M.Sc./P.G. Diploma Course in Electrical Installation

Curriculum and Scheme of Evaluation

Code	Course Unit	Credits[1]	Evaluation[2]	
			Assignments	Final Exam
Compulsory Modules				
EE 5110	Design Aspects in Electrical Installations	2.5	40±20	60±20
EE 5111	Protective Measures in Electrical Installations	2.5	40±20	60±20
EE 5114	Lighting Design	2.5	40±20	60±20
EE 5120	Maintenance and trouble-shooting of Electrical Installations	2.5	40±20	60±20
EE 5121	Air Conditioning, Ventilation and Fire Safety	2.5	40±20	60±20
EE 5123	Lightning Protection and Earthing	2.5	40±20	60±20
EE 5124	Procurement and Inventory Management	2.5	40±20	60±20
EE 5092	Research Methodology and Minor Projects	2.5	100[3]	-
EE 6099	Dissertation (for MSc)	20	-	100
Optional Modules				
EE 5053	Energy Efficiency, Demand Management and Conservation	2.5	40±20	60±20
EE 5086	Project Management	2.5	40±20	60±20
EE 5087	Human Resource Management	2.5	40±20	60±20
EE 5091	Small Hydropower Development	2.5	40±20	60±20
EE 5096	Advanced Engineering Mathematics	2.5	40±20	60±20
EE 5117	Electromagnetic Compatibility and Power Quality	2.5	40±20	60±20
EE 5118	Building Management Systems	2.5	40±20	60±20
EE 5125	Application Aspects of Electrical Machines and Converter Applications	2.5	40±20	60±20
EE 5126	Acoustic Design	2.5	40±20	60±20
EE 5127	Computer Aided Design (CAD) Tools	2.5	100	-
EE 5128	Ancillary Services in Electrical Installations	2.5	40±20	60±20
EE 5212	Systems Control and Automation	2.5	40±20	60±20
EE 5052	Energy Economics	2.5	40±20	60±20
EE 5095	Advanced Power Electronics	2.5	40±20	60±20
EE 5057	Energy and Environment	2.5	40±20	60±20
EE 5054	Energy Planning	2.5	40±20	60±20
EE 5056	New, Renewable and Rural Energy Systems	2.5	40±20	60±20
EE5105	Applied Power Quality Modelling and Analysis	2.5	40±20	60±20
EE5106	Advanced Power System Protection	2.5	40±20	60±20

[1] 1 credit corresponds to 14 hours of lectures or equivalent

[2] The mean value in the evaluation scheme is the default value. It can be changed by the Lecturer/Examiner concerned, within the specified range, by announcement to the students at the commencement of the course unit.

[3] Evaluation is based on the requirements as specified in clause 4.1(c) of the By-Law.

Brief Syllabi for Modules

1. EE 5110 Design Aspects of Electrical Installation

Learning Outcomes

At the end of this module, the student should be able to

1. Identify the main steps in the design of an electrical installation.
2. Assess the general characteristics of an electrical installation.
3. Select cables in accordance with the standards and wiring regulations.
4. Identify and apply additional requirements of Electrical Installations in high-rise buildings.

Outline Syllabus

1. Structure of the Wiring Regulations. Fundamental requirements for Safety.
2. Assessment of general characteristics of an electrical installation.
3. Demand calculation and diversity.
4. Standards and Regulations. Installation circuit arrangements.
5. Sizing and Selection of cables Systems. Isolation and switching.
6. Design of electrical installations.
7. Special requirements for high-rise buildings.

2. EE 5111 Protective Measures in Electrical Installations

Learning Outcomes

At the end of this module, the student should be able to

1. Identify the protective measures against electric shock and overcurrents necessary to prevent injury to humans and livestock and damage to equipment in electrical installations.
2. Select and position the protective devices in keeping with the wiring regulations.

Outline Syllabus

1. Protection against electric shock.
2. Protective measures against direct and indirect contact, earthing arrangements, protective conductors, determination of earth fault currents.
3. Protection against thermal effects.
4. Protection against overcurrent: Overloads, fault currents.
5. Characteristics of Protective devices. Co-ordination of protective devices and conductors. Adiabatic equation. Selection and positioning of protective devices.
6. Degree of Protection: IP Code.

