Vass Kálmán

Lakásvilágítási cikkek jellemzői idegen nyelven

NSZFI
NEMZETI SZAKKÉPZÉSI ÉS FELNŐTTKÉPZÉSI INTÉZET

A követelménymodul megnevezése:

A műszaki cikkek eladásával kapcsolatos követelmények

A követelménymodul száma: 0123-06 A tartalomelem azonosító száma és célcsoportja: SzT-a27-50

LAKÁSVILÁGÍTÁSI CIKKEK JELLMZŐI ANGOL NYELVEN

ESETFELVETÉS – MUNKAHELYZET

Gyógyturizmussal és ingatlanok felújításával foglalkozó Kanadai vállalkozó a harminc fő befogadóképességű hévizi luxuspanzió tulajdonjogának megszerzése után az épület korszerűsítését tervezi. A burkolatok cseréje, a festés, mázolás, tapétázás mellett a csillárok lámpatestek, falikarok felújítása, az elavult lámpatestek cseréje is szükségessé vált. Néhány világítótest korszerűbbé tehető a bennük lévő fényforrás cseréjével is. A munkálatok elvégzésénél nem hagyhatóak figyelmen kívül a hagyományos izzók használatára vonatkozó korlátozások és a növekvő energiaköltségek sem. Mivel a vezető gyártók lakásvilágítási kalkulátor programokat üzemeltetnek honlapjukon, segítségükkel a felhasználók könnyen ki tudják számítani az elérhető megtakarításukat. Az előzetes tájékozódás és a számítások elvégzése után olyan kiskereskedelmi egységet keres, ahol mindent be tud szerezni, az igényei szerint katalógusból is tud rendelni, szükség esetén műszaki tanácsot is kap, és a boltban beszélnek angolul.

A világítástechnikai szaküzletben dolgozó fiatal kereskedő nemcsak a lámpatesteket, csillárokat, falikarokat, épület reflektorokat, kandelábereket, ismeri jól, hanem az üzemeltetésükhöz szükséges hagyományos, halogén és energiatakarékos izzókat, hagyományos és kompakt fénycsöveket, a működésükhöz szükséges kiegészítőket, előtéteket, a beépítéssel kapcsolatos alapvető tudnivalókat, a legfontosabb biztonságtechnikai előírásokat és a felhasználhatóság esetleges korlátait is. A fényforrásokat, fényerőszabályzókat, alkonykapcsolókat működés közben mutatja be, az energia-kalkulátorokkal végzett számításait kinyomtatja, minden lámpatesthez tartalék burát, izzót, fénycsövet ajánl. A legnagyobb gyártók, beszállítók hírleveleiből tájékozódik a legújabb termékekről és az esetleges akciókról. Ismereteit folyamatosan bővíti, angol nyelven végezte el a világhírű Osram cég hagyományos és energiatakarékos fényforrásokat bemutató kiskereskedői-viszonteladói tanfolyamát a cég nemzetközi oktatóközpontjában, Münchenben.

A kurzus a következő tanegységekből, modulokból épül fel:

1. modul: Villamos alapismeretek	6. modul: Fénycsövek
2. modul: Fény és fénymérés	7. modul: Nagynyomású kisülőlámpák
3. modul: Színek, színhőmérséklet	8. modul: Működtető eszközök
4. modul: Izzólámpák	9. modul: LED – világító diódák
5. modul: Volfrámszálas halogénlámpák	

A tanfolyam elvégezhető az OSRAM interaktív Termék Oktatási Program segítségével is, minden internet kapcsolattal rendelkező felhasználó gyorsan és egyszerűen elsajátíthatja a fénnyel, lámpákkal, világítással kapcsolatos ismereteket. A kilenc világosan strukturált modul segítségével ellenőrizheti és kiegészítheti tudását. Az első három modul a középiskolai fizika tanulmányokból ismerős fogalmakkal dolgozik. A hetedik és nyolcadik tanegység elsősorban azoknak a szakkereskedőknek szól, akik közületi vásárlókat és épületvillamossági szerelőket is kiszolgálnak az üzletben. A program nem korlátozza a rendelkezésre álló időt, tehát bármikor félbehagyható, később újrakezdhető. Minden modul végén 12 tesztkérdés szolgája az önellenőrzést. Helyes válaszok esetén a program egy személyes, névre szóló, kinyomtatható bizonyítványt szerkeszt. A teljes világítástechnikai tanfolyam elvégzését tehát összesen kilenc oklevél tanúsítja.


