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О. Б. ДАВИДЕНКО, Т. П. ЗАДОРЖНА

ENGLISH FOR CAREER DEVELOPMENT IN ELECTRICAL ENGINEERING

Навчальний посібник

Рекомендовано Вченою радою НУК



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Автори:

О. Б. Давиденко, старший викладач кафедри сучасних мов НУК;

Т. П. Задорожна, старший викладач кафедри сучасних мов НУК

Рецензенти:

Г. В. Павлов, доктор технічних наук, професор;

О. О. Черно, доктор технічних наук, доцент;

А. В. Міняйлова, канд. філол. наук, доцент

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Давиденко О. Б.

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Навчальний посібник створено з метою ознайомлення та викори-
стання студентами сучасного стилю ділового та наукового спілкування,
що необхідно при працевлаштуванні за фахом, складання резюме, супро-
воджувальних листів та проходження співбесід. Під час роботи з посіб-
ником студенти мають оволодіти необхідним лексичним та граматичним
матеріалом ділового та академічного стилю у сфері електротехніки та
електротехнологій.

Призначено для студентів магістерських програм спеціальності
«Електротехніка та електротехнології».

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PREFACE

The book “English for Career Development in Electrical Engineering” is designed as a training course to help students to obtain academic English and use it when applying for a job. The main purpose of the book is to show ways of finding a job, the process of preparing for an interview and writing motivation letters when applying for a job. It is also recommended for those who intend to achieve higher levels of proficiency in English. The task of the lessons is the development and improvement of English speaking skills and learning the terminological vocabulary necessary for a conversation on a given topic. Specifically designed for the students who are going to build the career in the field of automation and electrician.

It comprises 13 lessons with pre-text and after text sections. At the end there is a Glossary.

Structurally, each lesson consists of a text with a pre-text section that facilitates understanding of the text itself. A diversified system of exercises enables students to learn the lexical material thoroughly and use it in different situations. The emphasis is made on its correct usage helping learners to form good speaking and writing habits.

Although the lessons are given in a certain sequence, they can be used independently. They are suitable for students of different language levels from pre-intermediate to advanced.

The book is completed with the glossary where you can find necessary information on correct explanation of specific words and phrases on electrician. Also there are common questions and possible answers that can help students to prepare for job interviews.

INTRODUCTION

Electrical Engineering implies electricity, which has flowed into every aspect of our lives. Electricity supplies power to run appliances, heavy machinery, and lights. Electricity also encompasses communications such as the telephone, radio, and television and other consumer electronic devices. And, of course, electronics is changing everything around us every day, through such pervasive devices as hand-held calculators, computers, and controllers that help operate automobiles, airplanes, and homes. Electrical Engineering is the largest engineering profession.

From its beginnings in the late nineteenth century, electrical engineering has blossomed from focusing on electrical circuits for power, telegraphy and telephony to focusing on a much broader range of disciplines. However, the underlying themes are relevant today: Power creation and transmission and information have been the underlying themes of electrical engineering for a century and a half.

Whether analog or digital, information is represented by the fundamental quantity in electrical engineering: the signal. Stated in mathematical terms, a signal is merely a function. Analog signals are continuous-valued; digital signals are discrete-valued. The independent variable of the signal could be time (speech, for example), space (images), or the integers (denoting the sequencing of letters and numbers in the football score).

Analog signals are usually signals defined over continuous independent variable(s). Modeling the Speech Signal is produced by your vocal cords exciting acoustic resonances in your vocal tract. The result is pressure waves propagating in the air, and

the speech signal thus corresponds to a function having independent variables of space and time and a value corresponding to air pressure: $s(x, t)$ (Here we use vector notation x to denote spatial coordinates). When you record someone talking, you are evaluating the speech signal at a particular spatial location.

The word “digital” means discrete-valued and implies the signal has an integer-valued independent variable. Digital information includes numbers and symbols (characters typed on the keyboard, for example). Computers rely on the digital representation of information to manipulate and transform information. Symbols do not have a numeric value, and each is represented by a unique number. The ASCII character code has the upper-and lowercase characters, the numbers, punctuation marks, and various other symbols represented by a seven-bit integer. For example, the ASCII code represents the letter *a* as the number 97 and the letter *A* as 65.