3. EE 5114 Lighting Design

Learning Outcomes At the end of this module, the student should be able to 1. Use the principles and standards in lighting design. 2. Evaluate a lighting installation against the standards and codes. 3. Carry out a lighting design for an indoor environment.
Outline Syllabus 1. Illumination principles, Fundamental laws. 2. Visual performance, Perception of colour. 3. Lighting requirements of buildings, use of day light for interior lighting 4. Lighting equipment , types of lamps, luminaires , comparative performance of lamps and luminaires. 5. Artificial lighting design: point by point method, average lumen method. 6. Artificial lighting design: computer software for lighting design, examples. 7. Lighting control, lighting and energy, lifetime cost of lighting, green building concept.

4. EE 5120 Maintenance and trouble-shooting of Electrical Installations

Learning Outcomes At the end of this module, the student should be able to 1. Identify good practices in maintenance of electrical installations. 2. Trouble-shoot problems in electrical installations. 3. Organize systems of maintenance in large scale organizations. 4. Use simple software tools in maintenance management. 5. Specify and carry out inspection and testing procedures with according to relevant international standards.
Outline Syllabus 1. Testing, Maintenance, troubleshooting and repair: voltage regulators, battery banks, chargers, emergency lighting systems, BMS systems, control systems, cable and bus riser systems , switchgear, electric motors and frequency converters, power transformers, HV and MV equipment, fire detection and protection systems. 2. Testing and commissioning of Electrical installation. 3. Preparation of Test Certificate and report. 4. Compliance with international standards of safety, environmental safeguard measures and technical excellence.

5. EE 5121 Air Conditioning, Ventilation and Fire Safety

Learning Outcomes At the end of this module, the student should be able to 1. Design air conditioning and ventilation systemsfor buildings. 2. Review issues related to performance in air conditioning and ventilation. 3. Design fire protection systems with due regard to precautions necessary against electrical hazards.
Outline Syllabus 1. Principles of air-conditioning and ventilation. 2. Cooling load calculation, major components of air-conditioning & ventilation systems. 3. Handling of refrigerants, air ducts, air distribution and ventilation, fan, AHU, FCU and pump, motor starter and controllers. 4. Maintenance, servicing, testing and commissioning of various types of air conditioning and ventilation systems. 5. Fire theory; design of fire protection systems: fire services automatic sprinkler alarm system; fire hydrant/hose heel systems; pre-action sprinkler system; drencher and water spray systems, automatic & manual alarm system.

6. EE 5123 Lightning Protection and Earthing

Learning Outcomes At the end of this module, the student should be able to 1. Apply lightning protection principles in the protection of electrical installations. 2. Design a grounding system for electrical installations considering safety issues and constraints placed.
Outline Syllabus 1. Introduction to lightning. Lightning parameters. 2. Effects of lightning and protection principles. 3. Lightning protection of equipment, installations and high rise buildings. 4. Standards and specifications related to lightning protection. 5. Commonly used grounding arrangements and their resistance calculations. 6. Impulse impedance of grounding systems. 7. Step and touch potentials. 8. Measurement of Earth resistance and resistivity profile. 9. Principles of design of substation grounding, Project. 10. Earthing for lightning protection.

7. EE 5124 Procurement and Inventory Management

Learning Outcomes

At the end of this module, the student should be able to

1. Prepare bidding documents in keeping with technical specifications.
2. Prepare contract documents for technical projects.
3. Evaluate bids for award of contract.
4. Establish and maintain an inventory management system.

Outline Syllabus

1. Relationship between a "Project" and a "Contract".
2. Parties involved in the contract and their obligations, Duties of Engineer and Engineer's representative.
3. Contractor's responsibilities and appointment of sub contractors.
4. Types and selection of contracts, Standard forms of contract.
5. Preparation of Tender documents for invitation for bids.
6. Scope of work, Preamble, Specification & drawings, bills of quantities, payments and variations to the contract, claims, arbitration, engagement of labour, taxation.
7. Tender evaluation and selection, Contact awarding Procedures.
8. Inventory management.

8. EE 5053 Energy Efficiency, Demand Management and Conservation

Learning Outcomes

At the end of this module, the student should be able to

1. understand the important issues related to energy policy.
2. identify and quantify the typical energy management opportunities to perform energy assessments of industrial and commercial buildings, including determining data needs, utilizing instrumentation, and analysing and presenting results.

Outline Syllabus

1. Supply-side efficiency issues
2. power system loss optimization
3. Efficiency issues in oil exploration and refining
4. Demand-side efficiency issues;
5. efficiency/efficacy of typical endues devices such as motors, lighting devices, air conditioning systems, transportation, boilers, furnaces, conventional and improved stoves;
6. scope for improvement;
7. recent development worldwide and in Sri Lanka. Energy auditing;
8. energy systems in typical industrial and commercial buildings;
9. how to conduct an energy audit;
10. measurements and instrumentation;
11. worked example of a preliminary energy audit in an industry;
12. project identification and financial evaluation.

