Ministry of Higher Education
Kabul Polytechnic University
Faculty of Electromechanics
Department of Electrical Power Engineering

Electrical Power Engineering Catalogue

BSc and MSc programs

Academic year: 1404

Contents

Introduction

This catalog provides an overview of the bachelor and master programs of the Electrical Power Engineering Department at Kabul Polytechnic University for the academic year 1404.

Program	Study period	Language of instruction	Usable places
Bachelor of Science	4 years	National languages (Pashto and Dari)	Teaching and laboratory building of Kabul Polytechnic University
Master of Science	2 years	National and English languages	Teaching and laboratory building of Kabul Polytechnic University

Message from Head of Electrical Power Engineering Department

Since its establishment, the Department of Electrical Power Engineering has been determined and committed to nurturing and educating young cadres. By creating a curriculum that reflects the needs of today's labor market and includes the latest advances in research, education, and learning, it strives to develop the highest educational standards and make them available to its dear students, thus nurturing the talents they need to achieve their lofty goals as young and expert cadres and presenting them to society.

Brief information about Electrical Power Engineering programs is presented below. The curriculum and syllabus are carefully evaluated and developed every year to ensure a balance between practical experience in applying theories, real case studies, and completed professional and research projects, and this, as an academic experience, will enable our students to become unique professionals and true servants in society.

We hereby welcome the new students of the Electrical Power Engineering Department and wish them the best of success in all areas, especially during their studies.

Associate Prof. Dr. Gul Ahmad Ludin

Head of the Electrical Power Engineering Department

History and brief introduction of Electrical Power Engineering department

The Department of Electrical Power Engineering is the first department dedicated to the field of electricity supply in the country, which was established in September 1980, due to the need to provide electricity specialists and engineers to industrial institutions in cities and villages. Since 1985, with graduation of the first round of graduates, this department has presented specialists to the society who successfully carry out their duties in all areas of the national economy. In 2019, the name of this department was changed to Electrical Power Engineering with a focus on power generation, transmission and distribution systems. The students of this department are active in various fields related to the energy sector, electricity, telecommunications and industrial institutions.

The Department of Electrical Power Engineering is a scientific and educational core for acquiring specialized knowledge, research and innovation at the national level. Currently this department teaches the curriculum by 9 experienced academic members with academic ranks ranging from assistant professor to professor with doctoral and master's degrees. The department's teaching is carried out using contemporary methods in the form of lectures, practical courses, seminars and scientific conferences, the implementation of professional projects, educational and production applications, the provision of scientific relations with professors from other universities in the country, the use of information technology and the provision of new materials.

Currently, the instructors of this department are not only busy on teaching various subjects, but also engaged in comprehensive scientific research in the fields of power generation, transmission, distribution, and efficient consumption of electrical energy, control and protection of electrical processes, utilization of renewable energy sources, reliability, stability and improvement of networks, etc. These are the usual paths of Electrical Power Engineering for the promotion and growth of the country's national economy.

Vision

To develop into and sustain as a national leading department for research, education and technology in the field of electrical power engineering.

Mission

The mission of the department is to:

- Provide high quality and effective education in the field of electrical power engineering;
- Materialize the partnership with industry by meeting the ever-changing needs of the market for future engineers;
- Immunize the students with knowledge and experience in their field of specialization to contribute in the making of professional leaders;
- Carry out research and consultancy in the field of electrical power engineering for socio-economic development.

Values

Considering the principles governing Afghan society, preserving the country's supreme interests, strengthening national unity, committing to quantitative and qualitative improvement of scientific and applied engineering education, applying internationally accepted standards in an environmental context, and promoting responsibility are the core values of the deal.

- Belief in and respect for Islamic and national values
- Strengthening the spirit of national unity, convergence and consolidating political stability
- Respect for human dignity, generalization of justice, equality and legality
- Higher engineering education with quality and standards commensurate with the needs of society and the labor market
- Responsibility and legality
- Healthy, effective and efficient administration

Program Educational Objectives (PEO)

Graduates of the Electrical Power Engineering Department of Kabul Polytechnic University will be specialists with the following capabilities after gaining three to five years of experience in their professional work environment.

