



**Ministry of Higher Education and Scientific Research
University of Mosul
College of Engineering
Electrical Engineering Department**

**Description of the academic program
(Bologna Process/ First Class)
(Semesters/ Second Class)
(Courses / Third level -Fourth level)
Of
Electrical Engineering Department
Power and Machines
2023–2024**

Description of the academic program

This academic program description provides a necessary summary of the most important characteristics of the program and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the available opportunities. It is accompanied by a description of each course within the program

University of Mosul	1. Educational institution
College of Engineering/Department of Electrical Engineering	2. Scientific department/center
Power and Machines engineering	3. Name of the academic or professional program
Bachelor of Science in Electrical Engineering	4. Name of the final certificate
Courses, Semesters and Bologna Process	5. Academic system annual/courses/others
ABET	6. Accredited accreditation program
Higher decisions	7. Other external influences
2024	8. Date the description was prepared
9. Objectives of the academic program	
<ul style="list-style-type: none"> ● Emphasis on building the student's knowledge on solid foundations of basic sciences such as mathematics, physics and other engineering sciences related to the specialty of electronics and communications engineering. 	
<ul style="list-style-type: none"> ● Establishing a knowledge background based on the various electrical engineering sciences, especially those related to the subject of specialization. 	
<ul style="list-style-type: none"> ● Training the student to address practical problems by applying the principles of engineering sciences related to the field of electronics and communications. 	
<ul style="list-style-type: none"> ● Introducing the student to his technical and social responsibilities necessary to practice design, operation and maintenance work for a wide range of electronic and communications systems to achieve the required goals, taking into account 	

various practical determinants such as economic, environmental, security and health determinants.

- Developing the student's practical skills in dealing with electronic and communications units, systems, and applications, starting from the level of designing and analyzing units to diagnosing problems and malfunctions.

- Consolidating contemporary skills and sciences, such as computer science, engineering software applications, and other modern ancillary sciences necessary to ensure the student's ability to develop and learn lifelong.

- Enhancing the student's ability and skills in technical communication, such as presentation, report writing, and explanation skills, as a member of a team or individually.

10. Required program outcomes and teaching, learning and evaluation methods

A- Cognitive objectives.

A1- Principles of basic, applied, and engineering sciences necessary for knowledge of electrical engineering (such as mathematics, physics, and mechanical engineering principles).

A2- Basic electrical engineering sciences, such as electrical circuits, electronic systems, electromagnetic fields, measurements, electrical devices, and digital systems.

A3 Foundations of electrical engineering and analysis of electrical circuits and equipment for electrical installations such as grounding and others.

A4- Electrical engineering sciences that support the specialty, such as the basics of electronics, communications, microprocessors, and control engineering.

A5- Foundations of professionalism and related communication skills, such as presenting and writing reports, with familiarity with economic, legal, health, social, and security determinants.

B - Skills objectives of the program:

B1 - Solving and formulating engineering problems in general, especially those related to electrical engineering.

B2 - Identifying and formulating engineering problems and applying mathematical knowledge, science, engineering methods, and creativity skills to solve problems in the field of power engineering and electrical machines.

B3 - Writing and implementing algorithms to solve power and electrical machine problems.

B4- Interpreting numerical data and applying mathematical methods to analyze problems.

B5- Preparing technical and operational specifications for energy components and systems and electrical appliances.

Teaching and learning methods

- Theoretical lectures
- Discussion sessions
- Laboratory experiments
- Computer laboratories

Evaluation methods

- Mid-term and final exams.
- Short exams.
- Reports
- Practical exams
- Diction

C- Thinking skills:

C1- Conducting and designing practical experiments for electrical systems, in addition to analyzing and interpreting practical results related to communications systems.

C2- Writing computer programs and using ready-made programs to solve problems related to the field of specialization.

C3- Applying modern engineering techniques, skills and tools to electronic and communications systems.

C4- Design, build and evaluate electronic systems using appropriate analysis tools and modern systems.

Teaching and learning methods

- Theoretical lectures
- Discussion sessions
- Laboratory experiments

- Computer laboratories
- Projects
- Industrial training

Evaluation methods

- Semester and final exams
- Short exams
- Reports
- Practical exams

D - General and qualifying transferable skills (other skills related to employability and personal development).

D1- Work professionally and with ethical responsibility, individually or within a multidisciplinary team

D2- Writing technical reports and presenting effectively

D3- Effective use of information technology related to engineering applications in general and the field of electronics and communications in particular.

