



# EE548

## **Design of Electrical and Electromechanical Systems for Commercial and Industrial Installations**

# Course Contents

- ***Week Number 1:*** Introduction to electrical installations
- ***Week Number 2:*** Electrical engineering projects
- ***Week Number 3:*** Design of electrical wiring systems
- ***Week Number 4:*** Design of electrical wiring systems
- ***Week Number 5:*** Design of electrical wiring systems
- ***Week Number 6:*** Design of electrical wiring systems
- ***Week Number 7:*** Design of electrical wiring systems

# Course Contents

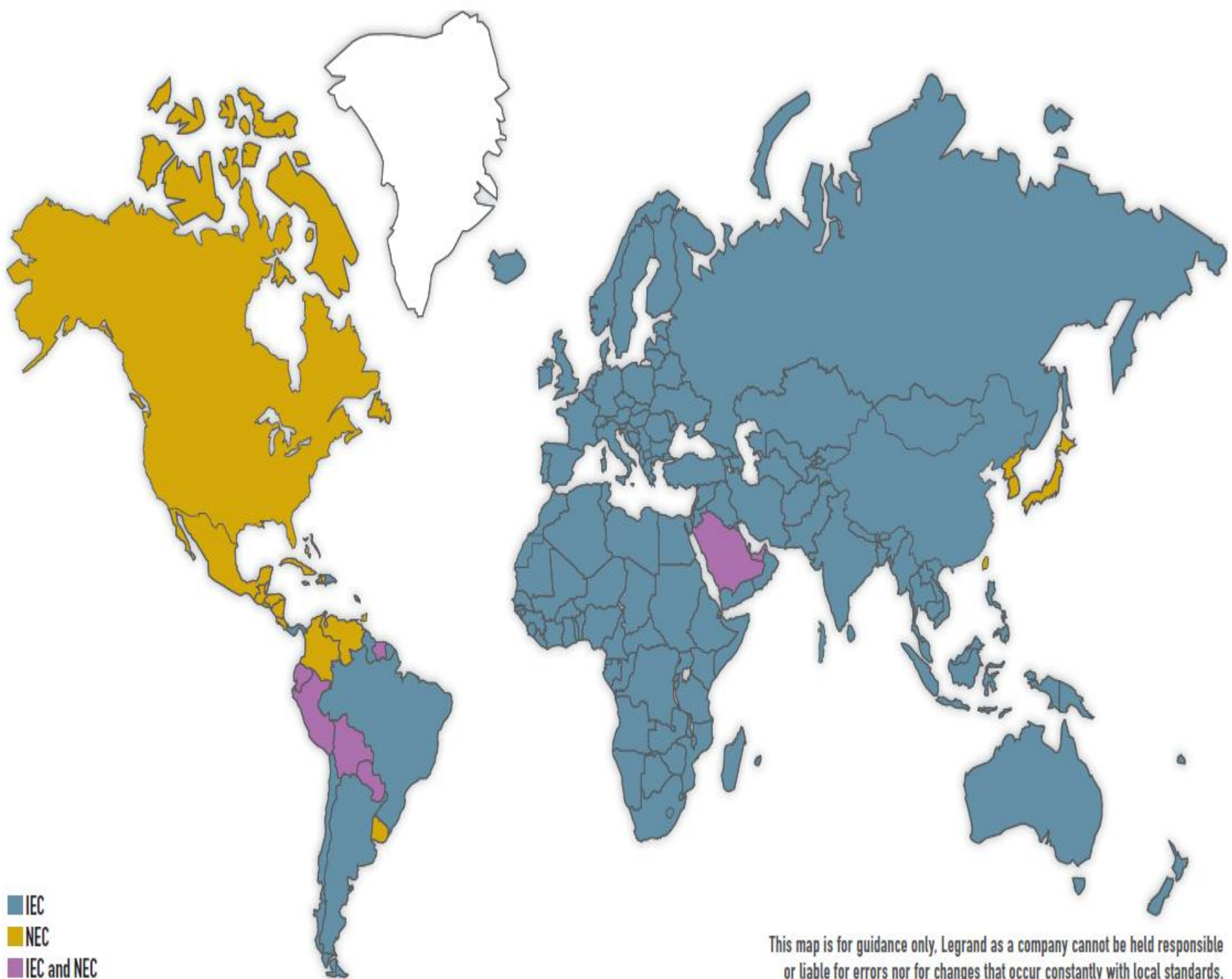
- ***Week Number 8:***      **Design of lighting systems**
- ***Week Number 9:***      **Design of lighting systems**
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- *Week Number 14: Project*
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- *Week Number 16: Final Exam*



# Codes and Standards



This map is for guidance only, Legrand as a company cannot be held responsible or liable for errors nor for changes that occur constantly with local standards.