9. EE 5086 Project Management

Learning Outcomes At the end of this module, the student should be able to 1. Distinguish project management from day to day management of business. 2. Demonstrate sufficient knowledge in various disciplines of project management. 3. Acquire necessary skills and ability to use modern day tools for project management.
Outline Syllabus 1. Project management concepts. 2. Characteristics of a project. 3. Project cost estimations 4. Feasibility report. 5. Project financing. 6. Project appraisal. 7. Project control. 8. Risk mitigation and management. 9. Project scheduling. 10. Conflict resolution and negotiations. 11. Software tools for project management

10. EE 5087 Human Resource Management

Learning Outcomes At the end of this module, the student should be able to 1. Formulate a human resource development strategy for an organization. 2. Design and monitor KPI (key performance indicators) for HRM. 3. Implement HRM practices in an organization.
Outline Syllabus 1. Human resource planning, Job analysis and Job design. 2. Recruitment and selection. 3. Training and development. 4. Managing performance. 5. Reward Management. 6. Human Resource Information systems. 7. Strategic Human resource management. 8. Managing Labour relations.

11. EE 5091 Small Hydropower Development

Learning Outcomes:
At the end of this module, the student should be able to

1. carry out techno-economic development of small hydropower schemes.

Outline Syllabus:

1. Preliminary studies, Hydrological studies and viability of the project
2. Feasibility studies and design, Financial and sensitivity analyses
3. Investor decisions and risk management, Involvement of government organizations, Project implementation,
4. Facing contingency situations.

12. EE 5092 Research Methodology

Learning Outcomes
At the end of this module, the student should be able to

1. Formulate research proposals and write technical papers/dissertations.
2. Apply data analysis techniques for research work.
3. Undertakeindependent research.
4. Summarize and present results.

Outline Syllabus

1. Introduction to concepts of scientific research.
2. Research proposal writing.
3. Critical review techniques.
4. Preparation of technical reports/research papers/ dissertation.
5. Methods for data analysis.
6. Interpretation and presentation of data.
7. Strategies for summarising and presenting technical papers.

13. EE 5096 Advanced Engineering Mathematics

Learning Outcomes
At the end of this module, the student should be able to

1. Analyse and model engineering situations and solve engineering problems using linear algebra, non-linear and partial differential equations, vector calculus, finite element analysis, linear and dynamic programming, statistical methods
2. Use software tools for analyse, model and solve engineering problems.

Outline Syllabus

1. Linear Algebra.
2. Non-linear and partial differential equations.
3. Finite Element Analysis.
4. Linear and dynamic programming.
5. Statistical methods.
6. Mathematical modelling of engineering problems using software tools.

14. EE 5117 Electromagnetic Compatibility and Power Quality

Learning Outcomes At the end of this module, the student should be able to 1. Estimate and mitigate the effects of electromagnetic interference in electrical installations. 2. Quantify and mitigate power quality issues in electrical installations.
Outline Syllabus 1. Sources of electromagnetic interference (EMI). 2. EMI types, EMI prediction, EMI measurement, EMI reduction techniques, Modelling of EMI, Standards and specifications related to EMI. 3. Classification of power quality disturbances and introduction to their origin and effects. 4. Long term voltage variations, Voltage unbalance and unbalance factor, Voltage sags, CBEMA curve (ITIC). 5. Voltage fluctuations and lamp flicker, Transients due to capacitor switching, Harmonics and their effects, Harmonic standards. 6. Computor tools for EMC & PQ simulation.

15. EE 5118 Building Management Systems

Learning Outcomes At the end of this module, the student should be able to 1. Understand the management and control requirements of buildings for human comfort. 2. Use MIS system in Building management systems (BMS). 3. Design and implement a BMS. 4. Explain the structure of a Building Energy Management System (BEMS).
Outline Syllabus 1. Overview. 2. Human comfort in building designs. 3. Use of MIS in BMS. 4. Energy management systems. 5. Hardware and software for BMS. 6. Case studies.