Code	Expected academic goals
PEO1	Electrical engineers must be creative and effective in meeting customer demands.
PEO2	Grow professionally by acquiring soft skills.
PEO3	High levels of moral character demonstrate a positive attitude and social responsibility.

Educational objectives

Code	Educational objectives
PO1	Engineering knowledge is the application of mathematical knowledge, science, engineering fundamentals, and specialized engineering knowledge to solve complex Electrical Power Engineering problems.
PO2	Problem analysis, identification, formulation, review of relevant research works to analyze complex engineering problems to definitive conclusions using basic principles of mathematics and related sciences, natural sciences and engineering sciences.
PO3	Design and create solutions: Design solutions for complex engineering problems, components of a system and with processes that meet specific needs, taking into account public health and safety, and cultural, social and environmental considerations.

PO4	Conducting research on complex issues, using basic research knowledge and research methods, including designing experiments, analyzing and interpreting figures and data, and analyzing information to obtain valid results.
PO5	Use of modern tools: Ability to apply engineering work and use modern engineering tools and information technology for complex engineering problems with an understanding of the limitations of technology.
PO6	Engineering and Society: The application of logical reasoning in light of relevant information to evaluate social, health, safety, legal, and cultural issues and liability implications related to professional engineering work.
PO7	Environment and Sustainability: Ability to understand and evaluate sustainability and the impact of professional engineering work in solving complex and intricate engineering problems in social and environmental contexts.
PO8	Ethics: The ability to understand and carry out responsibilities professionally, taking into account ethical principles in the work of the Electrical Power Engineering profession.
PO9	Individual and team work: Effective individual work as a team member or Team leader with diverse and multidisciplinary compositions.
PO10	Communication: Is the ability to express ideas clearly and concisely and to communicate effectively in an oral and written communication in complex engineering activities with the engineering community or society as all.
PO11	Lifelong learning: Understanding the need and having the necessary readiness and ability for independent and continuous learning, taking into account new technological developments and changes.
PO12	Project Management and Finance: Ability to demonstrate knowledge and understanding of engineering and management principles and economic decision-making for project management in multi-disciplinary and multi-disciplinary environments.

Department Organization

Associate Prof. Dr. Gul Ahmad Ludin
Job: Lecturer and Head of the department
Degree and field of study: Doctor of Electrical and Electronic Engineering
Research field: Renewable energy systems and their integration and Power transmission systems

Associate Prof. Mohammad Amin Amin
Job: Lecturer
Degree and field of study: Master in Electric Power Systems
Research field: Power System Analysis, Renewable energy sources and Power electronics

Professor. Abdulellah Rasouli
Job: Lecturer
Degree and field of study: Master of Electrical Power Engineering
Research field: Energy, Environmental changes and Power system planning

Assistant Prof. Hashmatullah Zeerak
Job: Lecturer
Degree and field of study: Master of Electrical and Electronics Engineering
Research area: Power systems protection and control

Associate Prof. Zakirhussain Farhad
Job: Lecturer
Degree and field of study: Master of Electrical and Electronics Engineering
Research field: Electrical Power Engineering economics

Assistant Pro. Mohammad Fahim Mohmand
Job: Lecturer
Degree and field of study: Bachelor of Electrical Power Engineering
Research area: Power systems and Renewable energy

Assistant Pro. Sayed Mir Shah Danish
Job: Lecturer
Degree and field of study: Master of Electrical and Electronics Engineering
Research area: Renewable Energy Resources and Technology, Sustainable energy development

Assistant Pro. Fazal Rabi Hasand
Job: Lecturer
Degree and field of study: Bachelor of Electrical Power Engineering
Research area: Power system analysis

