNIVERSITY OF PERADENIYA

"Scientists study the world as it is, engineers create the world that never has been."

– Theodore von Karman

ENGINEERING EDUCATION AND UNIVERSITY OF PERADENIYA

The Nature of Engineering

Engineering has been described as the art of the practical application of scientific principles to "directing the great sources of power in nature for the use and convenience of man". It involves men, money, material, machine and energy and "requires above all the creative imagination to innovate useful applications of natural phenomena". It also has the character of a never-ending search for "newer, cheaper, better means of using natural sources of energy and materials to improve man's standard of living and to diminish labour".

Evolution of Engineering Education

Academic training of engineers, as is known it today, took a long time to gain recognition and acceptance due to resistance from within the profession as well as from the universities. Even in Britain, the cradle of the Industrial Revolution, the official history of the Institution of Electrical Engineers (1871 - 1971) records that "the traditional English road to a professional career [in the nineteenth century] did not lie through a university but through apprenticeship: 'learning by doing'. For the solicitor this meant an articulated clerkship; for the doctor, 'walking the wards'; for the civil engineer pupilage in the drawing office and on the site; for the mechanical engineer 'going through the mill'. 'Premium apprentices' heading for a professional career, were marked off from apprentices on the way to becoming skilled tradesmen by the fees that their parents paid and by the expectation that they would study in their spare time. Engineering employers as a rule were apt to be scornful of academic achievements and young men/women who had them might find it politic to keep them hidden. The idea that engineers might qualify by examination was far, very far indeed, from the minds of mid-century employers although Sir John Rennie, a most eminent civil engineer, said as early as 1867, speaking of his own profession, that qualification by examination was 'the only method by which it can take rank among the learned professions'".

In the mid-nineteenth century the proposal to teach engineering in the universities in Britain also ran into opposition from some conservative academics who felt that engineering was far too empirical to be "a proper department in which a degree should be conferred". Radical changes in thinking have taken place since then. In today's complex technological society, graduate engineers form an overwhelming majority of the membership of the professional engineering institutions all over the world. It has been predicted that before long an engineering degree will be a basic requirement for the Corporate Membership of such bodies.

Engineering Education in Sri Lanka: a Brief History

In the development of British colonial territories, the teaching of medicine was generally given priority over other forms of tertiary education. This policy led to the establishment in 1870 of a Medical College in Colombo as an "elementary school" for training medical assistants. The College began to expand rapidly and by 1888 it was sufficiently well developed for its LMS (Licentiate of Medicine and Surgery) to be recognised by the General Medical Council of Great Britain. Thus it had become a college for training fully qualified doctors. In 1874, a Council of Legal Education (later Law College) was created to produce lawyers. In a similar development a Technical School was founded in Colombo in 1893 to train sub-professional engineering personnel. It was renamed the Ceylon Technical College in 1933. Unfortunately, the colonial authorities did

not have a clear policy on technical education, and in consequence the college went through many vicissitudes being nearly downgraded to an Industrial School at one stage.

Fortunately, engineering education received a welcome stimulus from an unexpected quarter. This was the Ceylon University College, which had been founded in 1921 to prepare students for the University of London's external degrees in Arts and Science. In 1923 the college announced a scheme to award two scholarships every year to promising Science graduates to follow Engineering degree courses in Britain and practical training thereafter. This was to prove a significant step in producing engineering graduates, some of whom would, in due course, rise to the highest levels in the profession and in academia. The Government ended the Engineering Scholarship Scheme in 1932, after a total of 20 awards had been made.

In the meantime, the Ceylon Technical College, where the main activity was the preparation of students for the Associate Membership Examinations of the three major professional institutions in Britain, was being developed steadily. In 1942 it was able to reach University College rank when it received provisional recognition from the University of London to prepare students for its external degree in Engineering. Owing to the prevailing wartime conditions the requirement of an inspection of the teaching facilities was waived.

On 1st July 1942 the University of Ceylon –the first university in the country– was established by the amalgamation of the Ceylon University College and the Ceylon Medical College. At the inception there were four faculties: Arts, Oriental Studies, Science and Medicine. Although the need for Engineering was recognized, planning was deferred owing to the shortage of funds in the stringent wartime economy. The availability of degree courses at the Ceylon Technical College was also another reason for lowering the priority of Engineering. However, in December 1949 a crisis erupted at the Ceylon Technical College when the University of London made known its intention of reconsidering the provisional recognition in view of some serious shortcomings in the college. This development caused great concern, as continued recognition appeared to be in doubt. The government responded to the crisis by requesting the University of Ceylon to set up a Faculty of Engineering by 1 July 1950. Ill prepared though it was, the University accepted the challenge and with this decision the degree courses at the Ceylon Technical College were wound up.

The Faculty of Engineering

The permanent home of the new Faculty was to be in the residential campus in Peradeniya, but until the buildings were ready it was located in Colombo. For the time being, therefore, it had to make use of the laboratory facilities at the Ceylon Technical College, supplementing them with its own equipment. It had three departments of study: Civil Engineering, Electrical Engineering and Mechanical Engineering.

