Tishk International University
Faculty of Education
Physics Department

Technical English

Course Code: PHYS 244

Week I

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Overview

- What is Technical English Concern ?
- Technical English Background
- The Language of Science
- **The Importance of English Language**
- Technical English Background
- Word Root
- Prefix and Suffix
- Combining Form

Technical English

- **Technical English in Physics** is a specialized variety of English used to **communicate scientific and technical concepts clearly, precisely, and efficiently**. It is not casual or general English—it is tailored to the **needs of physicists, engineers, and science students**, especially in international or academic contexts.
- English used in **physics writing, speaking, and documentation**.
- Focuses on **clarity, accuracy, and standardization** of scientific information.

The Language of Science

English now assumed a leading role as the international language of medicine.

The adoption of a universal language of science has had an extraordinary effect on scientific communication

By learning a single language, scientists around the world gain access to the vast scientific literature and can communicate with other scientists anywhere in the world.

The Importance of English Language

1. English is a global language
2. Studying English can help you get a job
3. Learning English can help you meet new people
4. Many scientific papers are written in English
5. English is the language of the media industry
6. English is the language of the Internet.
7. Travelling is a lot easier with a good knowledge of English
8. English is one of the most important languages for business
9. With English, you can study all over the world
10. English gives you access to multiple cultures

Technical English Background

1. Early Period (pre-17th century)

- **Language:** Latin – universal academic language in Europe
- **Function:** Main medium for scientific communication

2. 17th–18th Centuries

- **Shift:** Scholars start publishing in national languages (English, French, German)
- **Reason:** Rise of modern physics & scientific societies

3. 19th–Early 20th Century

- **English prominence:**
    - Industrialization & technology growth
    - Influence of British and American institutions

Technical English Background

4. Post-WWII / Globalization

- **English dominance:**
  - International research collaboration
  - Expansion of higher education and scientific publishing

5. Language Specialization in Physics

- **Characteristics:**
  - Technical terminology
  - Complex noun phrases
  - Greek & Latin-based word formation
- **Result:** Development of Technical English & ESP courses
- **Purpose:** Support non-native speakers in accessing and producing scientific knowledge

Basic Elements of terminology in Physics

- Word Root
- Prefix
- Suffix
- Combining vowel
- Combining form

1. Word Root

Main part or foundation of a word.

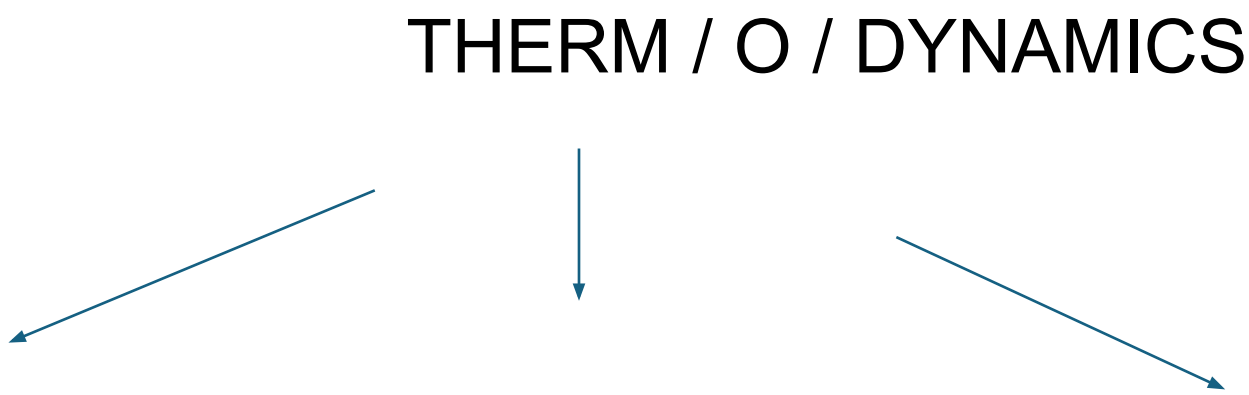
All words have at least one word root.

A word root may be used alone or combined with other elements to form a complete word.

Example: SPEAK (word root) + ER (suffix) = SPEAKER (complete word)

Word Root

- The word root usually refers to a body part.
- Some root words are derived from the Latin or Greek language.



root (heat) combining vowel suffix (motion / forces)

Word Root Examples

“**Therm**” means **heat**	“**Kinet**” means **motion**	“**Phot**” means **light**	“**Electr**” means **electric charge**
“**Magn**” means **magnetism**	“**Grav**” means **gravitational force**	“**Acoust**” means **sound**	“**Opt**” means **vision / light**
“**Dynam**” means **force or power**	“**Inert**” means **resistance to motion change**	“**Nucle**” means **nucleus**	“**Quant**” means **discrete amount**

2. Prefix and Suffix

- **Prefix:** Syllable or word placed at the beginning of a word; usually serves to further define the word root

- **Suffix:** Syllable or word placed at the end of the word; usually describes what is happening to the word root

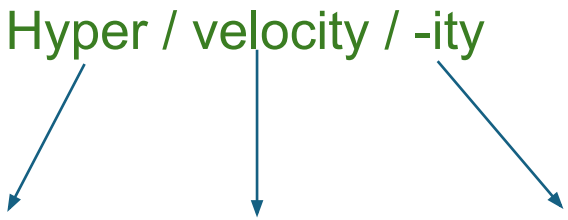
Root / prefix / suffix examples:

- Root example: write
- Suffix example: writ**er**
- Prefix example: **re**write

- See how both the suffix & prefix modify the root.