Assistant Pro. Rafiullah Rafi
Job: Lecturer
Degree and field of study: Bachelor of Electrical Power Engineering
Research area: Electrical Machines and their Stability and Reliability

Suleiman
Job: Service worker
Degree and field of study: Elementary literacy

Engineer Mirwais Safi
Job: Laboratory Engineer
Degree and field of study: Post-Baccalaureate in Auto-Mechanics

Introducing the content

The curriculum of the Department of Electrical Power Engineering has been developed in accordance with the latest scientific and technical developments, academic standards and the requirements of the credit system, which meets the country's needs for training specialists in the Electrical Power Engineering sector of energy industry in cities and villages. By following this curriculum, the professional capacity of engineers in the field will increase and they will play an important role in the reconstruction of the country.

The credit system has been considered for the content of the programs. All courses included in the curriculum are divided into basic, specialized, elective and university-wide courses. The percentage of each subject in the curriculum is as expected in the credit system. The number of credits for each subject per week is between 17-21 credits. The period of study in this faculty is four years. The total number of credits in the academic program is 164 credits.

After completing the program, students obtain the bachelor's degree in their specialized field. The role and contribution of each subject and its topics in achieving the goals of the academic program has been carefully considered. The content of each subject has been selected according to the level of the bachelor's degree program, which also meets the educational goals. The priority and delay in presenting the courses have been considered considering the prerequisites and logical sequence. Basic courses such as higher mathematics, chemistry, and physics, which form the basis of engineering disciplines, have been considered in the first grade and partially in the second grade. Priority and delay in specialized subjects have also been observed. General technical courses such as theoretical mechanics (statics, kinematics, and dynamics), drawing geometry, technical drawing, and strengthens of materials, which are necessary in all engineering disciplines, have been moved to the second grade and partially in the first grade.

To consolidate theoretical knowledge and provide practical opportunities for teaching professional courses and transferring professional skills to the production practice area, pre-diploma practice (drafting) and design are also included in the programs. The number of credits and the percentage of subjects in the specific majors are listed in Table 1.

Table 1 Total courses of study period in Electrical Power Engineering Department

Course category	Percent	Number of credits
basic	21.34	**35**
professional	53.66	**88**
Inclusive and selective	20.73	**34**
Monograph	4.27	**7**
Total number of credits and hours of study	100%	**164**

Internships

The purpose of the internship is to consolidate the theoretical knowledge gained in the process of learning the courses, as well as to acquire knowledge and skills, to know advanced work methods, to gain social experience and to learn the skills of working with a team, which constitute a major part of the training of skilled specialists. Practical training is carried out in generation stations and in workshops equipped with technological tools and equipment. At least one instructor is introduced by the department as a practical guide to guide the students.

Field work – I in the field of Electrical Power Engineering are to strengthen the theoretical knowledge of students in those courses that are directly related to Electrical Power Engineering, industrial establishments, cities and villages, electrical power stations and substations, electrical systems and networks, etc. It is also to consolidate information about installations and prepare students for the study of graduate programs. This internship (Field Work – I) which has 1 credit is done at the end of the sixth semester and pre-diploma practice (Field Work – II)) which has 2 credits is done at the end of the seventh semester.

Balance between theoretical and practical lessons

The curriculum review process has seen a significant increase in students' practical activities, including a large number of core and specialized courses in the curriculum that have been arranged to include both practical and theoretical components. Independent courses have also been included in the curriculum to enhance students' theoretical and practical skills, including technical writing, renewable energy technology, high-voltage technology, digital electronics, and fundamentals of electromagnetism.

Teaching and learning methods

The following teaching methods are used to transfer knowledge, skills, and desired mindset changes to students:

Lecture, practical laboratory work and use of advanced software, seminar, demonstration method, project and class work and homework, field applications and other methods in lectures, scientific principles, concepts and information are transferred to students orally. The lecturers use projectors in lectures, with the help of which complex, technical forms, tables, charts and drawings are displayed to students during teaching, making the educational process more effective. In order to improve the educational process, the educational methods of Student Centered Learning (SCL) and Outcome Based Education (OBE) are used.