CERTIFICATE

T. A. Edison

has completed the
Product Training Programme
Module 1: Basic Electrical Principles
with great success.

Osram GmbH
Germany

Andreas Bär
Sales marketing
Trade

Dietmar Schneider
Director sales
Trade

OSRAM

1. ábra A tanegységek elsajátítását igazoló bizonyítvány[1]

SZAKMAI INFORMÁCIÓTARTALOM

1. Reading

Bring your Ideas into the Light

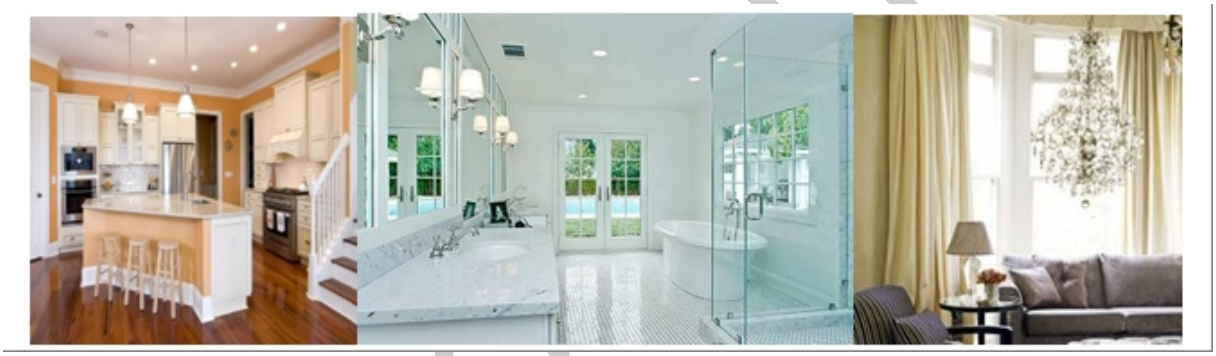
[1]Source:http://www.osram.com/osram_com/Tools_%26_Services/Training_%26_Knowledge/Webbased_Training/Product_Training_Program/index.html

Buying a lamp is seemingly an easy action but sometimes prove to be difficult decision, because customers often overlook the most important question: what do I want to do with my lighting? Study, work, read, or just create a unique atmosphere? Just take a simple example: buy a lamp above your table. Table lighting depends on the different purpose of different usage. Some people use this when get together to sit around the table with friends, playing cards, while others use it for manual work, or for their hobby not to mention those who like reading the daily papers at the table to go with the morning coffee.

Ambient or Functional?

Generally speaking, two types of lighting can be distinguished: ambient and functional.

Ambient lighting can be broken down into two main categories: **accent lighting** that allows you to highlight certain piece of furniture in your interior and **indirect lighting** that is an invisible light source. Strip lighting hidden behind a false ceiling is a good example. It projects a pleasant light onto the wall creating a warm atmosphere.



2. ábra Figure 2 Ambient lighting[2]

Functional lighting is not so much about creating an atmosphere, but is more about providing light. It always has a clear aim. Here you can also find two categories: **basic lighting and orientation lighting.** The first is the main lighting type for lighting an entire room. Orientation lighting usually has a lower light output. These sorts of lights often define a corridor way, a driveway, a path in the garden not to be lost in the dark.

[2]Source:http://www.tropicalhomeimprovementideas.com, http://www.idealhomemagazine.co.uk/imageBan, http://www.raftertales.com/wp-content/uploads/bathroom-lighting-ambient-light.jpg

3. ábra Figure 3 Functional lighting[3]

What luminary meets your requirements?

Most of the manufacturers have a wide choice of **chandeliers, wall lights, ceiling lights, floor lamps, table lamps, reading lamps, desk lamps, spot lights; recessed spots, strip lighting luminaries, outdoor lightings.**

In addition these conventional products, some producers offer certain lighting luminaries that are linked with a specific application such as **bathroom lighting, kitchen lighting**, attractive **children's lighting**.

