الجامعة التقنية الشمالية

Northern Technical University

بكالوريوس تقنيات الهندسة الكهربائية

Bachelor's degree in Electrical Engineering Techniques

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1. Vision and Mission Statement

Vision:

The vision of the Department of Electrical Engineering Techniques is to be a distinguished global center for the education and training of students, graduates, and specialized professionals in the fields of Electrical And Electronics technologies, and to be a pioneer in research and development in this field.

Mission:

The Department of Electrical Engineering Techniques trains its students on the development and maintenance of Electrical and Electronics devices, power system transmission and distribution, Motor drives system modern control of electrical and electronic devices and systems The department tries to improve its students' skills and provide them with the necessary knowledge to keep up with the latest advancements in this field.

The department offers courses in areas such as fundamentals of electrical circuits, control and automation, engineering design, industrial design, advanced manufacturing, and other related fields. The dpartment help the student and encourage them to in all electrical Field Technologies.

Graduate Objectives

The field of Electrical Engineering Techniques is considered one of the modern disciplines that revolves around the design, development, and maintenance of electrical devices and equipment used in diagnosis, treatment, monitoring, and analysis . It is one of the most important departments that provides technical support to electrical institutions and power plants . Among the main objectives of the electrical instrumentation engineering techniques department are:

1. Designing and developing modern electrical devices and tools that help improve the quality of clean energy and provide optimal diagnosis.
2. Training and qualifying electrical technicians and providing them with the necessary skills and knowledge to deal with modern electrical devices, maintain and operate them properly.

3. The Collaborating with physicians and clean power institutions to provide the necessary technical support for operating electrical devices correctly and effectively.
4. Continuous research and development in the field of electrical instrumentation engineering techniques, improving the performance, efficiency, and overall safety of electrical devices.
5. Compliance with health and technical standards and regulations applied in the electrical process, ensuring patient safety and treatment effectiveness.

2. General objectives of the department:

1. Conducting scientific research in several electrical fields, with an emphasis on applied research, to keep up with scientific and technological growth.
2. Reaching out to the community by offering scientific courses in areas of specialty as well as continuing education courses will help electricalemployees at all levels.
3. Providing engineering consulting for various electrical engineering.
4. Continuing communication with graduates contributes to their continuous growth and provides input to the department in developing curriculum to suit the job market.

3. Scientific and practical description:

- Electrical engineers develop new technologies and create designs for the electrical sector.
- Create electrical devices, tools, and software to operate electrical equipment that enhenhancesth the running of the electrical sector and the quality and efficacy of patient treatment.
- Designing and building lectrical technology, including devices, tools, and software that may be used to diagnose and treat electrical issues as well as machine parts.
- Installing and setting up electrical hardware and software.
- assessing the reliability, efficacy, and safety of electrical devices, tools, and software.
- Maintaining and fixing electrical machinery and apparatus as necessary.
- Provide assistance with technology as required.

- Maintaining current service records for all devices and machinery used in electrical system.
- teaching electrical professionals how to handle electrical tools and equipment safely and efficiently.
- investigating novel technologies, materials, and engineering applications in electrical systems and processes.
- composing reports and papers outlining procedures, guidelines, and maintenance and repair standards for electrical machinery and software.
- Educating others about the area of electrical engineering through writing, instruction, or consultancy.

4. Program Specification

Program code	BCE	ECTS	240
Duration	4 levels, 8 Semesters	Method of Attendance	Full Time

The Electrical instrumentation Techniques Engineering Program Specification outlines the knowledge and skills required for individuals who are interested in pursuing a career in the Installing, calibarating and Maintinance of electrical instruments. The program focuses on developing technical expertise in the areas of Electrical Device sector, new electrical techniques, management, and Electrical devices maintenance. The program typically includes a mix of classroom lectures, practical training, and on-site field experience. Courses may cover topics such as installing, clibrating and maintinance for electrical design, labrotary devices, Elictrical graph devices, Etc..

