

COURSE DESCRIPTION CARD

Faculty of Electrical Engineering										
Field of study	Electrical Engineering							Degree level and programme type	Bachelor's Degree	
Specialization/ diploma path	-							Study profile	-	
Course name	Electric Power Transmission and Distribution							Course code	IS-FEE-10065W	
								Course type	elective	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter	
	30							No. of ECTS credits	3	
Entry requirements	-									
Course objectives	The students will be able to identify major components of electric power transmission and distribution network and explain their characteristics and functions. Students will also classify power substations.									
Course content	Introduction to power system structure, AC and DC transmission, mechanical design of OH lines, conductors, insulators, string efficiency, sag and stress, underground cables, comparison of OH and UG system, transmission line parameters - resistance, inductance and capacitance, GMR & GMD, modelling and performance of transmission lines, equivalent circuits, ABCD constants, power flow in lines, power circle diagrams, line compensation, surge-impedance loading, loadability limits, voltage regulation and transmission efficiency, distribution system, types, connected loads, distribution losses, methods of reducing power losses, anti-theft measures; breakdowns, tripping and fluctuations in distribution system, distribution transformer failures, energy efficiency monitoring and corrective measures, substation and their classification, major components of substations, importance of earthing in a substation.									
Teaching methods	Lectures with the support of media (video) and assignments.									
Assessment method	Assignments during the semester and a written test at the end of the semester.									
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study		
LO1	Understand the characteristics of AC and DC transmission and their mechanical features.									
LO2	Know transmission line parameters and carry out related analysis, including ABCD constants									
LO3	Understand physical and technical characteristics of distribution system and carry out related analysis and planning.									

LO4	Classify substations and understand the importance of earthing.	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	Assignments and test based on the lecture	L
LO2	Assignments and test based on the lecture	L
LO3	Assignments and test based on the lecture	L
LO4	Assignments and test based on the lecture	L
Student workload (in hours)		No. of hours
Calculation	Class attendance	30
	Assignments and self-study	30
	Preparation and write tests	15
	TOTAL:	75
Quantitative indicators		HOURS
		No. of ECTS credits
Student workload – activities that require direct teacher participation		30
Student workload – practical activities		45
Basic references	<ol style="list-style-type: none"> 1. L.L. Grigsby, "Electric Power Generation, Transmission, and Distribution", CRC Press, Taylor and Francis Group, 2012. 2. A.S. Pabla, "Electric Power Distribution", McGraw Hill, 2008. 3. J. Duncan Glover, Thomas J. Overbye, and Mulukutla S. Sarma, "Power System Analysis & Design, 6th Edition, Cengage Learning, 2017. 	
Supplementary references	<ol style="list-style-type: none"> 1. T. Gonen, "Electric Power Distribution System Engineering", 3rd Edition, CRC Press, Taylor and Francis Group, 2014. 2. Hadi Saadat, "Power System Analysis", McGraw Hill Publication, 2010. 3. John J. Grainger and William D. Stevenson Jr., "Power System Analysis", McGraw Hill Inc., 1994. 	
Organisational unit conducting the course	Department of Electrotechnics, Power Electronics and Power Engineering	Date of issuing the programme
Author of the programme	Andu Dukpa, PhD	20.1.2022

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,
S – seminar