What style would you prefer?

After answering technical questions turn to your personal taste and emotion. Lighting should be in harmony with your interior design. Dark wallpapers will absorb light, while lightly coloured walls will spread it.

Which light source and wattage would you choose?

Choosing the most efficient light source can help you in spending your money on power wisely. A matt lamp emits a much softer light than a bright one. According to a simple rule use a matt lamp if the luminary has matt glass. If your glass is clear, use a clear lamp.

Trends in lighting

Lighting trends depend on technological innovations. Thanks to their small size new light sources such as light emitting diode LED fit into elegant designed luminaries that equipped with specific accessories.

Movement detectors and dimmers allow you to save a lot of money, but low-energy lights cannot be combined with movement detector because these bulbs need a bit longer to reach their full light.

How to put them into operation?

[3] Source:http://luxury-ideas.com/06/local-light/

Not all luminaries can be directly connected to the electricity. Begin the installation with reading the mounting instruction carefully. Some models need a transformer. Be careful, halogen and incandescent lamps have bigger heat emission, so you have to keep inflammable materials at a safe distance from the light source.

TANULÁSIRÁNYÍTÓ

1. Bring your knowledge to light

Web Based Product Training Programme for Shop Assistants and Distributors[4]

4. ábra Figure 4 OSRAM training programme consist of nine different modules

The modules at a glance:

Module 1:	**Basic Electrical Principles**	**Module 6:**	**Fluorescent Lamps**
Module 2:	**Light & Photometry**	**Module 7:**	**High Intensity Discharge (HID) Lamps**
Module 3:	**Colour**	**Module 8:**	**Control Gear**
Module 4:	**Incandescent Lamps**	**Module 9:**	**LED – Light Emitting Diodes**
Module 5:	**Tungsten Halogen Lamps**		

Look at the programme schedule and answer the questions. Which module do you think deals with Ohm's Law?

2. The Basics

Match the expressions with the explanations. The first answer is given. Write your answers in the chat. There is an extra definition that you will not need.

(1) current	**(2) flicker**	**(3) control gear**	**(4) conductors**	**(5) DC**
(6) insulator	**(7) dimmer**	**(8) power**	**(9) ballast**	**(10) AC**

[4]Source:http://www.osram.com/osram_com/Tools_%26_Services/Training_%26_Knowledge/Webbased_Training/Product_Training_Program/index.html

A The rate of flow of electricity.

B Alternating current flows through a circuit in alternate directions.

C The term is used to describe a variety of conditions where the light output of a lamp fluctuates.

D The ratio of voltage to current in a circuit at constant temperature is constant.

E Materials that cannot generate many free electrons.

F Direct current flows in a circuit in one direction only.

G The rate at which energy is used. It is often referred wattage.

H Materials which generate many free electrons.

I It is used to start and operate the lamp correctly.

J It allows the voltage applied to the lamp to be controlled from 230V down to about 50V.

K A large coil of copper wire wrapped around a heavy iron core and work as current limiting device.

Answers:

A B C D E F G H I J

1

Now push CTRL+Left click to visit the website below and do the **first module** by the name of "Basic Electrical Principles.

http://www.osram.com/osram_com/Tools_%26_Services/Training_%26_Knowledge/Webbased_Training/Product_Training_Program/index.html

The **second and the third module** examines the nature of light and explain terms used in different catalogues and brochures. Do this exercise individually.

In the **fourth module** you can learn about standard light bulbs. Read this short introductory section *(Then & Now)* as a warming up exercise, fill in the gaps with the proper word or expression then read the module on the Net and start the quiz.

3. Then & Now

Fill in the gaps. Use an online or printed technical dictionary if needed. The first answer is given.

The first (1) *incandescent* lamp was introduced on October 21, 1879, by Thomas Edison. The original bulb used a (2) ……. in a bulb containing a (3) ……. Modern bulbs now primarily use (4)…….with a gas fill instead of a vacuum though bulbs using thin filaments and lower currents still utilize a vacuum because they function more efficiently.

Incandescent light bulbs are gradually being replaced in many applications by other types of electric light such as (5)……., high-intensity discharge lamps, (6) …… , and other devices.