Work delay policy

Students do not have a second chance if their class projects, homework, and other class obligations are late. Students can inform the course related lecturer in advance about the problem and get his approval.

Grading policy

The evaluation method and grading system are as follows in accordance with Article 19 of the Credit System:

- Assessment and class activity (weekly assessment, homework, guild projects, and participation in group activities (10-30%).
- Practical laboratory work, research activities under the authority of the course lecturer;
- Mid-term exam 20%
- Final exam 60%

Students' duties and obligations

Students work together with their lectures to achieve the knowledge, skills, and behaviors required in the content. Students should work in close partnership, respect each other's ideas and individual characteristics, and give each other equal opportunity. They should observe the ethics and principles of behavior required in an academic environment and avoid actions that disrupt the teaching process. They should be punctual and creative and play an active role in the learning process.

Academic Dishonesty Policy

- Academic dishonesty includes falsifying information, false citations, plagiarism, and other activities committed by students during their studies. Such acts are unacceptable and will be dealt with in accordance with higher education regulations.
- The lecturer has the primary responsibility for identifying and dealing with academic dishonesty. If he identifies a student's academic dishonesty, after reviewing the matter and hearing the student's defense, he will make a decision to refer the matter to the relevant authority;
- The decision to deal with the phenomenon of academic dishonesty does not overshadow the academic activities of other students. The lecturer informs the faculty authorities of the content of the evidence of the incident with documents;
- The faculty administration acts in accordance with the law and maintains all relevant documents and records.

Table of subjects for each Semester

The Bachelor of Science in Electrical Power Engineering is offered in eight academic semesters and 16 weeks of classes. This program includes a total of 69 courses, including 11 core courses, 34 professional courses, 10 optional courses, and 14 university-wide subjects, which are taught over 164 credits.

1. First semester courses

Semester (1) Year (1)											
No	Subject	Codes	Subject Category	Number of Credits	Hours per Week				In charge Department	Prerequisite Subjects	Remarks
					Theory	Practical	Field	Total			
1	Belief System of Islam	B.EPE.0171	Inclusive course	2	2	0	0	2	Islamic culture	Nil	
2	Recitation and Tajweed	B.EPE.0172	Inclusive course	1	0	2	0	2	Islamic culture	Nil	
3	English Language	B.EPE.0104	Inclusive course	2	1	2	0	3	Foreign languages	Nil	
4	Contemporary History of Afghanistan	B.EPE.0103	Inclusive course	2	2	0	0	2	History	Nil	
5	Mathematics – I	B.EPE.0106	Basic	3	2	2	0	4	Higher Mathematics	Nil	
6	Engineering Chemistry	B.EPE.0108	Basic	3	2	2	0	4	Islamic culture	Nil	
7	Technical Drawing	B.EPE.0109	Basic	2	1	2	0	3	Technical drawing	Nil	assignments
8	Fundamentals of Engineering	B.EPE.0117	Professional	1	0	2	0	2	EPE	Nil	Site Visiting
9	Physics – I	B.EPE.0107	Basic	3	2	2	0	4	Physics	Nil	
Total				**21**	**14**	**14**	**0**	**28**			

2. Second semester courses

Semester (2) Year (1)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Worship System of Islam	B.EPE.0273	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0171	
2	Biography of Prophet (P B U H)	B.EPE.0274	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0171	
3	Professional English Language-I	B.EPE.0234	Basic	2	1	2	0	3	Foreign languages	B.EPE.0104	
4	Mathematics-II	B.EPE.0206	Basic	3	2	2	0	4	Higher Mathematics	B.EPE.0107	
5	Environmental Protection	B.EPE.0202	Inclusive course	2	1	2	0	3	ES, GE		
6	Computer	B.EPE.0205	Inclusive course	2	1	2	0	3	Computer	B.EPE.0105	
7	Technical Mechanics	B.EPE.0222	Basic	2	1	2	0	3	Technical Mechanics	B.EPE.0107	
8	Physics-II	B.EPE.0207	Basic	3	2	2	0	4	Physics	B.EPE.0108	
9	Fundamentals of renewable energy	B.EPE.0223	Professional	2	1	2	0	3	EM.PE		
10	Elective-I		Elective	1	0	2	0	2			
Elective				1	0	2	0	2			
Total				**21**	**12**	**18**	**0**	**30**			

