



# UNIVERSIDADE FEDERAL DO CEARÁ

**FEDERAL UNIVERSITY OF CEARÁ  
OFFICE OF THE VICE PROVOST FOR UNDERGRADUATION (PROGRAD)  
COORDINATION FOR PROJECT AND CURRICULUM DEVELOPMENT  
CURRICULUM DEVELOPMENT DIVISION**

**1. Academic unit offering the curricular component** (Faculty, Center, Institute, Campus):

Center of Sciences

**2. Department offering the curricular component** (when applicable):

Physics Department

**3. Undergraduate course(s) offering the curricular component**

Code of the Course	Name of the Course	Course Degree <sup>1</sup>	Curriculum (Year/Semester)	Nature of the Component <sup>2</sup>	Semester of Offer <sup>3</sup>	Habilitation <sup>4</sup>
91	Telecommunications Engineering	Bachelor	2015.1	Mandatory	03	-

**4. Name of the curricular component:**

Laboratory of Electricity

**5. Code of the curricular component** (filled by PROGRAD):

CD0304

6. Prerequisites	No ( )	Yes (x)	
		Code	Name of the curricular component / activity

7. Co-requisite	No ( )	Yes (x)	
		Code	Name of the curricular component / activity
		TI0113	Basic Electromagnetism

8. Equivalences	No ( )	Yes (x)	
		Code	Name of the curricular component / activity
		TI0050	Applied Electromagnetism

**9. Day period of the curricular component** (more than one option can be selected):

- <sup>1</sup> Fill with *Bachelor (Engineer), Licenciante, or Technologist.*
- <sup>2</sup> Fill with *Mandatory, Optional, or Elective.*
- <sup>3</sup> Fill when mandatory.
- <sup>4</sup> When elective, fill with the habilitation or emphasis to which the curricular component is linked.

Morning Afternoon Night**10. Regime of the curricular component:** Semester Yearly Modular**11. Syllabus:**

Electrostatics, electrical measuring instruments, electrical circuits, voltage sources, electromagnetic induction.

**12. Program:**

1. Presentation through practical lectures, addressing the following topics:
2. Electrostatics: electrification through friction, electrification through contact, electrification through induction, identification of electric charges, dielectric strength and the Van de Graaff generator.
3. Instruments of electrical measurements: ohmmeter, voltmeter, ammeter, wattmeter.
4. Electrical circuits: Kirchhoff's laws, linear and nonlinear resistances.
5. Voltage sources: AC sources, DC sources, electromotive force, internal resistance, power transfer.
6. Electromagnetic induction: induced magnetic field, transformer, motor, generator.

**13. Workload description**

Number of Weeks:	Number of Credits:	Total Workload in Hours:	Theory Workload in Hours:	Practice Workload in Hours:
16	02	32	-	32

**14. Basic bibliography:**

- 1- Burian Jr., Yaro; Lyra, Ana Cristina C. - Circuitos Elétricos, Pearson Prentice Hall, 2006;
- 2- Nilsson, James W; Susan A. Riedel - Electric Circuits, Prentice-Hall, 2000;
- 3- Lecture notes.

**15. Complementary bibliography:**

- 1- Macedo, Annita; "Eletromagnetismo", Editora Guanabara;
- 2- Paris, Demetrius T., Hurd, F. Kenneth; "Teoria Eletromagnética Básica", Guanabara Dois, 1984;
- 3- Quevedo, Carlos Peres; "Eletromagnetismo", Edições Loyola, 1993;
- 4- Dorf, Richard C. e Svoboda, James A. - Introduction to Electric Circuits - Editora John Wiley & Sons;
- 5- Van Valkenburg, Mac Elwyn - Network Analysis – Editora Prentice-Hall;
- 6- Close, Charles M. - Circuitos Lineares - Editora da Universidade de São Paulo;
- 7- Desoer, Charles A. e Kuh, Ernest S. - Teoria Básica de Circuitos - Editora Guanabara.