In electrical engineering, we represent a system as a box, receiving input signals (usually coming from the left) and producing from them new output signals. This graphical representation is known as a block diagram. We denote input signals by lines having arrows pointing into the box, output signals by arrows pointing away. As typified by the communications model, how information flows, how it is corrupted and manipulated, and how it is ultimately received is summarized by interconnecting block diagrams: The outputs of one or more systems serve as the inputs to others. In the communications model, the source produces a signal that will be absorbed by the sink. Examples of time-domain signals produced by a source are music, speech, and characters typed on a keyboard. Signals can also be functions of two variables an image is a signal that depends on two spatial variables or more television pictures (video signals) are functions of two spatial variables and time.

Thus, information sources produce signals. In physical systems, each signal corresponds to an electrical voltage or current. To be able to design systems, we must understand electrical science and technology. However, we first need to understand the big picture to appreciate the context in which the electrical engineer works. In communication systems, messages signals produced by sources must be recast for transmission. The block diagram has the message $s(t)$ passing through a block labeled transmitter that produces the signal $x(t)$. In the case of a radio transmitter, it accepts an input audio signal and produces a signal that physically is an electromagnetic wave radiated by an antenna and propagating as Maxwell's equations predict. In the case of a computer network, typed characters are encapsulated in packets, attached with a destination address, and launched into the Internet. From the communication systems "big picture" perspective, the same block diagram applies although the systems can be very different. In any case, the transmitter should not operate in such a way that the message $s(t)$ cannot be recovered from $x(t)$. In the mathematical sense, the inverse system must exist, else the communication system cannot be considered reliable. (It is ridiculous to transmit a signal in such a way that no one can recover the original. However, clever systems exist that transmit signals so that only the "in crowd" can recover them. Such cryptographic systems underlie secret communications.) Transmitted signals next pass through the next stage, the evil channel. Nothing good happens to a signal in a channel: It can become corrupted by noise, distorted, and attenuated among many possibilities. The channel cannot be escaped (the real world is cruel), and transmitter design and receiver design focus on how best to jointly fend off the channel's effects on signals. The channel is another system in our block diagram, and produces $r(t)$, the signal received by the receiver. If the channel were benign (good luck finding

such a channel in the real world), the receiver would serve as the inverse system to the transmitter and yield the message with no distortion. However, because of the channel, the receiver must do its best to produce a received message that resembles $s(t)$ as much as possible. Shannon showed in his 1948 paper that reliable for the moment, take this word to mean error-free digital communication was possible over arbitrarily noisy channels. It is this result that modern communications systems exploit, and why many communications systems are going “digital.” The module on Information Communication details Shannon’s theory of information, and there we learn of Shannon’s result and how to use it. Finally, the received message is passed to the information sink that somehow makes use of the message. In the communications model, the source is a system having no input but producing an output; a sink has an input and no output.

The most ubiquitous and important signal in electrical engineering is the sinusoid.

The basic idea of communication engineering is to use a signal’s parameters to represent either real numbers or other signals. The technical term is to modulate the carrier signal’s parameters to transmit information from one place to another.

Lesson 1

HISTORY OF THE ELECTRICAL ENGINEERING DEVELOPMENT IN UKRAINE AND AROUND THE WORLD

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. When can electricity become a subject of scientific interest?
- b. Which first developments in electrical engineering do you know?
- c. What exists in our world without electricity?

2. Translate the following words and word combinations into your native language:

to saddle	an induction
a responsibility	a treatise on
rapidly	power distribution
to deal	to switch
energy transmission	to ensue
to quantify	to be safer and more efficient
a definition	a polyphase system
to intensify	a stock ticker
notable	lucrative
to include	to merge
between	to emerge
a current	a branch

3. Read and translate the text to get the general information about history of the electrical engineering.

Electrical engineers are saddled with a lot of responsibility in today's world of rapidly advancing technologies. They are tasked with designing, developing, and testing electrical equipment and systems. From smartphones to supercomputers, electrical engineers are deeply involved in every step of the engineering process. But what is electrical engineering?