Prefix examples

- “a” means without
- “hyper” means excessive, above normal
- “hypo” means less than normal
- “Intra” means within
- “Macro” means large
- “Micro” means small



Prefix Word Root suffix

(Excessive) (speed) (state or condition)

Suffix Examples

- **“-ics”** means **field of study / science of** *(physics, optics, acoustics)*
- **“-logy”** means **study of** *(cosmology, seismology)*
- **“-meter”** means **measuring device** *(thermometer, voltmeter)*
- **“-scope”** means **instrument for viewing / observing** *(microscope, telescope)*
- **“-graph”** means **recording device** *(seismograph, oscillograph)*
- **“-gram”** means **record / written output** *(spectrogram, electrogram)*
- **“-ity”** means **state or condition** *(conductivity, resistivity)*

OPT / ICS

ELECTR / IC

Root (Light)

suffix (field of study)

Word Root (electric charge)

Suffix (pertaining to)

3. Combining Form

- Correct pronunciation of words are important.
- In order to make the pronunciation of word roots easier, sometimes it is necessary to insert a vowel after the root.
- The combination of a word root and a vowel is known as a **COMBINING FORM**

Combining Word	Meaning	Term in Physics	Example
therm/o	heat	therm/o/dynamics	Study of heat and energy transfer. Ex: Thermodynamics explains heat engines.
electr/o	electricity, electric charge	electr/o/statics	Study of electric charges at rest. Ex: Electrostatics explains static electricity.
magnet/o	magnetic field	magnet/o/ynamics	Study of magnetic fields in motion. Ex: Magnetodynamics is used in plasma physics.
dynam/o	force, power	dynam/o/ics	Study of motion with forces. Ex: Dynamics explains why objects move.
opt/o	light, vision	opt/o/ics.	Study of light behavior. Ex: Optics includes reflection and refraction.
nucle/o	nucleus	nucle/o/physics	Study of atomic nuclei. Ex: Nuclear physics explains fission

Activity

Word root + combining vowel = Combining form

Thermometer

Electro

acoust/o

Word root + combining vowel = Combining form

- Acoust/o sound acoust/o/meter

Device measuring sound intensity. Ex: An acoustometer measures noise levels

- Electr/o electricity electr/o/magnetism

Study of the interaction between electric and magnetic fields. Ex: Electromagnetism powers electric motors.

- Therm/o heat therm/o/meter

Instrument for measuring temperature. Ex: A thermometer measures room temperature.

Let's **review** the important word parts:

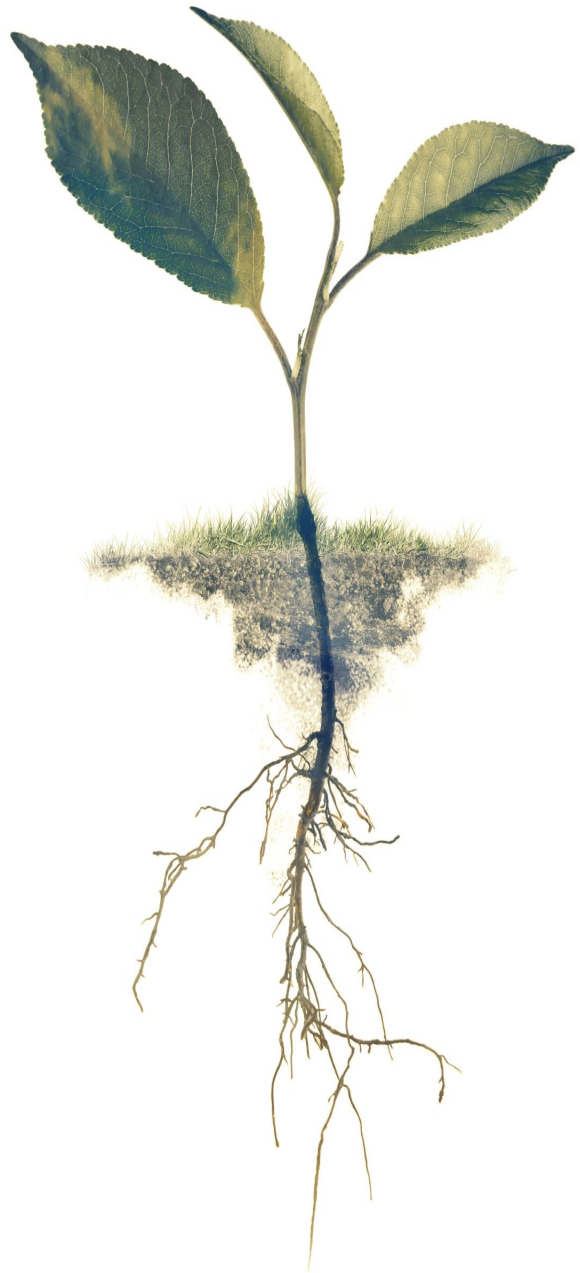
Root □ Gives the essential *meaning* of the term.

Suffix □ Is the word *ending.*

Prefix □ Is a small part added to the *beginning* of a term.

Combining vowel □ Connects roots to suffixes and roots to other roots.

Combining form □ Is the combination of the *root* and the *combining vowel.*



References

- https://www.youtube.com/watch?v=rXcNoysSTVA
- https://www.youtube.com/watch?v=uR5LmyrflP8


THANKS A WATT!