5. ábra Figure 5 Incandescent lamps in different shapes[5]

incandescent	**tungsten filament**	**fluorescent lamps**
light-emitting diodes	**vacuum**	**carbon filament**

The **fifth module** gives you an insight into the area of **halogen lamps**. Before you get started — as a warming up exercises — read the following article about halogen lamps. All the paragraphs are in order but the headings are removed from the text. Complete the text by deciding which heading (A–E) fits each gap (1–4). The first answer is given. There is an extra heading which you will not need.

What a difference this halogen bulb makes?[6]

1	**C. Conventional lighting**

Let's start with a normal electric light bulb like you see in any normal household lamp. A normal light bulb is made up of a fairly large, thin, frosted glass envelope. Inside the glass is a gas such as argon and/or nitrogen. At the centre of the lamp is a tungsten filament. Electricity heats this filament up to about 4,500 degrees F (2,500 degrees Celsius). Just like any hot metal, the tungsten gets "white hot" at that heat and emits a great deal of visible light in a process called incandescence.

2	

A normal light bulb is not very efficient, and it only lasts about 750 to 1,000 hours in normal use. It's not very efficient because, in the process of radiating light, it also radiates a huge amount of infrared heat — far more heat than light. Since the purpose of a light bulb is to generate light, the heat is wasted energy. It doesn't last very long because the tungsten in the filament evaporates and deposits on the glass. Eventually, a thin spot in the filament causes the filament to break, and the bulb "burns out."

[5] Source: http://www.allproducts.com/manufacture97/yaming/product5.html

[6] Source: http://home.howstuffworks.com/question151.htm

A halogen lamp also uses a tungsten filament, but it is encased inside a much smaller quartz envelope. Because the envelope is so close to the filament, it would melt if it were made from glass. The gas inside the envelope is also different -- it consists of a gas from the halogen group.

3	

The halogens are five non-metallic elements found in group 17 of the periodic table. The term "halogen" means "salt-former" and compounds containing halogens are called "salts". All halogens have 7 electrons in their outer shells, giving them an oxidation number of -1. The halogens exist, at room temperature, in all three states of matter solid- iodine, astatine liquid- bromine gas- fluorine, chlorine. The Halogens are: fluorine, chlorine, bromine, iodine, and astatine.

4	

These gases have a very interesting property: They combine with tungsten vapour. If the temperature is high enough, the halogen gas will combine with tungsten atoms as they evaporate and redeposit them on the filament. This recycling process lets the filament last a lot longer. In addition, it is now possible to run the filament hotter, meaning you get more light per unit of energy. You still get a lot of heat, though; and because the quartz envelope is so close to the filament, it is extremely hot compared to a normal light bulb.

A Chemical elements with certain properties

B Mendeleev's table

C Conventional lighting

D Some like it hot

E Improve efficacy, make the life longer and reduce the size

The **sixth module** discusses the topics of conventional fluorescent tubes and compact fluorescent lamps.

6. ábra Figure 6 Fluorescent lamps and tubes[7]

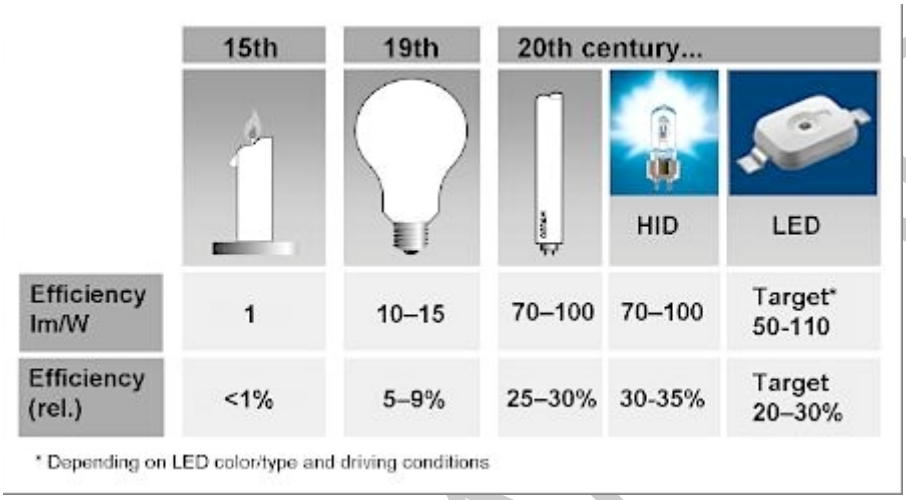
Start to examine the topic focusing on the coding system and their advantages and disadvantages.