Elective Courses											
No	**Subjects**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Descriptive Geometry	B.EPE.0210	Elective	1	0	2	0	2	Technical drawing, Civil	Nil	
2	Surveying	B.EPE.0254	Elective	1	0	2	0	2	GIS	Nil	
Total				1	0	2	0	2			

3. Third semester courses

Semester (3) Year (2)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Ethnic System of Islam	B.EPE.0375	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0273	
2	Social System of Islam	B.EPE.0376	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0273	
3	Professional English Language-II	B.EPE.0334	Basic	2	0	2	0	4	Foreign languages	B.EPE.0104	
4	Applied Mechanics	B.EPE.0324	Basic	2	1	2	0	3	Technical Mechanics	B.EPE.0214	
5	Mathematics - III	B.EPE.0306	Basic	3	2	2	0	4	Higher Mathematics	B.EPE.0207	
6	Physics - III	B.EPE.0307	Basic	3	2	2	0	4	Physics	B.EPE.0208	
7	Circuit Analysis -I	B.EPE.0325	Professional	3	2	2	0	4	EPE	B.EPE.0215	Assignments
8	Fundamentals of Electromagnetism	B.EPE.0320	Professional	3	2	2	0	4	EPE	B.EPE.0208	
9	Elective - II		Elective	1	0	2	0	2			
Total				**21**	**13**	**16**	**0**	**29**			

Elective Courses											
No	**Subjects**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Hydraulics and hydraulic Machines	B.EPE.0326	Elective	1	0	2	0	2	Technical drawing, Civil	Nil	
2	Computer programming (C++)	B.EPE.0321	Elective	1	0	2	0	2	GIS	Nil	
Total				**1**	**0**	**2**	**0**	**2**			

4. Fourth semester courses

Semester (4) Year (2)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Ideological Studies	B.EPE.0477	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.375	
2	Religions and Sects	B.EPE.0478	Inclusive course	1	1	0	0	1	Islamic culture	SL.IC.376	
3	Mathematics - IV	B.EPE.0406	Basic	3	2	2	0	4	Higher Mathematics	B.EPE.0307	
4	Electronics devices and circuits	B.EPE.0429	Professional	3	2	2	0	4	EPE	B.EPE.0213	
5	Circuit Analysis -II	B.EPE.0425	Professional	3	2	2	0	4	EPE	B.EPE.0215	
6	Electrical Measurements	B.EPE.0430	Professional	2	1	2	0	3	EPE	B.EPE.0215	
7	Thermodynamics - I	B.EPE.0432	Professional	3	2	2	0	4	EPE	B.EPE.0208	
8	Electrical Machines -I	B.EPE.0428	Professional	3	2	2	0	4	EPE	B.EPE.0320	
Total				**20**	**14**	**12**	**0**	**26**			

5. Fifth semester courses

Semester (5) Year (3)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Political System of Islam	B.EPE.0579	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0477	
2	Administrative System of Islam	B.EPE.0580	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0478	
3	Electrical Machines - II	B.EPE.0525	Professional	4	3	2	0	5	EPE	B.EPE.0425	Transformer Design Pr.
4	Power System Analysis -I	B.EPE.0533	Professional	3	2	2	0	4	EPE	B.EPE.0425	
5	Digital Electronics	B.EPE.0534	Professional	3	2	2	0	4	EPE	B.EPE.0429	
6	Electrical Apparatus	B.EPE.0535	Professional	2	1	2	0	3	EPE	B.EPE.0533	
7	Thermodynamics - II	B.EPE.0537	Professional	3	2	2	0	4	EPE	B.EPE.0432	
Total				**19**	**14**	**10**	**0**	**24**			