16. EE 5125 Application Aspects of Electrical Machines and Converter Applications

Learning Outcomes At the end of this module, the student should be able to 1. apply appropriate motor drive system for a given electrical construction with due considerations to respective operational issues.
Outline Syllabus: 1. Type and capacity Selection of motor drives 2. Power converter harmonics and mitigation measures 3. Energy efficiency labeling and testing of motors 4. Protection of motor drives

17. EE 5126 Acoustic Design

Learning Outcomes At the end of this module, the student should be able to 1. understand the basics of sound transmission 2. design noise control systems taking into account regulatory, health and environmental aspects
Outline Syllabus: 1. Introduction to a Acoustic Waves, Pure Tones, Complex Tones, Octave Band Frequencies, Acoustic Sources, Noise Sources Outdoors, 2. Basics of Sound Transmission, Relationship between Power and SPL, Decibel calculations, Room Acoustics, Surface Absorption, Reverberation Time, Sound Reduction Index (SRI), Factors governing SRI, Practical Considerations, Surface Directivity, Acoustic Screening, Duct Borne Noise, Sources of Noise, Attenuation, Estimating the Noise in a Room, Vibration, Isolation & Control, Vibration Isolation, Excitation of a floor, 3. Air Conditioning Noise Control, Generator Noise Control, Noise Pollution Control

18. EE 5127Computer Aided Design (CAD) Tools

Learning Outcomes At the end of this module, the student should be able to 1. demonstrate the knowledge in using computer aided design tools for power system design and planning
Outline Syllabus: 1. CAD software for Transient studies 2. CAD software for Load Flow and Fault Analysis 3. CAD software for Contingency analysis 4. CAD software for Distribution planning

19. EE 5128 Ancillary Services in Electrical Installations

Learning Outcomes At the end of this module, the student should be able to 1. Select and design most appropriate ancillary systems for electrical installations considering latest technology updates
Outline Syllabus: 1. Fire Systems: Smoke Detectors Heat Detectors, Control Panels, Codes & Standards, Fire Rated Cabling, Special Installations, Automatic Suppression Systems, Applications, 2. ELV Systems: Data Transmission, Cabling Options (Fibre Optic, Muli-pair...etc.), Patch Panels and Switchgear, Types of Systems, Structured Cabling Systems, CCTV & Security Systems, Types of Applications, Components involved, Types of Communication/ Telephone Systems & Applications, PABXs, Phones, other Equipment & Switchgear, Broad Band Access, Satellite Communications, MATV Systems, 3. Lifts and Escalators: Electric, Hydraulic and other applications, Control Systems

20. EE5212 Systems Control and Automation

Learning Outcomes At the end of this module, the student should be able to 1. Identify, evaluate and model a control system 2. Implement a control system for a real world application 3. Select and integrate different modules to work in a microprocessor based environment
Outline Syllabus 1. *System modeling and control*: Review of control systems and control techniques, Systems identification and modeling, Feedback control 2. *Systems Integration*: Sensors and actuators, Signal processing 3. *Microprocessor based systems*: RISC and CISC architectures, Computer Organization and Control, Peripheral Devices and data communication standards, Operating Systems and Memory Management. 4. SCADA systems and PLCs 5. AI applications in control and automation

21. EE 5052 Energy Economics

Learning Outcomes:

On completion of this module, students should be able to

1. identify the sensitivity of national economies to energy

Outline Syllabus:

1. Energy as a sector of a national economy;
2. Demand analysis;
3. Price and income elasticity of demand; self- and cross-price elasticities;
4. Identification of determinants of demand;
5. Energy demand forecasting using trend, time-series, econometric; end-use and hybrid techniques; judgmental methods;
6. Costing of Externalities of energy
7. Typical issues in developed and developing countries. Economic comparison of supply-side energy options;
8. Economic and financial cost-benefit analysis of energy projects;
9. Analysis of demand-side options and substitution options.

22. EE 5095 Advanced Power Electronics

Learning Outcomes:

At the end of this module, the student should be able to

1. demonstrate the knowledge of advanced power converter systems and carry out reliable designs

Outline Syllabus:

1. Technology overview
2. Device level designs of converters
3. Multilevel converters
4. Bulk power converters in power systems
5. Design of power supplies

23. EE 5057 Energy and Environment

Learning Outcomes:

At the end of this module, the student should be able to

1. provide state-of-the-art education in the fields of energy utilization by means of economically and environmentally sustainable systems and technologies.

Outline Syllabus:

1. Environmental impacts of energy systems;
2. Supply-side and demand-side impacts;
3. Mitigatory measures;
4. Environmental economics;
5. Analysis of environmental attributes an decision-making;
6. Environmental regulations in Sri Lanka,
7. Standards for contaminants and other guidelines.