[7]Source:http://www.osram.com/osram_com/Tools_%26_Services/Downloads/General_lighting/Compact_fluorescent_lamps/index.html

The **seventh module** is only an extra exercise for you. HID lamps are mainly used for road and street lighting.

The **eighth module** is an overview over all electronic control gears for fluorescent lamps, low voltage lamps.

4. See the world in a new light



7. ábra Figure 7 LEDs create the future now

The **ninth module** looks in detail at light emitting diodes and their operation and use. Can LED be the future of light?

8. ábra Figure 8 Different LED light sources in home lighting[8]

Megoldások:

The Basics

A	B	C	E	F	G	H	I	J	K
1	10	2	6	5	8	4	3	7	9

Comment: "D" is the extra definition that does not match any of the terms. Actually it is the Ohm's Law. We call the *"constant"* resistance.

Then & Now

(1) incandescent, (2) carbon filament, (3) vacuum, (4) tungsten filament, (5) fluorescent lamps, (6) light-emitting diodes

Optional answer: (5) light-emitting diodes, (6) fluorescent lamps

What a difference this halogen bulb makes?

Answers: 1C, 2E, 3B, 4A. Comment: "D" does not fit to any places.

[8]Source:http://catalog.myosram.com/zb2b/b2b/start.do?browsername=mozilla%2F4.0%2520%2528compatible%253B%2520msie%25208.0%253B%2520windows%2520nt%25205.1%253B%2520trident%2F4.0%253B%2520asktbtkr%2F5.8.0.12304%2529&browsermajor=4&browserminor=4

ÖNELLENŐRZŐ FELADATOK

1. feladat

Bring your Ideas into the Light

Answer the questions. Do this exercise in writing.

1. What is the difference between ambient lighting and functional lighting?
2. What are the main categories of ambient lighting?
3. What are the main categories of functional lighting?
4. Brush up your memory. What luminaries can you remember?
5. What are the main trends in home lighting?

2. feladat

Bring your knowledge to light.

At the end of each module you can test your knowledge by answering a series of 12 questions. If you can answer all the questions correctly you can start answering these questions as well.

http://www.osram.com/osram_com/Tools_%26_Services/Training_%26_Knowledge/Webbased_Training/Product_Training_Program/index.html

Answer the questions. Do this exercise in writing. Questions are based on the **first module**.

1. What is Ohm's Law?
2. What is the difference between alternating current and direct current?
3. What is the difference between conductors and insulators?

4. Make a drawing of a simple circuit.

5. What is power?
6. What is frequency?
7. What colour are the wires in a mains cable and what are the meanings of the colours?
8. What is flicker?
9. What are stroboscopic effects?
10. What is a transformer good for?
11. What is ballast (choke) good for?
12. What is control gear?
13. What is a dimmer good for?

3. feladat

Bring your knowledge to light.
Then & Now
Answer the questions. Do this exercise in writing. Questions are based on both the *"Then and Now"* exercise and the **fourth module**.

14. What sort of filament was put into the famous Edisonian electric bulb?
15. What are the main parts of an incandescent lamp?
16. How many Edison's screw lamp size do you know? How are they marked?
17. What is the average life of a GLS lamp?

4. feladat

Bring your knowledge to light.

Answer the questions. Do this exercise in writing. Questions are based both on the **fifth module** and the exercise by the title of "What a difference this halogen bulb makes?"

1. What is a halogen?
2. What is blackening effect?
3. Why do we sometimes call tungsten halogen lamps quartz halogen lamps?
4. What is halogen cycle?
5. What are the differences between mains voltage halogen lamps and low voltage halogen lamps?
6. What are the differences between conventional transformers and electronic transformers?
7. Why should you be careful with transformer loading?
8. What is the life expectancy of a halogen lamp?

