

First stage



ENGLISH

Dr. Abdulhadi Kadhim

Introduction

Theoretical side:

general description for course lectures, goals , process ,applications, and General information about laser and optoelectronics

Practical side:

Aspects of laser applications

Lecture activity:

writing a curriculum vita (C.V.) for each student

Theoretical side:

general description for course lectures:

- ✓ Number of lectures:13 lectures during the course
- ✓ The lecture consists of three axes, _Theoretical side, _Practical side, Lecture activity
- ✓ The grades will count as follows, Degree of Examinations, Lecture activity, participation Student during the lecture

goals :

- ✓ Strengthen students' English language skills in general
- ✓ To strengthen the student's skills in English in order to serve his specialty

General information about laser and optical electronics

Laser: A laser is a coherent and focused beam of ***photons**; coherent, in this case means that it is all one wavelength or unique color , unlike ordinary light which shines on us in many wavelengths.

The acronym laser word for "light amplification by stimulated emission of radiation." Lasers work as a result of resonant effects. The output of a laser is a coherent electromagnetic field or radiation. In a coherent beam of electromagnetic energy, all the waves have the same frequency and phase



How Laser Work?

Laser Action & Quantum Theory

Laser action is based on well-established principles of quantum theory. **Albert Einstein**, the greatest modern physicist, enunciated that an excited atom or a molecule, when stimulated by an electromagnetic wave (i.e., light), would emit photons (packets of light) having the same wavelength as that of the impinging electromagnetic wave. **Charles Townes** was the first person who took advantage of this stimulated emission process as an amplifier by conceiving and fabricating the first maser (acronym for Microwave Amplification by Stimulated Emission of Radiation). The first maser was produced in ammonia vapour at a wavelength of 1.25 cm. Extending the maser principle to optical wavelengths, Townes along with **Arthur Leonard** developed the concept of using a laser amplifier and an optical mirror cavity to provide the multiple reflections necessary for rapid growth of light signal into an intense visible beam

optical electronics

Optoelectronics is the study and application of electronic devices and systems that source, detect and control light, usually considered a sub-field of photonics. In this case, light often includes invisible forms of radiation such as gamma rays, X-rays, ultraviolet and infrared, in addition to visible light. Optoelectronic devices are electrical-to-optical or optical-to-electrical transducers, or instruments that use such devices in their operation. Electro-optics is often erroneously used as a synonym, but is a wider branch of physics that concerns all interactions between light and electric fields, whether or not they form part of an electronic device



Laser Applications

- Medical laser applications
- Laser applications in the field of genetic engineering
- Laser applications in communications
- Industrial laser applications
- Applications of laser in daily life
- Laser applications in the military field

➤ Each student writes a brief description of a laser application and discussed during class

Rules add a tool saying that the indefinite an & a

a- an

Grammar

a

تستخدم **a** مع الاسم الذي يبدأ بحرف ساكن **consonant sound** وعلى سبيل المثال:

- A book
- A door

an

و نستخدم **an** مع الاسم الذي يبدأ بحرف صوتي **vowel sound** على سبيل المثال:

- An apple
- An orange
- An image

نستخدم أدوات التنكير مع الأسماء المفردة و المعدودة، ونستخدم an بشرط أن تبدأ الكلمة بأحد الحروف الصوتية vowel sound المتعارف عليها . U - A - E - I - O .

We use the tools of reasoning with single and numbered names, and use an condition provided that the word begins with one of the common vowel sound characters

U - A - E - I - O .

تستطيع إضافة أدوات التنكير في اللغة الانجليزية مع الأسماء غير المعدودة Uncountable Nouns و الجمع فمن غير المعقول أن نستخدم هذه الأدوات مع اسم غير معدود مثل " زيت " oil أو " ماء " ! " water

You can add English speaking tools with Uncountable Nouns and plural nouns. It is not reasonable to use these tools with an infinite name such as "oil" or "water water"!

Exceptions

We use An with words that contain <h> silent such as: an **hour-hour** and the reason we say <h> here as <a> and not <h> is called H-Mute. (Note the exception How we got and used an, although we started with the letter <h>) we use A with the words beginning with <e>, <eu>, which speaks in the form of <you> such as: a **European - European** and a **university** - . (Note the exception how we got it and used a although we started with <e> and <e>)

ستخدم An مع الكلمات التي تحتوي على <h> الصامتة مثل: an hour ساعة والسبب أننا ننطق <h> هنا على أنها <a> وليست <h> (ولهذا تسمى H-Mute). لاحظ الاستثناء كيف حصلوا باستخدامنا an على الرغم أننا بدأنا بحرف الـ <h> نستخدم A مع الكلمات التي تبدأ بـ <eu>, <e> والتي تنطق على شكل <you> مثل: a European - أوروبي و - university جامعة. (لاحظ الاستثناء كيف حصلوا باستخدامنا a على الرغم أننا بدأنا بحرف الـ <e> والكلمة الثانية <u>

Making Questions

لتحويل الجملة الخبرية إلى سؤال نضع الفعل المساعد في البداية:
الأفعال المساعدة هي: Helping Verbs

am – is – are – was – were – have – has – had – will – would – shall – should – can – could
– may – might – must – ought to

Sush us

They are doctors. Are they doctors?
I will go to the market? Will you go to the market?

