BASICS OF ELECTRICAL ENGINEERING SCIENCE

Book · September 2018

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To Whom It May Concern:

We are pleased to announce the publication of the book entitled „Basics of Electrical Engineering Science“, authored by Idongesit Sampson. The book was released by LAP LAMBERT Academic Publishing in 2018 and bears ISBN 978-613-9-89736-0.

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Ieva Konstantinova

Director

ABSTRACT

The book “Basics of Electrical Engineering Science” elaborates in Nineteen chapters (460 pages)the Scientific principles and Applications of Basic Electricity. Basics of Electrical Engineering Science is the professional pre-requisite required before applying Laplace transformation, differential equations, matrices, complex numbers, etc. to design, model, simulate and analyse electrical process systems. Being a foundation course for Engineers, Technologists and Technicians in fields other than Electrical Engineering, the book could be useful to all Engineers, Technologists and Technicians working with electrically operated systems, equipment and components. Basic Electricity knowledge is necessary for troubleshooting of process and equipment, writing work requests and work permits for electrical maintenance of process and equipment. The book could be useful to all Engineering students and lecturers in Technical Colleges. Polytechnics and Universities. The test questions and answers embodied in Appendix 1 could aid quick revision of the Basics of Electrical Engineering Science.

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NOMENCLATURE

	Symbol	Definition	Unit
	n_1	Intrinsic Carrier Concentration	m^{-3}
	ω	Omega (Circular frequency)	rad/s
	L	Inductance	(H) Henrys
	I	Electrical Current	(A)Ampere
	e_v	Energy of a Photon	J
	C	Velocity of Light	ms^{-1}
	r	Internal Resistance	(Ω) Ohms
A	ε_0	Permitivity of Free Space	$C^2N^{-1}m^{-2}$
B	K	Dielectric Constant	
B	σ	Electric Field	cm^{-2}
R	ρ	Resistivity	Ωm
E	$\bar{Z}$	Impedance	Ω
V	X_L	Inductive Reactance	Ω
I	X_C	Capacitive Reactance	Ω
A	Q	Quantity of Electricity	C
T	E_f	Fermi-Energy Level	
I	E_c	Conduction Band	
O	E_v	Valence Band	
N	I_0	Peak Current	Ampere
S	V_0	Peak Voltage	Volt
	U	Internal Energy	J/m^3
BS		British Standard	
EMF		Electromotive Force	

DC	Direct Current
AC	Alternating Current
rms	Root Mean Square
PD	Potential Difference
RLC	Resistor, Inductor and Capacitor
PF	Power Factor
IEE	Institution of Electrical Engineers
kwh	Kilowatt hour
hp	Horse Power
FSD	Full Scale Deflection
IDC	Insulation Displacement Connection
STA	Steel Taped Armoured Cable
PILCSWA	Lead-Covered Paper Insulated Steel Wire
MICC	Mineral Insulated Copper Wire
PVC	PolyVinyl Chloride
MIMS	Mineral Insulated Metal Sheathed
VRI	Vulcanised Rubber Insulated Cable
IEE	Institute of Electrical Engineering
DC	Direct Current
AC	Alternating Current
TRS	Tough Rubber Sheathed
PBJ	Paper Butumized Jute

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2.	Costing and Economic Analysis for Anaerobic Sludge Bioreactor Process. ISBN:978-3-659-54995-3 Available: www.amazon.com; www.morebooks.shop; www.lap-publishing.com	Lambert Academic Publishing, an imprint of OmniScriptum GmbH & Co. KG, European Union	5 Chapters, 85 pages Single Author	August, 2017
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