D4-The possibility of starting scientific research projects in the future

Teaching and learning methods

- Theoretical lectures
- Discussion sessions
- Laboratory experiments
- Computer laboratories
- Projects
- Industrial training

Evaluation methods

- Semester and final exams
- Short exams
- Reports
- Practical exams

11. Planning for personal development

Student development, the teacher's program for student development, such as using the Internet, using IT, using safety methods in the laboratory, and developing the student's academic personality capable of competition, dialogue, and problem solving.

12.. Admission standard (establishing regulations related to college admission)

1. Central distribution by the Ministry of Higher Education determines those accepted into the College of Engineering.
2. The choices of those accepted into the departments are determined, and competition takes place between them on the basis of the total - then the total of the differentiation lessons.
3. Transfer from other departments and universities is accepted in accordance with higher controls and instructions.
4. After the first stage, students are divided between the Power and Machinery and Electronics and Communications branches based on their choice and the results of the first stage.

13.The most important sources of information about the program

- Developing the program through resources
- Higher directives
- What new sciences are developed in the field of specialization

14.Department vision, mission and goals

Department vision:

The department seeks to be one of the leading departments in the field of electrical engineering in Iraq and the region by graduating engineers specializing in electrical engineering in accordance with the latest approved scientific curricula and using the latest scientific teaching methods such as laboratories and modern teaching methods.

Department message

Providing educational programs characterized by depth in areas of specialization and comprehensiveness in engineering foundations. Disseminating engineering knowledge and contributing to its development in the field of specialization. In addition to serving industrial projects and specialists in all sectors of society.

Department objectives

- 1- Preparing competent engineering cadres in the specialization of electronics, communications, power and machinery engineering, as well as preparing specialized engineering cadres with higher degrees and for the same specializations above in order to contribute to the comprehensive development and urban renaissance in the country.
- 2- Contributing to providing academic, scientific, practical and applied services and consultations to all public, mixed and private sectors of the state through cooperation agreements as well as through the advisory office of the College of Engineering.
- 3- Preparing research that works and contributes to solving the engineering and industrial problems and obstacles facing industrial facilities and projects in the country.
- 4- Contributing to the dissemination and development of engineering knowledge and transferring the latest developments in the fields of electrical and electronic engineering to engineers in various fields of work by holding continuing education courses and training courses, as well as by publishing scientific research in local and international specialized scientific journals.
- 5- Developing teaching staff by sending a section of teaching staff on scientific delegations to participate in joint conferences, seminars and workshops with Arab, international or international institutions, as well as by granting sabbatical leaves to work in universities outside the country, which helps in exchanging and developing experiences.
- 6- Participate in organizing and holding conferences, seminars, workshops and scientific discussions inside and outside the country.

15. Program structure

a) Undergraduate

Bologna Process / College of Engineering / University of Mosul / First level for the academic year 2023-2024 / Department of Electrical Engineering

Fall Semester / First Level						
Notes	Units	Practical hours	Theoretical hours	Subject	Type	
	2	-	2	Basics of Electrical Engineering I	Core learning activity	Department requirements
	3	2	2	Mathematics I	Basic learning activities	
	3	-	2	Engineering drawing	Support or related learning activity	
	8	2	4	Physics	Basic learning activities	
	6	-	4	mechanics Engineering	Support or related learning activity	
	4	2	2	Computer	Basic learning activities	University requirements
	4	-	2	Arabic Language	Support or related learning activity	
	30	6	18	Total Hours		

Spring Semester / First Level							
Notes	Code	Units	Practical hours	Theoretical hours	Subject	Type	
	UOM102	2	-	2	Basics of Electrical Engineering II	Core learning activity	Department requirements
	UOM104	2	-	2	Mathematics II	Basic learning activities	
	EE111	3		3	Computer Programming	Basic learning activities	
	EE108	8	2	4	Digital Techniques	Core learning activity	
	EE109	6	-	4	Electronics Physics	Basic learning activities	
	EE110	6	2	2	Democracy and Human Rights	Support or related learning activity	University requirements
	EE112	3	-	3	English Language	Support or related learning activity	
		30	4	18	Total Hours		

Semesters / College of Engineering / University of Mosul / second year for the academic year 2023-2024 / Department of
Electrical Engineering