إذا لم يكن بالجملة فعل مساعد

They play tennis. **do** نستخدم **s** مع الفعل المضارع بدون **s**
I write books **do** نستخدم **s** مع الفعل المضارع بدون **s**

Do they play tennis?
Do you write books?

(2) مع الفعل المضارع الذي يحتوي على **s** نستخدم **dose**

Ahmed plays tennis.  Does Ahmed play tennis

They watched TV last night  (3) مع الفعل الماضي نستخدم **did**:
Did they watch TV last night?

NOTE

All of the above questions are answered with **yes** or **no** because they did not start with a question tool

Steps for Making a Question

1) اختر أداة السؤال المناسبة للجزء المراد السؤال عنه، مثل:

When, Where, Why.....etc

2) (ضع الفعل المساعد) helping verb (إن وجد) قبل الفاعل أي بعد أداة السؤال مباشرة.

3) إذا لم يكن بالجملة فعل مساعد استخدم:

* مع الفعل المضارع بدون do نستخدم

* مع الفعل المضارع الذي به نستخدم dose

* مع الفعل الماضي نستخدم did

4) ضع الفاعل بعد الفعل المساعد سواء الموجود بالجملة أصلاً أو التي استخدمناها من عندنا مع ملاحظة إعادة الفعل إلى أصله أي تعريفه الأول.

5) احذف الجزء المراد السؤال عنه لأنه جواب السؤال.

مثال: _____

They are going to eat meat.



What are they going to eat?

* لاحظ أننا قدمنا are على they لأنها هي الفعل المساعد ثم حذفنا كلمة meat لأنها الجواب على السؤال

Synonyms

The word	Synonymous
Enunciated	pronounce
Impinging	Collision
stimulate	motivate
emission	revival
Extending	Extension
provide	Supply
intense	Dense
considered	Behold
whether	choice between alternatives
genetic	Inborn
indefinite	Unlimited
Exceptions	Exclusion
Mute	Silent

Lecture activity

- writing a C.V for each student

THE END

Dr.Abdulhadi Kadhim

Second Lecture

Theoretical side:

Simple present tense, present continuous tense, present perfect tense, present perfect continuous, simple past tense, simple future tense
future continuous tense

Practical side:

Translation of a scientific paragraph

Lecture activity:

Each student writes about a scientist

- ✓ **.Actions which happen regularly** (every day, every week, etc.)/ Examples
They go to school every day
- ✓ **Things that do not change like (scientific facts, ideas ...)** Examples / The sun rises from the east. the degree of boiling water or the rotation of the sun or so on. The earth goes round the sun.
- ✓ **to narrate a historical event** through the excitement of the story as if it was a film and this is called the historical present historical example: She dresses quickly and opens the door then ...
- ✓ **In the sentences of the admirable** example of the wonder of the arrival of the boring teacher: Here comes our dull teacher!
- ✓ **instead of the future When we plan for a future event** coupled with a situation indicative of the future, such as: You start in the morning.
- ✓ **With involuntary acts are acts that do not take ing** These are acts of mental state? Agree, different, doubt, forget, remember, know, mean, notice, recognize, suppose, think, believe, understand? , feel, Forgive, hate, love, detest.
- ✓ **Other acts?** Appear, belong to, consist of, contain, cost, depend, deserve, equal, find, matter, seen, possess, care, refuse, have, dislike, own, gather, be worth. smell, taste, see, notice hear, observe, sense touch

How to form present simple?

1-Subject + verb (s)+object

- *Note that it is important to add the letter (s) in the verb if conditions are necessary
- *If the actor at the beginning of the sentence is the following pronouns **He, She, It**
So if these three pronouns are in place of the actor It was necessary to place the letter (s) in the verb that follows the verb

Examples: It snows in Alaska ,He eats the apple

2-Subject + verb + object

In the case of the following pronouns in place of the subject
I, you, we, They

Examples: They watch the T.V every day. __ We watch the T.V every day
You watch the T.V every day __ I watch the T.V every day.

*** Do / Does**

Do>>> I , you , they ,we
Does>>> He , she ,it

**How do we formulate the question in the
simple present tense?**

V+Subject+the rest of the sentence

She is amuslim. Is she amuslim?

The verb verb may not already exist in the sentence so we add it in question
As appropriate for the act if it is an individual or a collection

They watch the T.V every day. Do they watch the T.V every day?