The The program also emphasizes the development of technical skills such as lectrical circuit designing , computer-aided design ,microcontroler programing, estimating, electricalproject management. Graduates of the program are expected to have the skills necessary to work as Electrical insrument engineerer, Team leader of electrical engineering team, Electrical devices inspectors, estimators, and other technical roles in the Electrical engineering sector.

Some key components of the Electrical instrumentation Techniques Engineering program specification may include:

1. **Program Aims and Objectives:**

   Preparing technical engineers with the ability to research the technical fields of electrical power engineering.

2. **Learning Outcomes:** A list of the specific skills, knowledge, and competencies that students are expected to acquire through the program.
3. **Course Structure:** Details on the specific courses that make up the program, including their content, delivery methods, and any prerequisites or co-requisites.
4. **Assessment Methods:** Information on how student performance will be evaluated, including the types of assessments used (e.g. exams, essays, practical assignments) and the weighting of each assessment.
5. **Resources:** An outline of the facilities, equipment, and other resources required to deliver the program effectively.

Overall, a Electrical Engineering Technique Program Specification serves as a guide for educators and institutions to develop and deliver a comprehensive curriculum that prepares students for a occupation in the Electrical electronic engineering sector.

6. Program Goals

The program goals of electrical instrumentation technical engineering typically include:

1. Strengthening the technical aspect of its graduates by increasing practical units and inconsistently theoretical units.
2. Qualifying graduates in accordance with the requirements of the labor market.
3. Keeping pace with modernity and global development in programs and study plans, and focusing on the practical aspect.

4. Work to enhance performance standards to ensure the application of international standards in the field of electrical engineering techniques.

7. Student Learning Outcomes

1. A Electrical Engineering Techniques program's unique goals and objectives may have an impact on the learning results of its students. But some typical learning results could be:
2. **Knowledge of electrical materials and methods:** Students should be able to demonstrate a strong understanding of Electrical and Electronics materials and methods, including their properties, advantages, and limitations.
3. **Knowledge of Electrical and Electronic devices:** Students should be able to demonstrate a strong understanding of using ,design, devolpment and maintenance of electrical devices.
4. **Proficiency in construction software:** Students should be able to use various software applications commonly used in the Electrical Engineering , such as assembly, C++ language, Matlab software, and Arduino software language.
5. **Electrical transmission and generation part.** Students should be able to plan, organize, and manage electrical projects, including hospital requirments.
6. **Communication and teamwork:** Students should be able to effectively communicate with electrical staff, clients, patients and end user of electrical devices, in addition to working collaboratively in a team environment.
8. **Safety and sustainability:** Students should be responsive of safety especially when working with high voltage. in the electrical sectors, such as the hazards of high electrical voltage, and potential hazards on a job site,such as, contacts with patients, and the spread of viruses, contagious disease, and risks of some electrical devices

   Overall, the student learning outcomes of a electricaltechnical engineering program should prepare graduates for careers in the industry by providing them with the necessary knowledge, skills, and competencies to succeed.

