



Unit of Study Information

Code	Unit	Evaluation Method	Mode	Session options
EEB21	Electricity	Grade and Attendance	Presencial	Semestral

Workload					
TC	PC	OA	SPA	PACC	Total
2	1	3	6	0	45
<ul style="list-style-type: none">• TC: Theorethic Classes (per week);• PC: Practical Classes (per week);• OA: Out-of-class Activities (hours per session);• SPA: Supervised Practical Activities (classes per session);• PACC: Practical Activities as Curricular Components (classes per session, included in OA and SPA);• Total: total workload in hours.					

Learning Outcomes																										
Empower the student in the basic concepts of electricity through theoretical teaching and laboratory tests.																										
Syllabus																										
Basic concepts. Resistive circuits. Circuit analysis methods. Network theorems. Energy storage. RC and RL circuits. Sinusoidal Excitation and Phasor Function.																										
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<table><tr><th>Order</th><th>Syllabus</th><th>Content</th></tr><tr><td>1</td><td>Basic concepts</td><td>Notation. Circuit Components. Dependent and Independent Sources.</td></tr><tr><td>2</td><td>Resistive circuits</td><td>Ohm's Law. Kirchhoff Laws. Series / parallel combinations. Delta Star Transformation. Circuits with Dependent Sources.</td></tr><tr><td>3</td><td>Circuit analysis methods</td><td>Circuit Analysis by Mesh. Node Circuit Analysis. Circuit Analysis using Network Topologies.</td></tr><tr><td>4</td><td>Network theorems</td><td>Linearity and the superposition theorem. Thevenin and Norton theorems.</td></tr><tr><td>5</td><td>Energy storage</td><td>Inductors and Capacitors. Association of Inductors and Capacitors.</td></tr><tr><td>6</td><td>RC and RL circuits</td><td>Development of fundamental procedures. Circuit Analysis with resistors, inductors and capacitors. Transient Analysis of Time Domain Circuits.</td></tr><tr><td>7</td><td>Sinusoidal Excitation and Phasor Function</td><td>Sinusoidal characteristics. Stainmetz Method - Sine and Complex Excitation Function.</td></tr></table>			Order	Syllabus	Content	1	Basic concepts	Notation. Circuit Components. Dependent and Independent Sources.	2	Resistive circuits	Ohm's Law. Kirchhoff Laws. Series / parallel combinations. Delta Star Transformation. Circuits with Dependent Sources.	3	Circuit analysis methods	Circuit Analysis by Mesh. Node Circuit Analysis. Circuit Analysis using Network Topologies.	4	Network theorems	Linearity and the superposition theorem. Thevenin and Norton theorems.	5	Energy storage	Inductors and Capacitors. Association of Inductors and Capacitors.	6	RC and RL circuits	Development of fundamental procedures. Circuit Analysis with resistors, inductors and capacitors. Transient Analysis of Time Domain Circuits.	7	Sinusoidal Excitation and Phasor Function	Sinusoidal characteristics. Stainmetz Method - Sine and Complex Excitation Function.
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Basic Resources
ALEXANDER, Charles K.; SADIKU, Matthew N. O. Fundamentos de circuitos elétricos. 5. ed. São Paulo, SP: McGraw-Hill, 2013. xxii, 874 p. ISBN 9788580551723.
IRWIN, J. David; NELMS, R. Mark. Análise básica de circuitos para engenharia. 9. ed. Rio de Janeiro, RJ: LTC, 2010. xvi, 707 p. ISBN 9788521617587.
HAYT JUNIOR, William Hart; KEMMERLY, Jack E.; DURBIN, Steven M. Análise de circuitos em engenharia. 7. ed. São Paulo, SP: McGraw-Hill, 2008. xxii, 858 p. ISBN 9788577260218.

Aditonal Resources
BOYLESTAD, Robert L. Introdução à análise de circuitos. 10. ed. São Paulo, SP: Prentice Hall, c2004. xv, 828 p. ISBN 8587918184.
NILSSON, James William; RIEDEL, Susan A. Circuitos elétricos. 6. ed. Rio de Janeiro: LTC - Livros Técnicos e Científicos, 2003. 656 p. ISBN 85-216-1363-6
EDMINISTER, Joseph A. Circuitos elétricos. 2. ed. São Paulo, SP: McGraw-Hill, 1991. xii, 585 p. (Coleção Schaum). ISBN 0074606395.
JOHNSON, David E.; HILBURN, John L.; JOHNSON, Johnny R. Fundamentos de análise de circuitos elétricos. 4. ed. Rio de Janeiro, RJ: LTC, 1994. 539 p. ISBN 8521612389.