5. feladat

Bring your knowledge to light.
Answer the questions. Do this exercise in writing. Questions are based on the **sixth module**.

1. What is the difference between phosphorescence and fluorescence?
2. What is control gear?
3. What does "colour appearance" mean?
4. What is colour rendering index?
5. What does the marking "**L58/830"** mean printed on a fluorescent lamp?
6. What is "T designation" good for?
7. What is a CFL?
8. What is the "rated average life" of a fluorescent lamp?

6. feladat

Bring your knowledge to light.
Answer the questions. Do this exercise in writing. Questions are based on the **ninth module**.

What is a LED?

Why do we use LEDs for lighting?

What are LED modules?

What is an Optotronic Control Gear good for?

What information can you read on an Optotronic Control Gear?

MEGOLDÁSOK

1. feladat

1. Ambient lighting comes from all directions, creates pleasant atmosphere while functional lighting come from one source.
2. Accent lighting that allows you to highlight certain piece of furniture in your interior and indirect lighting that is an invisible light source.
3. Basic lighting and orientation lighting.
4. Chandeliers, wall lights, ceiling lights, floor lamps, table lamps, reading lamps, desk lamps, spot lights; recessed spots, strip lighting luminaries, outdoor lightings. Add to this list some specific applications such as bathroom lighting, kitchen lighting, attractive children's lighting. Comment: the list is endless.
5. LEDs, movement detectors, dimmers, energy-saving devices.

Comment: Click and see the following *"Everything about LED"* video clip for more information.
http://www.osram.com/osram_com/LED/Everything_about_LED/index.html

2. feladat

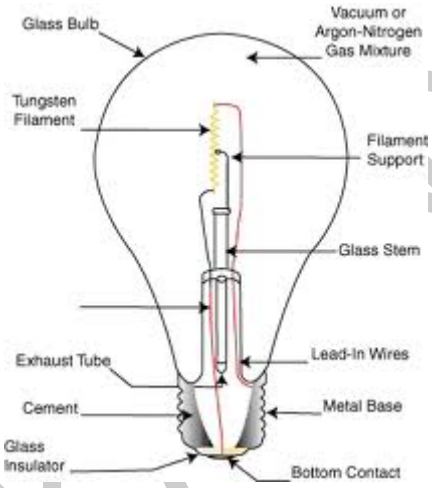
The ratio of voltage to current in a circuit at constant temperature is constant.
Direct current flows in a circuit in one direction only while alternating current flows through a circuit in alternate directions.
Materials which generate many free electrons are known as conductors (e.g. copper, silver) whilst those which cannot are insulators (rubber, glass and plastic).

3. feladat

1. Figure 9 shows the first prototypes of electric bulbs.

*9. ábra Figure9 Edison's lamp had a single loop of **carbon** which glowed when a current flowed through it*[9]

2.



10. ábra Figure 10 The main parts of an incandescent lamp[10]

3. E14(14mm), E27(27mm), E40(40mm)
4. The average life of GLS lamps is specified in as 1000 hours.

4. feladat

1. Halogens are a group of chemical elements with certain properties.
2. Incandescent lamps suffer from blackening of the inner surface of the envelope as a result of evaporation of tungsten from the hot filament.
3. Because their envelopes are made not from glass, but from quartz, which can better withstand the high temperatures at which these lamps operate.

[9] Sources: http://www.apartmenttherapy.com, http://www.time.com, http://www.sciencemuseum.org.uk