Second Year/ First semester /Electronic and communications					
Code	Title	Theoretical	Lab.	Credits	Notes
EEP 201	Management & Industrial Safety I	2	-	2	
EEP 202	Engineering Mathematics I	4	-	3	
EEP 203	Computer Application I	3	2	3	
EEP 205	Electronics I	3	-	2	
EEP 208	Electric Networks I	3	-	2	
EEP 204	Electromagnetic Fields I	3	-	2	
EEP 209	D.C. Distribution Systems	2	-	2	
EEP 206	Machines I	4	-	3	
EEP 207	Laboratories I	-	2	1	
		24	4	20	

Second Year/Second semester /Electronic and communications					
Code	Title	Theoretical	Lab.	Credits	Notes
EEP 211	Management & Industrial Safety II	2	-	2	
EEP 212	Engineering Mathematics II	4	-	3	
EEP 213	Computer Application II	3	2	3	
EEP 215	Electronics II	3	-	2	
EEP 218	Electric Networks II	3	-	2	
EEP 214	Electromagnetic Fields II	3	-	2	
EEP 219	A.C. Distribution Systems	2	-	2	
EEP 216	Machines II	4	-	3	
EEP 217	Laboratories II	-	2	1	
		24	4	20	

Courses / College of Engineering / University of Mosul / Third level for the academic year 2023-2024 / Department of Electrical Engineering

Fall Semester / Third Level – P&M								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
Compulsory for Dept. Students	ENGE 320	Calculus I, II	2	-	2	Numerical Analysis	Elective	College requirements
	ENGC 327	-	2	-	2	Statistics	Compulsory	
	TRCY 300	Electrical Circuit Analysis II	3	-	3	Transmission Systems	Compulsory	Department requirements
	PECT 302	Power Electronics I	3	-	3	Power Electronics	Compulsory	
	INMA 304	Electrical Transformers	3	-	3	Induction Machines	Compulsory	
	ELAB 306	Electrical Engineering Lab II	2	6	-	& Power Machines Lab I	Compulsory	
The student should select one subject only (no. of units =2 only)	ELCD 312	Electrical Circuit Analysis I	2	-	2	Electrical Circuits Design	Elective	
	RENE 316	Electrical Circuit Analysis I				Renewable Energy		
The student should select one subject only (no. of units =2 only)	DSIP 405	Signals & Systems	2	-	2	Digital Signal Processing	Elective	
	MICP 316	Digital Techniques				Microprocessors		
			19	6	17	Total Hours		

Spring Semester / Third Level – P&M								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
	-	-	2	-	2	English Language Intermediate	Compulsory	University requirements
	ENGC 326	-	2	-	2	Engineering Economic	Compulsory	College requirements
	MINC 350	Electrical Circuit Analysis I	3	-	3	Electrical Measurements	Compulsory	Department requirements
	ICOS 352	Signals & Systems	3	-	3	Introduction to Control Systems	Compulsory	
	ECSS 354	Signals & Systems	2	-	2	Electronic and Communication Systems	Compulsory	
	CYMA 356	Electrical Transformers	3	-	3	Synchronous Machines	Compulsory	
	PLAB 355	Power and Machine Lab 1	2	6	-	Lab II Machines & Power	Compulsory	
يختار الطالب مقرر واحد ، عدد الوحدات المطلوبة 2 وحدة	PCON 362	Digital Techniques	2	-	2	Programmable Controller	Elective	
	AINT 364	Signals & Systems				Artificial Intelligence		
			19	6	17	Total Hours		

Note: The student is required to complete the summer training after the end of the second semester of the third level

Courses / College of Engineering / University of Mosul / Fourth level for the academic year 2023-2024 / Department of
Electrical Engineering

Fall Semester / Fourth Level – P&M								
Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
	PSAN 400	Numerical Analysis	4	-	4	Power System Analysis	Compulsory	Department requirements
	COSA 402	-Introduction to Control Systems	4	-	4	Control Systems Analysis	Compulsory	
	SPIM 404	Induction Machines	3	-	3	Single Phase Induction Motors	Compulsory	
	PGST 406	Synchronous Machines	2	-	2	Power Generating Stations	Compulsory	
	MLAB 408	Power & Machines Lba II	2	6	-	& Power Machines Lab III	Compulsory	
	GPRO 410	All compulsory department requirements for the third level	2	-	2	Graduation Project I	Compulsory	
The student should select one subject only (no. of units =2 only)	HVDC 414	Power Electronics II	2	-	2	High Voltage DC	Elective	
	SGRD 416	Electrical Circuit Analysis II				Smart Power Grid Systems		
			19	6	17	Total Hours		