8. Academic Staff

Name	Degree	Postion	General specialize	Prersize specialize
Mohammed Yahya Suliman	Ph D	Professor	Electrical Engineering	Electrical Power
Taha Ahmad Hussein	Master	Professor	Electrical Engineering	Power and machine
Bashar Nadeem Ahmed	PhD	professor	Arabic Literature	Andalusian Literat
Fawaz. Sultan abdullah	PhD	Professor	Electrical Engineering	Power and Electric Power plant
Rakan Khalil Antar	PhD	Assistant Professor	Electrical Engineering	Power Electronics
Ali Nathim Hamoodi	PhD	Assistant Professor	Electrical Engineering	Electrical Power
Ahmed Jadaan Ali	Ph.D.	pofessor	Electrical Engineering	Electric Machines
Laith Akram Mohammed	Ph.D.	Assistant Professor	Power and machines	Power Electronics
Omar Hazem Mohammed	Ph.D.	Assistant Professor	Electrical Engineering	Electrical Power ar Machinery
Mahmood Taha Mahmood	Ph.D.	Assistant Professor	Electrical Engineering	Electrical Power Engineering
Ahmed Abdul-Jalil Abdullah	Ph.D.	Lecturer	Electrical Engineering	Power Engineering
Abdullah Kutaiba Shanshal	Ph.D.	Lecturer	Electrical and Electronic Engineering	Design of Electrica Machines
Omar talal Mahmood	Master	Assistant Professor	Electrical and electronic engineering	technical power engineering
Ahmed M.T. Ibraheem	Master	Assistant Professor	Electrical Power Technology Engineering	Electrical Power Technology Engin
Alya Hamid Ali	Master	Assistant Professor	Electrical Engineering	Power and machine
Safwan Assaf Hamoodi.	Master	Assistant Professor	Electrical and electronic engineering	Electrical Power Techniques Engine
Sanabel muhson Mohammed Ali	Master	Assistant Professor	Electrical Engineering	Power and machine
Mohammed Ahmed Ibrahim	Master	Assistant Professor	Electrical power Technology Engineering	Electrical power Technology Engin
Laith Abdaljabbar Khalaf	Master	Assistant Professor	Electrical Engineering	Power and machine
Fatin Mahmood Shehab	Master	Assistant Professor	rrigation and Drainage Engineering	Water Resources Engineering
Noha Abedalbary Abedaljawad	Master	Assistant Professor	Electrical Engineering	Power and machine
Rasha Abd Al nafaa Mohammed	Master	Assistant Professor	Electrical Engineering	Power Engineering
Bashar Mohammed Salih	Master	Assistant Professor	Electrical Engineering	Electrical Power ar Machines
Ahmed Ghazi Abdullah	Master	Assistant Professor	Electrical power Technology Engineering	Electrical power Technology Engin

Bashar Abdullah Hamad	Master	Lecturer	Electrical Engineering	Power and machine
Farah Isam Hamed	Master	Lecturer	Electrical power Technology Engineering	Electrical power Technology Engine
Dina khalid	Master	Assistant Lecturer	Electrical and Electronic Engineering	Electrical and Elec Engineering
Hiba_allah Tariq Abdullah	Master	Lecturer	Technical Computer Engineering	Technical Compute Engineering
Ali salah saleh alhafidh	Master	Assistant Lecturer	Electrical power Technology Engineering	Electrical power Technology Engine
Ausama Khair Al-Deen Mahmood	Master	Assistant Lecturer	Electrical Engineering	Power Electronics
Ahmed Saad Yahya	Master	Assistant Lecturer	Electrical Engineering	Control
Ahmed Ali Khalaf Hasan	Master	Assistant Lecturer	Electrical Engineering	Electrical Enginee
Sawsan Najeeb Abdullah	Master	Assistant Lecturer	Electrical Engineering	Electrical Enginee

Credits, Grading and GPA

Credits in the electrical Techniques Engineering Department are following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 student workloads, including structured and unstructured workload.

Grading: Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME			
Group	**Grade**	**Marks %**	**Definition**
Success Group (50 - 100)	Excellent	90 - 100	Outstanding Performance
	Very Good	80 - 89	Above average with some errors
	Good	70 - 79	Sound work with notable errors
	Satisfactory	60 - 69	Fair but with major shortcomings
	Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.			