The site for the Engineering complex was a 6-hectare block on the left bank of the Mahaweli River across which a bridge was built for access to the rest of the Campus. The entire project was planned by the staff of the Faculty and the University architects without any significant expatriate expertise. The laboratories, classrooms, library and other facilities were designed for quick and easy access, and ample provision was made for future expansion. When the project was completed in 1964 the move from Colombo took place. The facilities had a floor area of about 18,500 square metres, and 11,200 square metres have been added since then.

In 1942, when degree courses commenced at the Ceylon Technical College, the number of professional engineers in the country was estimated to be around 210, and 104 graduated in the period 1942-50 when the College had its link with the University of London. On the basis of these figures the intake of freshmen to the Faculty in 1950 was fixed at

25. This figure was steadily increased over the years, reaching 150 in 1964, the year of the move to Peradeniya. On requests from the UGC the intake was raised to 250 in 1978 and is currently 455. From its inception in 1950 to 1971, when a second Faculty of Engineering was opened at Katubedde, this Faculty was the only source of supply of graduate engineers in the country. During the period 1950-53 when the Faculty undertook the task of completing the instruction of Ceylon Technical College undergraduates affected by the termination of the degree courses, 92 graduated with the University of London degree. The University of Ceylon's BScEng degree was first awarded in 1953, and in the period 1953-2007, 8956 students have obtained this degree.

Steady expansion and diversification of the Faculty have taken place since the move to Peradeniya and there are now eight departments of study: Civil Engineering, Electrical and Electronic Engineering, Manufacturing and Industrial Engineering, Mechanical Engineering, Chemical and Process Engineering, Engineering Mathematics, Computer Engineering and Engineering Management. The number of professorial chairs in the Faculty is eleven – three each in Civil Engineering, and Electrical & Electronic Engineering, two in Mechanical Engineering and one each in Engineering Mathematics, Manufacturing & IndustrialEngineering and Chemical and Process Engineering.

The Faculty offers a full-time undergraduate programme leading to the Degree of Bachelor of the Science of Engineering Honours (BScEngHons). This is of four-years duration, the first semester being common to all students and the remaining seven semesters devoted to specialization in one of the branches of engineering. Coursework (laboratory, design and fieldwork), projects and industrial training form an essential part of the undergraduate course. The undergraduate programmes of the past, with an examination at the end of each academic year, have been replaced by programmes based on the Semester System with effect from 2002, with continuous assessment and examinations held every semester. There are examinations at the end of each Semester

The Faculty offers postgraduate programmes leading to Postgraduate Diploma in specialized fields of Engineering (PGDip), degrees of Master of the Science (MSc), degrees of Master of the Science of Engineering (MScEng), Master of Philosophy (MPhil) and Doctor of Philosophy (PhD).

In spite of having to contend with many difficulties similar to those experienced by the universities of other developing countries, the Faculty provides an academic environment of the highest quality and has maintained a gratifying record of teaching, research and public service, the traditional functions of institutions of higher education. Research done in the Faculty has been published at home and abroad, while its consultancy and laboratory services have been provided over the years to private and public sector establishments in the country.

Women in Engineering

In Sri Lanka there have never been legal barriers to women aspiring to higher education, and from the very beginning, they were free to seek entry to any department of study in the Medical, Law, Technical and University Colleges. But the traditional conservatism that prevailed in the early years stood in the way of professional careers, and many of them opted for courses in the Arts and the Humanities. These attitudes began to change in the post-war milieu and women began to spread out into all other fields. The Faculty of Engineering which had been regarded as the proud preserve of men, admitted its first woman undergraduate in 1960 and she went on to specialize in Civil Engineering. Since then the pace has quickened, and the numbers have been increasing steadily. Women engineers have now become well established in the profession, and some have risen to important positions at home and abroad.

The University of Peradeniya

The University of Ceylon, the first university in the country, was established in 1942 under the Ceylon University Ordinance (No. 20 of 1942) as a unitary, residential and autonomous corporation. The seat of the university was to be Peradeniya, to which it moved in 1952. With the passage of time the demand for higher education kept increasing, and more universities of different characters were created. In 1967 the government decided to separate the two wings of the University of Ceylon to create two independent universities. After this bifurcation, the Peradeniya wing was named University of Ceylon, Peradeniya. In 1972 there was a complete reorganization of the university system by the University of Ceylon Act No. 1 of 1972, which was passed in January 1972. All the existing universities were merged into a single monolithic University of Ceylon, administered from Colombo. The original universities became constituent campuses, and Peradeniya was given the name University of Ceylon, Peradeniya Campus. When Parliament adopted a Republican Constitution later in 1972, the country's name was changed to Sri Lanka, and this university became known as University of Sri Lanka, Peradeniya Campus. Another reorganization of the University system took place in 1978. By the University Act No. 16 of 1978 (passed in December 1978), the pre-1972 administrative system was restored, creating separate Universities enjoying self-governing powers, under the overall direction of the University Grants Commission. This Act conferred on this university the name of University of Peradeniya. Although many changes have taken place in the administrative structure of the university, it still retains its residential character. The original planning of the campus was based on an estimated student population of 1,000, however, at present there are about 13,000 students on roll, well in excess of the available residential capacity. An expansion of the residential facilities is now going on, and progress will depend on the availability of funds. With its nine faculties – Agriculture, Allied Health Sciences, Arts, Dental Sciences, Engineering, Management, Medicine, Science and Veterinary Medicine & Animal Science – Peradeniya remains the largest and the oldest university in the country.