Spring Semester / Fourth Level – P&M

Notes	Code	Pre-request	Units	Practical hours	Theoretical hours	Subject	Type	
	UOMC 104	-	2	-	2	Professional Ethics	Compulsory	University requirements
	-	-	2	-	2	English -Language Upper Intermediate	Compulsory	
	ENGC425	-	2	-	2	Engineering Management	Compulsory	College requirements
	PSRP 450	Transmission Systems	3	-	3	Power System Protection	Compulsory	Department requirements
	HVEN 452	Electronic Physics Electromagnetic Theory	3	-	3	High Voltage Engineering	Compulsory	
	SPEM 458	Induction Machines	2	-	2	Special Electrical Machines	Compulsory	
	GPRO454	Graduation Project I	2	-	2	Graduation Project II	Compulsory	
	MLAB456	Power & Machines Lab III	2	6	-	Power & Machines Lab IV	Compulsory	
The student should select one subject only (no. of units =2 only)	ELDR 462	Power Electronics II	2	-	2	Electrical Derives	Elective	
	ENEM 460	Power Generating Stations Power Electronics II				Energy Management	Elective	
			20	6	18	Total Hours		

Below are the links to download the curriculum vocabulary for the Department of Electrical Engineering:

Study subject file	Subject	Academic level	No.
https://drive.google.com/file/d/1DR87hpgb4O90OCAgpLOqzT4RnHWLcZk6/view?usp=sharing	English	First Level	1
https://drive.google.com/file/d/17gygpB7bSwiYYCnaDvPHRo6DRnOLwWPm/view?usp=sharing	Calculus I		2
https://drive.google.com/file/d/15C1uwqZGQVag6CrvCSUGRbJhhnBs7Wxj/view?usp=sharing	Engineering Drawings		3
https://drive.google.com/file/d/1iU9IK4STDVO-L-bGjqsxnJzN5qvs5MnK/view?usp=sharing	physics		4
https://drive.google.com/file/d/1MXzGAP97DujN6UHJj28pKLEniv7CIZOx/view?usp=sharing	Electrical Circuit Analysis I		5
https://drive.google.com/file/d/1ouEGwOcmFx12sc1_nskdLAmKEHtnIF8P/view?usp=sharing	Environmental Pollution		6
https://drive.google.com/file/d/1IRKW2psvkD_QCOSiNh-8WQ752hI3IS_p/view?usp=sharing	Calculus II		7
https://drive.google.com/file/d/1A2pC1Qaf0DSn8_VHhkJPSbx9Zwc_bnn/view?usp=sharing	Auto-CAD		8
https://drive.google.com/file/d/17O_LmYM-JWaRDqnh-x0t4G2CKqoT7iMb/view?usp=sharing	Engineering Mechanics		9
https://drive.google.com/file/d/12x8kYJhIKt7C6uzDvmBqSBMfsiGe9IDD/view?usp=sharing	Electrical Circuit Analysis II		10
https://drive.google.com/file/d/1hCeUzqqbA_KHi3SfJ7Y89O7E7IK5W8_I/view?usp=sharing	Electronics physics		11

Study subject file	Subject	Academic level	No.
https://drive.google.com/file/d/1qIIHUpUHfISD5sO78kgRaIC6nGEzxW_A/view?usp=sharing	Engineering Mathematics I	Second Level	1
https://drive.google.com/file/d/1RnJTtYGMkDCG-4Lo0ZfJQI6z7Lbkx58Ws/view?usp=sharing	Electrical Engineering Lab I		2
https://drive.google.com/file/d/1wtBTLNiLz4TmMiE8IkU7FSxe5H94m89p/view?usp=sharing	Solar Cell Systems		3
https://drive.google.com/file/d/16N6TS1Wwnn3OsNjK1XfquvI14AxUY2_G/view?usp=sharing	Electronic circuits		4
https://drive.google.com/file/d/1N3G7S4ELCPVRsG4Ps-Renzs1PK5oU5Bx/view?usp=sharing	Digital technologies		5
https://drive.google.com/file/d/1gng3L-vcVS8RuXZkS7D5OvxSllHm9oYe/view?usp=sharing	Electronic basics		6
https://drive.google.com/file/d/1zY_HVe0MXwOCMOKjS2EeS8SXqLRcqzOU/view?usp=sharing	Analog electronics		7
https://drive.google.com/file/d/1uHFt9O2_Z2LV0a7RbaaxopNW1CJeNrto/view?usp=sharing	Signals and systems		8
https://drive.google.com/file/d/1zwqatGEreTZwgOF05A1p5O3Ppwmfg7mD/view?usp=sharing	Machines and power systems		9
https://drive.google.com/file/d/1ajIshWvzKxpP2_bpM3Eiet1ddZrqqRIp/view?usp=sharing	Electrical Engineering Lab II		10
https://drive.google.com/file/d/1L7LNBWtuN_m0cge2ACv_d-9wJLlnwWSO/view?usp=sharing	Power Electronics I		11
https://drive.google.com/file/d/1wJqLTaRKcel1d10uvMRSLK0zpUufgTID/view?usp=sharing	Distribution systems		12