[10] Source: http://www.lampbank.nl/kk_900025.html

4. The hot filament causes all the gases, including the halogen to circulate. This is called convection. Tungsten atoms evaporate from the filament. Normally these are responsible for blackening the envelope. The tungsten atoms readily combine with the halogen to form a compound known as tungsten halide (also a vapour). Being chemically bound to the halogen, the tungsten does not deposition the inside of the envelope. Instead, the tungsten halide vapour circulates around the envelope as a result of convection. When the tungsten halide passes close to the filament, the intense heat splits it back to its components tungsten and halogen. The tungsten deposits itself back on the cooler parts of the filament and the halogen is free to circulate again. The cycle then repeats.
5. Low voltage halogen lamps do not behave like mains voltage GLS lamps. When the filament fails, the voltage is too low to cause an arc to extend across the filament tails. For this reason no fuse is required, and none is built into the lamp.
6. Electronic transformers use electronic components that make them light and compact.
7. If a transformer is overloaded (the current drawn on the output side is greater than the designed maximum) then the voltage across the lamp(s) will be lower than expected and the transformer can overheat. The total wattage should never exceed the VA rating of the transformer. If a transformer is under-loaded there will be no risk to the transformer, but the lamps will be over-volted which will result in short life. Because of this, any failed lamp that is one of many connected to a single transformer should be replaced as soon as possible to prevent shortening the other lamps' life.
8. Tungsten halogen lamps typically last twice as long as standard GLS lamps, i.e. 2000 hours.

5. feladat

1. The difference between the two is that phosphorescent materials continue to glow after the exposing radiation is removed.
2. Unlike incandescent lamps, fluorescent lamps cannot on their own control the current and would draw such high currents from the mains that they would destroy themselves. These devices are collectively referred to as 'control gear'.
3. 'Colour appearance' is how 'warm' or 'cold' a lamp's light appears. It is quantified by its colour temperature in Kelvin (the absolute temperature scale).
4. It indicates how good the light source is in rendering colours correctly (i.e. as they would appear in natural daylight).
5. "L" prefix (comes from German) means "fluorescent lamp. The lamp power is 58 Watt. "8" (the first digit) is the CRI value. "30" is the mark of colour temperature that is 3000K 'Warm White'.
6. It is common to refer to fluorescent tubes by their 'T' designation to specify the diameter of the tube.
7. A compact fluorescent lamp.
8. Between 10.0000 hours and 20.000 hours depending on the model.

6. feladat

1. A Light Emitting Diode (LED) is a ‘solid state’ electronic component.

2. For their reliability, efficiency, and their safe, low-voltage operation.
3. An assembly of one or more discrete LEDs.
4. This ensures safe ongoing operation of the LED modules. It also protects against short circuit. Beside these features it ensures thermal and overload protection.
5. The rating in Watts, the supply voltage, and the output voltage.

IRODALOMJEGYZÉK

FELHASZNÁLT IRODALOM

http://www.osram.com/osram_com/index.html

http://www.philips.co.uk/#/#/headernav/consumer/lighting/

http://www.ge.com/products_services/lighting.html

http://www.eglolighting.com.au/about_us.html

http://www.massive.pl/tc111dk6d83.aspx

http://www.tropicalhomeimprovementideas.com

http://www.idealhomemagazine.co.uk

http://www.raftertales.com

http://luxury-ideas.com/06/local-light/

http://www.allproducts.com

http://home.howstuffworks.com

AJÁNLOTT IRODALOM

http://www.osram.com/osram_com/index.html

http://www.philips.co.uk/#/#/headernav/consumer/lighting/

http://www.ge.com/products_services/lighting.html

http://www.eglolighting.com.au/about_us.html

http://www.massive.pl/tc111dk6d83.aspx

http://www.rabaluxlampabolt.hu/index.php?option=com_content&view=frontpage&Itemid=59

A(z) 0123-06 modul a27-es szakmai tankönyvi tartalomeleme felhasználható az alábbi szakképesítésekhez:

A szakképesítés OKJ azonosító száma:	A szakképesítés megnevezése
31 341 01 0010 31 03	Műszakicikk eladó
51 341 01 0000 00 00	Műszakicikk-kereskedő

A szakmai tankönyvi tartalomelem feldolgozásához ajánlott óraszám:
8 óra

A kiadvány az Új Magyarország Fejlesztési Terv
TÁMOP 2.2.1 08/1-2008-0002 „A képzés minőségének és tartalmának fejlesztése” keretében készült.
A projekt az Európai Unió támogatásával, az Európai Szociális Alap társfinanszírozásával valósul meg.

Kiadja a Nemzeti Szakképzési és Felnőttképzési Intézet
1085 Budapest, Baross u. 52.
Telefon: (1) 210-1065, Fax: (1) 210-1063

Felelős kiadó:
Nagy László főigazgató