The definition of electrical engineering is different depending on who you ask. Electrical engineers would agree that it is the branch of engineering that deals with the technology of electricity, of course, but it is so much more than that. On a fundamental level, electrical engineers combine the physics and mathematics of electricity, electromagnetism, and electronics and apply them to information processing and energy transmission.

Electricity has been a subject of scientific interest since at least the 17th century, but it was not until the 19th century that research into the subject started to intensify. Notable developments in this century include the work of Georg Ohm, who in 1827 quantified the relationship between the electric current and potential difference in a conductor, Michael Faraday, the discoverer of electromagnetic induction in 1831, and James Clerk Maxwell, who in 1873 published a unified theory of electricity and magnetism in his treatise on Electricity and Magnetism.

During this period, the work concerning electrical engineering increased dramatically. In 1882, Thomas Edison switched on the world's first large-scale electrical supply network that provided 110 volts direct current (DC) to 59 customers in lower Manhattan. In 1887, Nikola Tesla filed a number of patents related to a competing form of power distribution known as alternating current (AC). A bitter rivalry ensued between Tesla and Edison over their differing methods of power distribution;

it was known as the “War of Currents”. Eventually, AC became the preferred method for power generation and distribution, as it was recognized as being safer and more efficient, with a longer distribution range.

Regardless of the rivalry, the efforts of both men did much to further electrical engineering – Tesla’s work on induction motors and polyphase systems influenced the field for years to come, while Edison’s work on telegraphy and his development of the stock ticker proved lucrative for his company, which ultimately merged with other companies to become General Electric. By the end of the nineteenth century, other key figures in the progress of electrical engineering began to emerge.

After Text Section

4. Answer the questions.

- a. What is electrical engineering?
- b. What tasks do electrical engineers have?
- c. Which Georg Ohm’s work was to the fore in 1827?
- d. What helps us to know that the work concerning electrical engineering increased dramatically?
- e. Why did AC become the preferred method for power generation and distribution?
- f. What did the efforts of both Tesla and Edison lead to?

5. Match the words (1–8) to their definitions (a-h).

- | | |
|---------------|--|
| 1. aberration | a. the notion of having multiple independent tasks available (tasks in this definition means any work to be done, not a formal computational entity) |
| 2. grip | b. wiring that runs within and between floors of a building and connects local area network segments together |
| 3. luminosity | c. an imperfection of an optical system that leads to a blurred or a distorted image |

- | | |
|-----------------|--|
| 4. backbone | d. a twisted wire tie which secures a wire to an insulator or other fixture |
| 5. quasi-optics | e. the angular distance (normally in electrical degrees) between the axes of two poles in an electrical machine |
| 6. concurrency | f. a starting and control mechanism for fluorescent and other types of gasdischarge lamps |
| 7. pole pitch | g. a low loss method of transmission and manipulation of millimeter and sub-millimeter waves |
| 8. ballast | h. the ratio of luminous flux (total visible energy emitted) to the corresponding radiant flux (total energy emitted) usually in lumens per watt |

6. Write down 10 sentences with the phrases from exercise 5.

7. Match the words (1-10) with the words (a-j) to form word combinations:

- | | |
|----------------------|-------------------|
| 1. electric | a. field |
| 2. industrial | b. current |
| 3. inducing | c. principles |
| 4. the wound | d. rotor |
| 5. public | e. motor |
| 6. a proportional | f. of mercury |
| 7. electric | g. military |
| 8. intercontinental | h. service |
| 9. electromechanical | i. use |
| 10. a glass | j. systems |
| 11. power | k. updating |
| 12. electrical | l. advantages |
| 13. examining | m. machines |
| 14. a massive | n. language |
| 15. careful | o. generator |
| 16. programming | p. the schematics |

- | | |
|-------------------|------------------|
| 17. an electronic | q. replacement |
| 18. mechanical | r. logic |
| 19. several | s. communication |
| 20. control | t. leap |

8. Read this text and fill in the gaps with the appropriate word combinations from exercise 7.

In engineering, electromechanics combines processes and procedures drawn from electrical engineering and mechanical engineering. Electromechanics focuses on the interaction of electrical and ¹ _____ as a whole and how the two systems interact with each other. This process is especially prominent in systems such as those of DC or AC rotating ² _____ which can be designed and operated to generate power from a mechanical process (generator) or used to power a mechanical effect (motor).