Study subject file	Subject	Academic level	No .
https://drive.google.com/file/d/1kM6tP2zipr6DtTD5yPRVwPPAr0eMcbUi/view?usp=sharing	Numerical analyses	Third Level	1
https://drive.google.com/file/d/1601fYEKM08AMhSqtIKRZiBypd38lWvnX/view?usp=sharing	Statistics		2
https://drive.google.com/file/d/1QEE97mWD1BJDo7e3xeuHt-213u8mTlIo6/view?usp=sharing	Digital communications 1		3
https://drive.google.com/file/d/1Ad5KCWfKVvvnC7SovGyDjsCNDuKbszFn/view?usp=sharing	& Radiation Propagation		4
https://drive.google.com/file/d/1z_vUNZ6mqt1hQ_Tbv96UKPtZOabtFLNq/view?usp=sharing	Electronic Devices		5
https://docs.google.com/document/d/18w5J2PXDAJiSdpxUWXlGUcsmT5UtDcX6/edit?usp=sharing&sd=true&rtpof=true&645849946868231	Digital Electronics		6
https://drive.google.com/file/d/1kdlGfyv_rpC-gq_v-m5XYUI_55YQ4DZP/view?usp=sharing	E & C Lab 1		7
https://drive.google.com/file/d/1xqj5-qYPm8BBPKmSjaonSSXmetGgHX5R/view?usp=sharing	Power electronics		8
https://drive.google.com/file/d/1jvvJYS0zevDLMgIsk6XvPOg0X--bAws/view?usp=sharing	Special topics in communications		9
https://drive.google.com/file/d/1RDDiD_uAkgLAA2XUe1srkaZc50udHqZ6/view?usp=sharing	Renewable energy		10
https://drive.google.com/file/d/1COFPXowqS0ROWNC0LD7iLhtimXOsd5Zm/view?usp=sharing	Electrical circuit design		11
https://drive.google.com/file/d/1cuF9V9rD9Cy_GuV-ffACWX_rFoe_EcU3/view?usp=sharing	Transmission Systems		12

https://drive.google.com/file/d/1LTZcV6_fTeaxP1mA_MhZmUxXdaDw8ur6/view?usp=sharing	Power electronics 2	13
https://drive.google.com/file/d/16_j2IJHvCbQ2wplArId2cAdOEy_QM1dI/view?usp=sharing	Induction machines	14
https://drive.google.com/file/d/1t_9obCvG7wQ4WYeXElj7XnRfNDXL7OxL/view?usp=sharing	P & M Lab 1	15
https://drive.google.com/file/d/1fTuLteSwAPo0RpW9HPbp3eX5CTE7C2u9/view?usp=sharing	Microprocessors	16
https://drive.google.com/file/d/1VdONsR0I-Xvimmzqnpw27m_ke8XVoj7k/view?usp=sharing	English language - intermediate	17
https://drive.google.com/file/d/1tobfkDQcCH6cq303rQNbZU5iQ-j197IS/view?usp=sharing	Engineering economics	18
https://drive.google.com/file/d/1rW_YiuOq5KB4EFSSA6zCFjqEIE017DpC/view?usp=sharing	Introduction to control systems	19
https://drive.google.com/file/d/1jMMktsiKSeCOsZr9kxLSbvvSywP1mfkp/view?usp=sharing	Computer architecture	20
https://drive.google.com/file/d/1XA-gT1a5x6MhI6mCu7Pve2-YP0PVCqli/view?usp=sharing	Digital communications 2	21
https://drive.google.com/file/d/1OMEMOKnxU9CXuVhownjyF2RrEq1yp5I/view?usp=sharing	Programmable controllers	22
https://drive.google.com/file/d/1pLUWBVfiOmAICps1vTWREnsqN8v8r356/view?usp=sharing	Electronic and communications systems	23
https://drive.google.com/file/d/1l_YiE1OpuvCm_3fXTAHjHJJVYFCVXRuT/view?usp=sharing	Synchronous machines	24