24. EE 5054 Energy Planning

Learning Outcomes:

At the end of this module, the student should be able to

1. Develop an integrated approach for national energy planning.

Outline Syllabus:

1. Development of an energy database; the national energy balance; development of a reference energy system.
2. Integrated National Energy Planning;
3. Energy sector policy analysis; strategic options; optimal energy mix;
4. Integrated Resource Planning;
5. Energy planning models for power generating systems, transmission and distribution, planning models in the petroleum sector;
6. Case study and worked examples.

25. EE 5056 New, Renewable and Rural Energy Systems

Learning Outcomes:

At the end of this module, the student should be able to

1. carry out techno-economic analysis of renewable energy system development.

Outline Syllabus:

1. Emerging technologies (wind, solar, wave, tidal, OTEC); their status of development and economics;
2. Design of a stand-alone renewable energy system;
3. Design of a hybrid system.
4. Design and operation of grid-integrated renewable energy systems.

26. EE 5081 Operations Research

Learning Outcomes:

At the end of this module, the student should be able to

1. play an effective role in providing decision support to managers

Outline Syllabus:

1. Linear and dynamic programming,
2. Sensitivity analysis,
3. Network analysis,
4. Integer programming.

27. EE5105 Applied Power Quality Modelling and Analysis

Learning Outcomes:

At the end of this module, the student should be able to

1. Investigate effects of electromagnetic disturbances on power systems
2. Analyse power quality issues related to electric power systems.
3. Identify proper power quality mitigation techniques
4. Develop solutions as per power quality standards

Outline Syllabus:

1. Network modelling for PQ analysis
2. Load behaviour: distorting loads and non-distorting loads, Harmonic models of transformers, Life time reduction of electrical machines
3. Power quality disturbance allocation: Voltage fluctuations, Transient over voltages; Voltage dips and sags, Voltage unbalance, Harmonics
4. Power quality on Reliability, Relaying and Security
5. Power quality issues with Distributed Generation
6. Power quality monitoring and analysing and reporting
7. Power quality standards
8. power quality economics
9. Mitigation of power quality issues
10. Flexible AC transmission systems (FACTS)

28. EE5106 Advanced Power System Protection

Learning Outcomes:

At the end of this module, the student should be able to

1. Identify current developments in power system protection including novel methods of fault detection.
2. Use synchronized phasor measurements for power system protection.
3. Apply IEC61850 protocol for substation automation.
4. Simulate advanced protection schemes using computer aided design tools.

Outline Syllabus:

1) Introduction to concepts of power system protection
   - Review of requirements of power system protection.
   - Review of conventional protection schemes.
   - The trends in modern power system protection.
   - Review of digital signal processing for power system protection.
   - Implementation of a digital overcurrent relay in computer aided design software.
2) Identification of power system faults using novel methods.
   - Calculation of fault currents.
   - Methods of identification of fault locations of overhead and underground systems (travelling wave based methods, wavelet based methods, etc)
   - Simulation of a novel fault location identification method in computer aided design software.
3) Power system protection using synchronized phasor measurements.
   - Synchronized phasor measurements and phasor measurement unit architecture.
   - Protection applications of phasor measurements.
   - Implementation of a synchronized phasor measurement based protection scheme in

computer aided design software.

4) Introduction to IEC 61850 substation automation protocol and its applications.
   - Brief history of substation automation protocols and IEC 61850.
   - Advantage of Substation Automation with IEC 61850 over conventional control system
   - Key concepts and advancements of IEC 61850.
   - Applications and possible future advancements.

29. EE 6099 Dissertation

Learning Outcomes:

At the end of this module, the student should be able to

1. apply skills gained in the course to a multidisciplinary project incorporating realistic constraints and engineering standards.
2. effectively express technical ideas through written and oral communication.
3. apply specific skills in defining, planning, and scheduling projects.

Outline Syllabus:

The student is expected to work individually on a research dissertation on a topic assigned or agreed by the Department. It is to be carried out for a period of not less than one academic year, on a part time basis (or equivalent period full time) under the supervision of a senior staff member and/or industrial supervisors. The student is expected to develop a complete plan from feasibility study, cost analysis, through electrical design and documentation to the building of a prototype or developing of a model as applicable. All students must make a formal written and verbal presentation to a panel.

Awards

The Lanka Electricty Company Ltd Award is awarded to the best MSc Graduand specializing in Electrical Installations who has obtained the highest weighted GPA of not less than 3.70,calculated based on 80% of postgraduate examination GPA and 20% of dissertation grade-point,and completes the M Sc degree in the minimum time.