# IEC and NEC

- The **IEC 60364 standard**, “Electrical Installations of Buildings,” is copyrighted by the **International Electrotechnical Commission**, with headquarters in Geneva, Switzerland, although the right of reproduction and distribution in any country lies with the national committee of that country. In the **U.S., ANSI** holds the rights for distribution of IEC standards.
- The “**National Electrical Code**” or “**NEC**” are registered trademark of the National Fire Protection Association (**NFPA**)



# IEC and NEC

- In general, while the **NEC** evolved along with the growth of electrical systems in **North America** more than 100 years ago in order to establish a uniform level of safety, the development of **IEC 60364** documents set in **1969** for reasons of harmonization of electrical installation rules to facilitate trade among **European countries**.



# IEC and NEC

- **IEC 60364** is a collection of documents that define fundamental principles, practices, and performance requirements which reflect the European concept of wiring and distribution systems.
- The **NEC** is a set of specific rules intended to be used for design, installation, and uniform enforcement of electrical system installations based on North American principles and practices.

# 62 IEC members



<b>AUSTRALIA</b>	<b>EGYPT</b>	<b>KOREA, REP. OF</b>	<b>SAUDI ARABIA</b>
<b>AUSTRIA</b>	<b>ERITREA (PM)</b>	<b>LATVIA (AM)</b>	<b>SINGAPORE</b>
<b>BELARUS</b>	<b>ESTONIA (AM)</b>	<b>LITHUANIA (AM)</b>	<b>SLOVAKIA</b>
<b>BELGIUM</b>	<b>FINLAND</b>	<b>LUXEMBURG</b>	<b>SLOVENIA</b>
<b>BOS.-HERZO. (AM)</b>	<b>FRANCE</b>	<b>MALAYSIA</b>	<b>SOUTH AFRICA</b>
<b>BRAZIL</b>	<b>GERMANY</b>	<b>MEXICO</b>	<b>SPAIN</b>
<b>BULGARIA</b>	<b>GREECE</b>	<b>NETHERLANDS</b>	<b>SWEDEN</b>
<b>CANADA</b>	<b>HUNGARY</b>	<b>NEW ZEALAND</b>	<b>SWITZERLAND</b>
<b>CHINA</b>	<b>ICELAND (AM)</b>	<b>NORWAY</b>	<b>THAILAND</b>
<b>COLOMBIA (PM)</b>	<b>INDIA</b>	<b>PAKISTAN</b>	<b>TURKEY</b>
<b>COSTA RICA (PM)</b>	<b>INDONESIA</b>	<b>PHILIPPINES</b>	<b>UKRAINE</b>
<b>CROATIA</b>	<b>IRELAND</b>	<b>POLAND</b>	<b>UK</b>
<b>CUBA (PM)</b>	<b>ISRAEL</b>	<b>PORTUGAL</b>	<b>USA</b>
<b>CYPRUS (AM)</b>	<b>ITALY</b>	<b>ROMANIA</b>	<b>URUGUAY (PM)</b>
<b>CZECH REP.</b>	<b>JAPAN</b>	<b>RUSSIAN FED.</b>	<b>YUGOSLAVIA</b>
<b>DENMARK</b>	<b>KENYA (PM)</b>		

**AM = Associate member**

**PM = Pre-associate member**

# British Standards

- British Standard **BS 7671** "Requirements for electrical installations" is the national standard in the **United Kingdom** for low voltage electrical installations.
- The **IET** (Institution of Engineering and Technology) has published **wiring regulations** in the United Kingdom since 1882.

# BS 7671

- Since their **15th** edition (1981), these regulations have closely followed the corresponding international standard **IEC 60364**.
- Today, they are largely based on the European Committee for Electrotechnical Standardization (**CENELEC**) harmonization documents, and therefore are technically very similar to the current wiring regulations of other European countries.





**THANKS**