When to use the Present Continuous?

It is used in:

- ✓ the event during the speech, such as is coming or running, etc.
- ✓ to indicate the future by adding a future envelope.
- ✓ to indicate the future planned using the formula going to
- ✓ With always or similar repetitive words to express the habit of frequent and offensive and refer to boredom or anger.

How to form The present Continuous?

The present tense formulation is an addition (**ing**) already attached by a helper (**is-am- are**)

1

I + am + V -ing

Ex: I am reading a nice story now.

2

(she-he-it)+ is + V (ing)

Ex: he is trying to improve his work, It is raining.

3

(we-you-they)+ are+ V (ing)

Ex: They are sleeping now

Note

There are actions that can not be formulated in the form of the present tense
Because in fact they do not indicate continuity, but rather a specific situation
and situation And lack of continuity

I. / acts that return to the(Mental state)

(know-realize-understand-recognize-believe-feel-suppose-think-
imagine-doubt-remember-forget-want-need-prefer-mean)

It is wrong to say

He is knowing.

The correct is

He knows

2-/ Acts that illustrate (Emotional state)

(love-like-appreciate-hate-dislike-fear-envy-mind -care)

3-Verbs indicative of ownership

Possesion(posses-have-own-belong)

4-Sense perception

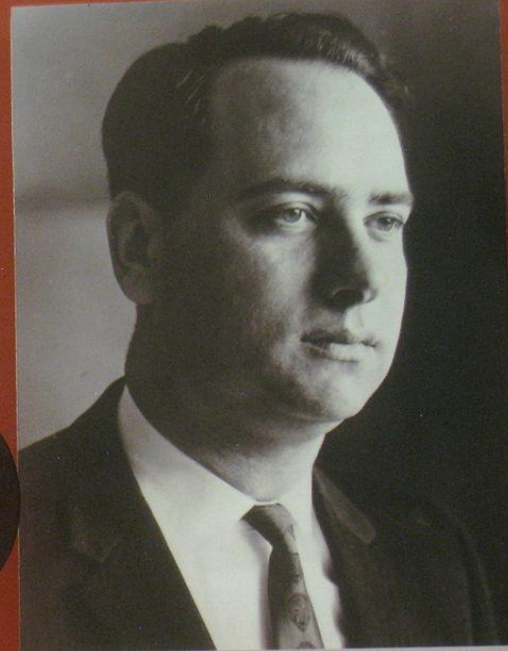
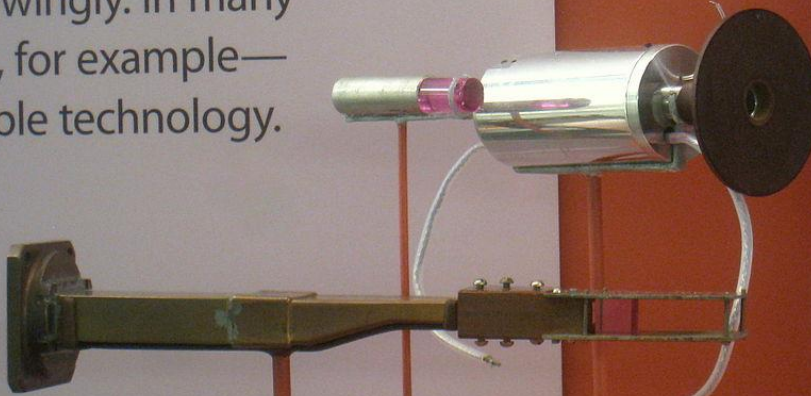
(taste-smell-hear-feel-see)

5-Other acts indicating a specific situation and cannot continuity

(seem-look-appear-cost-owe-weigh-be-exist-consist of- contain-include)

half-century
different types of
for a wide range
foundly changed

many American
knowingly. In many
Ds, for example—
isible technology.



Theodore H. Maiman

Courtesy of AIP Emilio Segrè Visual Archives

Theodore Harold Maiman

Theodore Harold "Ted" Maiman (July 11, 1927 – May 5, 2007) was an American **engineer** and **physicist** credited with the building of the first working **laser**. Maiman's laser led to the subsequent development of many other types of lasers. The laser was successfully fired on May 16, 1960. In a July 7, 1960 press conference in Manhattan Maiman and his employer, **Hughes Aircraft Company**, announced the laser to the world.^[11] Maiman was granted a patent for his invention and he received many awards and honors for his work. Maiman's experiences in developing the first laser and subsequent related events are described in his book, *The Laser Odyssey*

Death

Maiman died from **systemic mastocytosis** on May 5, 2007 in **Vancouver, British Columbia**, Canada, where he lived with his wife, Kathlee

Dr.Abdulhadi Kadhim

Lecture activity

Each student writes about a scientist

THE END
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