The first ³ _____ was invented in 1822 by Michael Faraday. The motor was developed only a year after Hans Christian Ørsted discovered that the flow of electric current creates ⁴ _____ magnetic _____. This early motor was simply a wire partially submerged into ⁵ _____ with a magnet at the bottom.

Ten years later the first ⁶ _____ was invented, again by Michael Faraday. This generator consisted of a magnet passing through a coil of wire and ⁷ _____ that was measured by a galvanometer. Faraday's research and experiments into electricity are the basis of most of modern ⁸ _____ known today.

In 1889, Dolivo-Dobrovolsky invented the induction motor with ⁹ _____ and subsequently the cage rotor in a topology very similar to that used today. He also invented the double-cage rotor. Thus, around 1900 the induction motor was ready for wide ¹⁰ _____.

The Industrial Revolution's rapid increase in production gave rise to a demand for ¹¹ _____, allowing electromechanics to make its way into ¹² _____. Relays originated with telegraphy as electromechanical devices were used to regenerate telegraph signals.

Electromechanical systems saw ¹³ _____ in progress from 1910-1945 as the world was put into global war twice. World War I saw a burst of new electromechanics as spotlights and radios were used by all countries. By World War II, countries had developed and centralized their military around the versatility and power of electromechanics. One example of these still used today is the alternator, which was created to ¹⁴ _____ equipment in the 1950s and later repurposed for automobiles in the 1960s. Post-war America greatly benefited from the military's development of electromechanics as household work was quickly replaced by electromechanical systems such as microwaves, refrigerators, and washing machines.

Before the 1960s ¹⁵ _____ for manufacturing was mainly composed of relays, cam timers, and dedicated closed-loop controllers. The hard-wired nature made it difficult for design engineers to alter the automation process. Changes would require rewiring and ¹⁶ _____ careful updating of the documentation. If even one wire were out of place, or one relay failed, the whole system would become faulty. Often technicians would spend hours troubleshooting by ¹⁷ _____ and comparing them to existing wiring. But in the late 1960s in the automobile manufacturing industry in the US programmable logic controller (PLCs) were first developed to provide flexible, rugged and easily programmable controllers to replace hard-wired relay logic systems.

The PLC provided ¹⁸ _____ over earlier automation systems. It tolerated the industrial environment better than computers and was more reliable, compact and required less maintenance than relay systems. It was easily extensible with additional I/O modules, while relay systems required complicated hardware changes in case of reconfiguration. This allowed for easier iteration over manufacturing process design. With simple ¹⁹ _____ focused on logic and switching operations.

In 1968, GM Hydramatic (the automatic transmission division of General Motors) issued a request for proposals for ²⁰ _____ an electronic replacement for hard-wired relay systems based on a white paper written by engineer Edward R. Clark. The result was the first PLC-built in 1969-designated the 084, because it was Bedford Associates' eighty-fourth project.

So we can see that electromechanical saw a very quick development up to the 20th century and continues its development nowadays.

9. Complete the sentences using the prepositions at, from, in or with.

a. The deployment of electrical engineering research _____ the second half of the 19th and _____ the beginning of the 20th is shown.

b. _____ 1900, the first electrical engineers graduated _____ the Kharkiv Institute of Technology.

c. Engineers _____ experience _____ production were involved into teaching.

d. _____ Lviv Polytechnic the beginning of electrical research was connected _____ the activity of Professor Feliks Strzelecki.

e. After graduating _____ the Faculty of Electrical Engineering _____ the University of Darmstadt, G. Sokolnitski began to work _____ the Lviv Polytechnic School _____ the Department of Electrical Engineering under the direction of Roman Dzieslevsky.

10. Write out the main key words into your dictionary.

Lesson 2

ELECTRICAL ENGINEERING DEVELOPMENT NOWADAYS AND NEW TENDENCIES

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. What future awaits electrical engineering?
- b. What kind of help can electrical engineering give us nowadays?
- c. What new tendencies do you see?