Study subject file	Subject	Academic level	No.
https://drive.google.com/file/d/1UIJsaIcW4iD_nA2k7OBq1JhWIwHD67vh/view?usp=sharing	Satellite communications	Fourth Level	1
https://drive.google.com/file/d/17-pNmZ5uOCG-rr2_qHU7P75FJTLh9Yo-/view?usp=sharing	Control systems analysis		2
https://drive.google.com/file/d/1Ns0G_ozJ9YZdg-U3ARZDgSE2TCCVbnxa/view?usp=sharing	computer networks		3
https://drive.google.com/file/d/1zP-3T7NNtzyIulSnIh3KQYBAWwn_rRE/view?usp=sharing	Digital signal processing		4
https://drive.google.com/file/d/1HgOj5zJ1n8EOtwrgqT8WxhGB7qFIORTp/view?usp=sharing	Microwaves		5
https://drive.google.com/file/d/11VBhbao6xYD4CZjZ66jNDg-CYVon-10j/view?usp=sharing	Fiber optic communications systems		6
https://drive.google.com/file/d/1Yty_518XCfMbSk5-L4vLI4ImGgC1kUKC/view?usp=sharing	Power systems analysis		7
https://drive.google.com/file/d/1Yt6_x0-JF7JiUXAMVt4ogGr4pEY9YD_/view?usp=sharing	Single phase induction motors		8
https://drive.google.com/file/d/1ORPbvg-2wK_rDM5o82qIeZsPIBpOAKCz/view?usp=sharing	Power generating stations		9
https://drive.google.com/file/d/1eOCNqeqWGEkUdUiLJuvxBMoAmTJqo2gi/view?usp=sharing	P & M Lab 3		10
https://drive.google.com/file/d/1vphUE5imqC2xbcFH3kVIvaSTlgLHipNb/view?usp=sharing	High Voltage DC		11

https://drive.google.com/file/d/1AOtvrAiTNnOiBuveL6hknupooAJVa1PP/view?usp=sharing	Smart power grid systems	12
https://drive.google.com/file/d/16p-LKT_am7qUltmw-Jsc6hrU3Fz1OC1I/view?usp=sharing	Professional ethics	13
https://drive.google.com/file/d/1iA5r6wvKnbbJvTvVUf1T-iK-QmZ0-Dtq/view?usp=sharing	English language - post-intermediate	14
https://drive.google.com/file/d/1LJd7jakMvc_xgUiQiWH3Sd5Wk20r7CeF/view?usp=sharing	Engineering Management	15
https://drive.google.com/file/d/1e58x2ir0T1HENI3g24yAi7TNDQFfihbA/view?usp=sharing	Microelectronics	16
https://drive.google.com/file/d/1iJTuzgjhmk7h5Wa09AUHop_7Eu2LrJ0b/view?usp=sharing	Mobile communications	17
https://drive.google.com/file/d/1VMwW7LI3haczXbr78owi68gwzUkengVt/view?usp=sharing	Wireless network security	18
https://drive.google.com/file/d/1hVqRjZee0xDvrK-pA3sxcdCd5AGNqwnF/view?usp=sharing	Interface systems	19
https://drive.google.com/file/d/1EhQfqdIcrNE0333Nh0HFLwkZm0qCnV_M/view?usp=sharing	Protection and operation systems	20
https://drive.google.com/file/d/1qtcVhV0Sd0rcVBkq2A2Xotqtir1ZZRFJ/view?usp=sharing	High Voltage engineering	21
https://drive.google.com/file/d/1NzS0MJUyQq1D4POk55X-VihFH1LNC8mx/view?usp=sharing	Special electrical machines	22

https://drive.google.com/file/d/139LJSMaiQMsQoQqK5oR-dmWMEcWzMpPT/view?usp=sharing	P & M Lab 4		23
https://drive.google.com/file/d/118P3wwdj8KmWo3q7yIcYr-sXsAei_RiY/view?usp=sharing	Electric Drives		24