VŠB – Technical University of Ostrava
Faculty of Electrical Engineering and Computer Science
Department of Electrical Engineering

STUDY GUIDE

Bachelor/Follow-up Master

Safety in Electrical Engineering

Ostrava 2021, February

SIEE (BvE) – Safety in Electrical Engineering (Bachelor/Master)

Annotation

It is necessary to take part in the tutorial for all students. The objective of this tutorial is to acquaint students with laboratory rules (local safety rules). This subject and its successful passing is necessary to acquaint students of all study programs at FEEC with rules for operation of electrical installations, so that they become the instructed persons according to **EN 50110-1 and Decree No. 50/1978 Coll.** after the knowledge verification, and, thus, they may operate electrical installation in laboratories of FEEC. The tutorial includes the acquaintance with local safety rules (laboratory rules) of PC-Laboratories and PC-Classrooms, which is necessary to access these classrooms. The provable training with particular laboratory rules of areas, which are not classified as PC-laboratories and PC-Classrooms, is always in charge of the lecturers in these laboratories before the laboratory exercise. The provable training shall be recorded and signed by both lecturer and trained persons.

Subject Guarantor: Assoc. Prof. Vítězslav Stýskala, Ph. D., EA 105,

Schedule for the academic year 2020/21

(originally winter, now summer semester):

Tutorial – compulsory for all students at the beginning of semester

A. <u>Safety in electrical engineering, terms, legislation (laws and standards)</u>

A.1. Terms and definitions, public notice **Vyhl. č. 50/1978 Sb.** (only Czech), Law 262/2006 – Labor code, EN 50110 ed. 2;

A.2. Act No. 22/1997 Sb. (2008/765/EC, 2001/95/ EC) , Governmental Order 17/2003 Sb. (2006/95/EC), NV 176/2008 Sb.(2006/42/ES), Vyhl. 73/2010 Sb. (see EN 50110-2);

B. <u>Identification by color or alphanumeric – conductors, indicators, actuators</u>

B.1. Identification of conductors by colors EN 60445:2010, ČSN EN 60446:2007, ČSN 33 0165 ed. 2);

B.2. Basic and safety principles for man-machine interface, marking and identification. Coding principles for indicators and actuators EN 60073 ed.2;

B.3. Warning and information labels and tables (ISO 3864).

C. <u>Basic principles and rules of protection against electric shock</u>

C.1. Philosophy of Protection against electric shock (HD 60364 – 4 – 41 ed.2, EN 61140);

C.2. Areas classification according to risk of electric shock, touch voltage levels (HD 60364-4-41: 2007, National amendment Z1:2010);

C.3. LV supply system in university laboratories (HD 60364-1:2010), principle of automatic disconnection to supply source;

C.4. Protective measures according to HD 60364-4-41:2007, EN 61140;
C.5. External influences acc. to HD 60364-5-51:2009, ingress protection (IP code) acc. to EN 60529:1991)
C.6. Wiring Systems – cable sizing, cable protection, current carrying capability acc to HD60364-5-52:2009, LV overcurrent protective devices;

D. Live working, operation of electrical installations

D.1. Workplace preparations;
D.2. Communication (transmission of information) important items included in EN 50110-1;
D.3. Definition of live working zone, vicinity zone;
D.4. Steps to be undertaken for dead working;

E. First aid by electric shock, extinguishing of electrical apparatus

E.1. First aid by electric shock;
E.2. Fire extinguishing of electrical installation and apparatus;

F. PC laboratories and PC Classrooms local safety rules

Conditions for subject completion

Credit part:
Self-study from the submitted study materials / final test

Exam part:
Passing of written final test (you have 3 attempts)

Study materials

1. *European Directives*, free download link at www.eur-lex.europa.eu
2. Presentation and information - study with the help of sent text materials by the teacher;
3. International standards (see standards aforementioned);