2. Translate the following words and word combinations into your native language:

a swift	a grid
towards	to integrate
undergoing	an appliance
to obtain	due to
noteworthy	a de-facto lighting solution
a surplus current	a bunch
prominent	a bulb
advanced	competitive

3. Read and translate the text.

Electrical engineering is under a swift with the undergoing innovations and ambitious research in all departments around the globe towards better ways to obtain, store, use electrical energy. Below are some of the noteworthy industry trends that you should watch out for in 2022.

Smart Grids:

Unlike in the past, where customers have no options except for the local power company, today, people have so many power supply companies, and they can even produce power for themselves. With the ability to generate their own power, some customers now also want to sell their surplus current. As a result, electricity delivery infrastructure has to change and electrical engineering plays a prominent role in this change.

Power supply companies are adapting to these changes and they're placing a smart grid: a form of information technology that uses advanced communication technologies and automatic control techniques. It integrates innovative tools and technologies for generation, transmission, and distribution to consumer appliances and equipment.

Soon, electric engineers will come across these things.

Energy-saving lighting technologies:

LEDs are becoming available to every consumer. Becoming the standard de-facto lighting solutions as constant innovations made it cheaper than before.

Due to their energy-saving capabilities, an LED bulb saves a substantial amount for every household, and they pay for themselves in a matter of months. With more advances in this smart technology, presumed these lights to become cheaper, easy to install, and more efficient soon.

Electrical engineers have a lot on their desks and a bunch more to look forward to. The future is a lot more innovative, competitive, and interesting. Analyzing and understanding the current and future trends help engineers to reach their full potential.

After Text Section

4. Decide whether the following sentences are true or false. Correct the false ones.

- a. Today people have no choice in power supply companies.

- b. Electrical engineering plays a prominent role in electricity delivery infrastructure change.
- c. A smart grid is a form of communication technology.
- d. A smart grid integrates routine tools and technologies for generation, transmission, and distribution to consumer appliances and equipment
- e. LEDs are becoming available to every consumer.
- f. Becoming the standard de-facto lighting solutions as constant innovations made it more expensive than before.
- g. Electrical engineers have a lot on their desks.
- h. The future is a lot more innovative, competitive and interesting.

5. Look through the text and write out the sentences with the Infinitive constructions. Translate them into your native language.

6. Cycle the proper form of the infinitive and fill in the gaps.

1. Simple systems can be connected together – one system's output becomes another's input – _____ some overall design.

- a. to accomplish
- b. accomplished
- c. to be accomplish

2. It is important to understand the physics of current flow in conductors _____ the innovation of new electronic devices.

- a. to be appreciated
- b. to have been appreciating
- c. to appreciate

3. The entire point of using impedances is _____ rid of time and concentrate on frequency.

- a. to get

b. be got

c. to have got

4. You mustn't _____ an expert in too narrow a field.

a. to have been become

b. become

c. to become

5. You might wonder whether they could be added together _____ a large number of periodic signals.

a. represent

b. to be represented

c. to represent

6. These similarities make it easy _____ the definitions and why we need them, but the similarities should not be construed as “analog wannabes”.

a. to understand

b. understand

c. to have been understood

7. Match the words (1-10) with the words (a-j) to form word combinations:

1. dispersion

a. modes

2. lossless

b. space

3. satellite

c. compression

4. tunneling

d. control

5. robust

e. diagram

6. multilayer

f. dioxide

7. joint

g. distortion

8. frequency

h. sketch

9. primal

i. imagery

10. silicon

j. stability

8. Write down 10 sentences with the word combinations from exercise 7.

9. Read the text and complete it with the words given below:

current *2 reduce being decreased
magnetizes benefits target
smart factory increases conveyors convert
started Ladder Diagram

Today, electromechanical processes are mainly used by power companies. All fuel-based generators ¹ _____ mechanical movement to electrical power. Some renewable energies such as wind and hydroelectric are powered by mechanical systems that also convert movement to electricity. So, one of the most required tendencies is ² _____ power loss in the induction motor and using versatility manufacturing control system.

It is estimated electric motors in industrial applications consume approximately one-fourth of the world's electrical energy. When these motors are incorporated with VFDs in centrifugal load service, their efficiency ³ _____. With technological advancements in power electronics technology, VFD cost and size have decreased, while performance has improved.