6. Sixth semester courses

Semester (6) Year (3)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Economic System of Islam	B.EPE.0681	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0579	
2	Power System Analysis-II	B.EPE.0633	Professional	3	2	2	0	4	EPE	B.EPE.0534	
3	Power Electronics	B.EPE.0638	Professional	3	2	2	0	4	EPE	B.EPE.0526	
4	Power system protection-I	B.EPE.0639	Professional	3	2	2	0	4	EPE	B.EPE.0421	
5	Power Plants and Substation -I	B.EPE.0640	Professional	3	2	2	0	4	EPE	B.EPE.0537	
6	Electrical Power Engineering Economics	B.EPE.0641	Professional	3	2	2	0	4	EPE	B.EPE.0421, B.EPE.0627	
7	Electric Drives - I	B.EPE.0743	Professional	3	2	2	0	4	EPE	B.EPE.0528	
8	Field Work -I	B.EPE.0642		1	Two Weeks					At the end of 6th Semester	
Total				**21**	**14**	**12**	**0**	**26**			

7. Seventh semester courses

Semester (7) Year (4)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Quran and Contemporary Sciences	B.EPE.0782	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0681	
2	Transients in electrical systems	B.EPE.0745	Professional	3	2	2	0	4	EPE	B.EPE.0633	
3	Power system protection -II	B.EPE.0732	Professional	3	2	2	0	4	EPE	B.EPE.0632	Assignment
4	Power Plants and Substation -II	B.EPE.0740	Professional	3	2	2	0	4	EPE	B.EPE.0640	
5	Power Distribution and Utilization - I	B.EPE.0747	Professional	3	2	2	0	4	EPE	B.EPE.0633	
6	Electric Drives - II	B.EPE.0743	Professional	2	1	2	0	3	EPE	B.EPE.0425, B.EPE.0631	
7	Project Management	B.EPE.0746	Professional	1	1	0	0	1	EPE	Nil	
8	Installation and Operation of Power System Components	B.EPE.0748	Professional	1	0	2	0	2	EPE	B.EPE.0534	
9	Control Systems	B.EPE.0749	Professional	3	2	2	0	4	EPE	B.EPE.0423	
Total				**21**	**14**	**14**	**0**	**28**			

8. Eighth semester courses

Semester (8) Year (4)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Islamic Civilization	SL.IC.0883	Inclusive course	2	2	0	0	2	Islamic culture	SL.IC.0782	
2	Computer Application in Power engineering	B.EPE.0850	Professional	3	2	2	0	4	EPE	B.EPE.0407, B.EPE.0627	
3	Wiring Design	B.EPE.0842	Professional	2	1	2	0	3	EPE	B.EPE.0308, B.EPE.0421	
4	Power Distribution and Utilization - II	B.EPE.0847	Professional	4	2	4	0	6	EPE	B.EPE.0747	
5	Monograph	B.EPE.0842	Professional	7	2	12	0	14	EPE	All Courses	
6	Field Work - II	B.EPE.0842	Professional	2	Two Weeks					At the end of 7th Semester	
Total				**20**	**9**	**20**	**0**	**29**			

Facilities:

The Electrical Power Engineering Department is equipped with modern classrooms, an electric machines and drives laboratory, and a dedicated library. To enhance the practical engineering skills of students, the department introduces them for two practical training programs (productive field work and design field work), each lasting three weeks, to the facilities and departments of: Da Afghanistan Breshna Sherkat (DABS), Ministry of Energy and Water, Ministry of Rural Rehabilitation and Development, Ministry of Urban Development, Kabul Municipality. In addition, the department's computer lab contains 14 computers equipped with specialized electrical power engineering software such as MATLAB, ETAP, PV Syst, Multisim, Dialux, etc., which students regularly use. Another major convenience provided by the department is internet access for both academic members and students.