Calculation of the Grade Point Average (GPA)

The GPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

GPA of 4-year B.Sc. degrees:

GPA = [(1st module score x ECTS) + (2nd module score x ECTS) + ……] / 240

10. Curriculum/Modules

Level 1 Smester 1

Level 1 – First semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET100	DC ELECTRICAL CIRCUITS	4	2	6	8		
EET101	DIGITAL TECHNOLOGIES	4	2	4	6		
EET102	ENGINEERING DRAWING	0	4	0	6		
EET103	MATHEMATICS	6	0	6	6		
NTU100	Human right and democracy	2	0	2	2		
NTU101	ARABIC LANGUAGE	2	0	2	2		
T:Theoritical, P:Practical, C:Credit		18	8	20	30		

Level 1 Semester 2

Level 1 – Second Semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET104	ENGINEERING MECHANICS	4	0	4	6		
EET105	Engineering work shope	0	4	2	6		
NTU103	ENGLISH LANGUAGE	2	0	2	2		
EET106	AC ELECTRICAL CIRCUITS	4	3	5	8		
EET107	PHYSICS	3	2	4	6		
NTU102	COMPUTER	2	2	3	2		
T:Theoritical, P:Practical, C:Credit		13	11	20	30		

Level 2 Semester 1

Level 2 – First semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET200	DC Generators	3	2	4	5		
EET201	Electronic Essentials	3	2	4	5		
EET202	Electrical Circuit Analysis	2	2	3	5		
EET203	Sensors	2	2	3	5		
EET204	Applied Mathematics	4	0	4	5		
NTU201	Computer	2	2	3	3		
NTU200	Crimes of the baath regim in iraq	2	0	2	2		
T:Theoritical, P:Practical, C:Credit		18	10	23	30		

Level 2 Semester 2

Level 2 – Second semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET206	DC Motors	3	2	4	6		
EET207	comunications	2	2	3	6		
EET208	power Circuits and transformers	4	2	3	8		
EET209	Instruments and Measurements	3	2	4	6		
EET210	Arabic language	2	0	2	2		
EET211	English Language	2	0	2	2		
T:Theoritical, P:Practical, C:Credit		16	8	18	30		

Level 3 Semester 1

Level 3 – First semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET٣00	Principles of Power Engineering	٢	2	٣	٥		
EET٣01	DC Power Conversions	٢	2	٣	٥		
EET302	Electrical Transformers and Induction Machines	٢	٣	٣	5		
EET303	Electromagnetic Fields	٤	٢	٥	5		
EET304	Microprocessor	٢	٢	٣	5		
EET305	Numerical Analysis	٤	0	٤	٥		
T:Theoritical, P:Practical, C:Credit		١٦	١١	٢١	30		

Level 3 Semester 2

Level 3 – Second semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET٣06	Advanced Power Engineering	٢	٢	٣	٥		
EET٣07	AC Power Conversions	٢	٢	٣	٥		
EET308	Synchronous and Special Machines	٣	٣	٤	٦		
EET309	Digital Controllers	٢	٢	٣	٦		
EET310	English Language (Advanced)	٢	٠	٢	٣		
EET311	Elective 1	٣	٢	٤	٥		
T:Theoritical, P:Practical, C:Credit		١٤	١١	١٩	30		

Level 4 Semester 1

Level 4 – First semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET400	Transmission and Distribution Systems	4	2	5	5		
EET401	Electric Machine Drives	4	2	5	5		
EET402	Power System Analysis	4	2	5	5		
EET403	Electric Power Generation Stations	3	2	4	5		
EET404	Control System Analysis	3	2	4	5		
EET405	Project 1	-	2	3	5		
T:Theoritical, P:Practical, C:Credit		18	12	26	30		

Level 4 Semester 2

Level 4 – Second semester							
CODE	TITLE	T	P	C	ECTS	Bologna Content	Electrical Engineering Techniques
EET406	Professional Ethics	2	-	2	3		
EET407	Power System Protection	2	2	3	6		
EET408	Stability of Power System	2	2	3	6		
EET409	High Voltage Techniques	3	2	4	5		
EET410	Project 2	-	2	1	5		
EET405	Elective	2	2	3	5		
T:Theoritical, P:Practical, C:Credit		11	10	16	30		