Resource Persons

Lecturers:

Department of Electrical Engineering:

1. Prof. H.Y.R. Perera (Senior Professor)
2. Prof. S.P. Kumarawadu (Professor)
3. Prof. N.K. Wickramarachchi (Professor)
4. Prof. K. T. M. U. Hemapala (Professor)
5. Prof. J.P. Karunadasa (Associate Professor)
6. Mrs. L. P. J. Premaratne (Senior Lecturer Gr. I)
7. Eng. W.D.A.S. Wijayapala (Senior Lecturer Gr. I)
8. Dr. D.P. Chandima (Senior Lecturer Gr. I)
9. Dr. A.M.H.S. Abeykoon (Senior Lecturer Gr. I)
10. Dr. W.D.A. S. Rodrigo (Senior Lecturer Gr. I)
11. Dr. A.G.B.P. Jayasekara (Senior Lecturer Gr. I)
12. Dr. R. M. T. Damayanthi (Senior Lecturer Gr. I)
13. Dr. L.N.W. Arachchige (Senior Lecturer Gr. II)
14. Dr. S. Abeygunawardhana (Senior Lecturer Gr. II)
15. Dr. J. V. U. P. Jayatunga (Senior Lecturer Gr. II)
16. Dr. R. Samarasinghe (Senior Lecturer Gr. II)
17. Dr. W. D. Prasad (Senior Lecturer Gr. II)

Visiting Staff:

1. Prof. J.R. Lucas (Emiratus Professor)
2. Dr. T. Siyambalapitiya, BScEng (Moratuwa), PhD (Cambridge),Independent Consultant/Former Chief Engineer, Generation Planning, Ceylon Electricity Board
3. Dr.Narendra De Silva, BScEng (Moratuwa), PhD, Head-Engineering, Lanka Electric Company
4. Dr. H. M. Wijekoon, BScEng (Pera), PhD, Chief Engineer (Transmission Planning), Ceylon Electricity Board
5. Eng. DGR Fernando, BScEng, CEng, MIE(SL), Managing Director, Amithi Power Consultants (Pvt) Ltd
6. Eng. AnuruddhaTilakaratne, BScEng, CEng, Chief Engineer, Ceylon Electricity Board
7. Eng. Samantha Gunawardhana, BSc Eng., CEng.

Subject coordinators:

CODE	Course Modules	Coordinated by
EE 5110	Design Aspects in Electrical Installations	Dr. WDAS Rodrigo
EE 5111	Protective Measures in Electrical Installations	Dr. R. Samarasinghe
EE 5114	Lighting Design	Prof. NK Wickramarachchi
EE 5120	Maintenance and trouble-shooting of Electrical Installations	Dr. W. D. Prasad
EE 5121	Air Conditioning, Ventilation and Fire Safety	Dr. W. D. Prasad
EE 5123	Lightning Protection and Earthing	R. Samarasinghe
EE 5124	Procurement and Inventory Management	Dr. W. D. Prasad
EE 5053	Energy Efficiency, Demand Management and Conservation	Dr. J. V. U. P. Jayatunga
EE 5086	Project Management	Eng. WDAS Wijayapala
EE 5087	Human Resource Management	Prof. V W.ickramasinghe
EE 5091	Small Hydropower Development	Eng. WDAS Wijayapala
EE 5092	Research Methodology	Dr. L. W. Arachchige
EE 5096	Advanced Engineering Mathematics	Prof. KTMU Hemapala
EE 5117	Electromagnetic Compatibility and Power Quality	Dr. WDAS Rodrigo
EE 5118	Building Management Systems	Prof. KTMU Hemapala
EE 5125	Application Aspects of Electrical Machines and Converter Applications	Prof. JP Karunadasa
EE 5126	Acoustic Design	Mrs. L. P. Janaki Premaratne
EE 5127	Computer Aided Design (CAD) Tools	Prof. KTMU Hemapala Dr. L.N.W. Arachchige Dr. W. D. Prasad
EE 5128	Ancillary Services in Electrical Installations	Dr. W. D. Prasad
EE 5212	Systems Control and Automation	Prof. SP Kumarawadu
EE 5052	Energy Economics	Dr. WDAS Rodrigo
EE 5095	Advanced Power Electronics	Prof. JP Karunadasa
EE 5057	Energy and the Environment	Eng. WDAS Wijayapala
EE 5054	Energy Planning	Dr. WDAS Rodrigo
EE 5056	New, Renewable and Rural Energy Systems	Eng. WDAS Wijayapala