Note:

The curriculum of the Electrical Power Engineering Department was completed and approved by the Specialized Committee for Review with the support of the Honorable Ministry of Higher Education of Afghanistan. All the universities with the same programs throughout the country are using this curriculum in order to prevent the multiplicity and non-standardization of academic performance in the field of Electrical Power Engineering through uniform and unified procedures. Departments strictly refrain from increasing or decreasing the number of credits, changing the code numbers and the type of topics.

Syllabus of the Master's Program in the Electrical Power Engineering Department

First Semester Courses

Semester (1) Year (1)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Islamic Civilization	M.EPE. 0101	Basic	3	3	0	0	3	Islamic calture	Nil	
2	Research Methodology	M.EPE 0103	Basic	2	1	2	0	3	Islamic calture	Nil	
3	Computational Techniques in Power System Analysis	M.EPE 0104	Professional	3	2	2	0	4	EPE	Nil	
4	Advanced Power Electronics	M.EPE 0105	Professional	3	2	2	0	4	EPE	Nil	
5	Power Transmission Systems	M.EPE 0106	Professional	2	1	2	0	3	EPE	Nil	
Total				**13**	**9**	**8**	**0**	**17**			

Second Semester Courses

Semester (2) Year (1)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Ibne Khaldon Omrani Thoughts	M.EPE0208	Basic	3	3	0	0	3	Islamic calture	Nil	
2	High Voltage Engineering	M.EPE0207	Professional	2	1	2	0	3	EPE	Nil	
3	Advanced Renewable Energy Systems	M.EPE0209	Professional	3	2	2	0	4	EPE	Nil	
4	Power System Markets and Regulation	M.EPE0210	Professional	2	1	2	0	3	EPE	Nil	
5	Elective			2	1	2	0	3	EPE	Nil	
Total				**14**	**9**	**10**	**0**	**19**			

Elective Courses of Semester (2) Year (1)										
No	**Subjects**	**Codes**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
				Theory	**Practical**	**Field**	**Total**			
1	Distributed Generation	M.EPE0215	2	1	2		3	EPE		
2	Electrical Power Quality	M.EPE0216	2	1	2		3	EPE		
Total			**Total**	**4**	**2**	**4**		**6**		

Third Semester Courses

Semester (3) Year (2)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Smart Grids Technologies	M.EPE 0311	Professional	3	2	2	0	4	EPE	Nil	Class project
2	Advanced Power System Protection	M.EPE 0312	Professional	3	2	2	0	4	EPE	Nil	Independent work
3	Power System Operation and Control	M.EPE 0313	Professional	3	2	2	0	4	EPE	Nil	Class project
4	Advanced Electrical Drives	M.EPE 0314	Professional	3	2	2	0	4	EPE	Nil	Independent work
5	Elective			2	1	2	0	3	EPE	Nil	
Total				**14**	**9**	**10**	**0**	**19**			

Elective Courses of Semester (3) Year (2)										
No	**Subjects**	**Codes**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
				Theory	**Practical**	**Field**	**Total**			
1	Power System Design and Planning	M.EPE0317	2	1	2		3	EPE		
2	Electrification of Vehicles and Electric Transportation	M.EPE0318	2	1	2		3	EPE		
Total			**Total**	**4**	**2**		**6**			

Fourth Semester Courses

Semester (3) Year (2)											
No	**Subject**	**Codes**	**Subject Category**	**Number of Credits**	**Hours per Week**				**In charge Department**	**Prerequisite Subjects**	**Remarks**
					Theory	**Practical**	**Field**	**Total**			
1	Master's Thesis	M.EPE 0419	Professional	7	2	6	6	14	EPE	Nil	
2	Project Management	M.EPE 0402	Basic	2	1	2		3	EPE	Nil	
Total				**9**	**3**	**8**	**6**	**17**			