The EU has proposed to revise its goal under the Energy Efficiency Directive from ⁴ _____ of 20 % by 2020 to 30 % target by 2030. This is likely to boost the incorporation of VFDs in ⁵ _____, electric fans, industrial pumps, and HVAC, among others.

When an AC motor is ⁶ _____ “across the line”, it can take up to as much as seven-to-eight times the motor full-load current to start the motor and load. These ⁷ _____ flexes the motor windings and generates heat, which will, over time, ⁸ _____ the longevity of the motor. An Variable frequency drive starts a motor at zero frequency and voltage.

As the frequency and voltage “build”, it “⁹ _____” the motor windings, which typically takes 50-70% of the motor full-load current. Additional ¹⁰ _____ above this level is dependent upon the connected load, the acceleration rate and the speed ¹¹ _____ accelerated, too. Bottom line this extends motor life!

For versatility manufacturing prosers design using Programmable logic controllers which no immediate replacement in the automation field

Programmable logic controllers are intended to be used by engineers without a programming background. For this reason, a graphical programming language called ¹² _____ was first developed. It resembles the schematic diagram of a system built with electromechanical relays and was adopted by many manufacturers and later standardized in the IEC 61131-3 control systems programming standard. As of 2021, it is still widely used, thanks to its simplicity. Modern PLCs can be programmed in a variety of ways, from the relay-derived ladder logic to programming languages such as specially adapted dialects of BASIC and C

The combining of PLC, motion control, and human-machine interface (HMI) programming into one environment is a trend that will progress over the next several years having a unified programming environment is ideal for most users, so long as it's not too overwhelming. Key ¹³ _____ to marrying these packages include a reduced learning curve and less total development time. However, if the tool is not properly thought out, it can become cumbersome and uneasy to navigate

The potential future of PLCs is one that is closely linked to the development of internet technologies as flexibility, reliability, and safety will be the main concerns of the newer generation of industries.

Industry 4.0 has already stated the trend of automation and termed it as being a “¹⁴_____”, which is quite accurate as it combines elements of electronics, power, and communication to provide a multi-pronged solution to any industry problem.

As far as the physical size and internal capabilities of PLCs go, they are bound to become faster, cheaper, and smaller. Even though modern microcontrollers are coming up with new ways to challenge the almighty PLC, they still have a very long way to go, making it seemingly impossible for them to catch-up with PLCs given the PLCs’ rapid rate of adaption.

10. Write out the main key words into your dictionary.

Lesson 3

THE LATEST INVENTIONS AND DISCOVERIES

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. Why are new inventions in electrical engineering so significant?
- b. What methods of saving energy from the wind, the sun or any other renewable sources do you know?
- c. Will new trends lead us toward the future?

2. Decide whether these tips are true or false. Give your reasons.

- a. The field of engineering advances with every new technological breakthrough.
- b. Wind and solar power are always there.
- c. Consumers can “make hay both when the sun shines and not”.
- d. Supercapacitors store energy and have higher capacitance values and lower voltage limits than traditional capacitors and can function somewhat like rechargeable batteries.
- e. A supercapacitor offers the advantages of increased energy storage.
- f. Graphene allows for structuring and scaling down.
- g. Graphene supercapacitors may not be able to combine with carbon nanotubules.
- h. New trends will lead us toward the future.

3. Read and translate the text. What inventions in electrical engineering do you know about?

The field of engineering advances with every new technological breakthrough, and new technologies in electrical engineering are particularly exciting. This guide covers some of the most recent new inventions in electrical engineering and why they are so significant.

Energy storage and better batteries

While wind and solar power are excellent sources of sustainable energy, they are not always there. Therefore, consumers can only “make hay when the sun shines”. They have to do their best to save energy from the wind, the sun, or any other renewable sources for later use.

To meet this demand, electrical engineers all around the world are working towards better batteries and energy storage.

Graphene supercapacitors

Supercapacitors store energy and have higher capacitance values and lower voltage limits than traditional capacitors and can function somewhat like rechargeable batteries. Graphene supercapacitors are supercapacitors that use graphene in place of activated carbon in their electrodes.

A supercapacitor, which can often store almost as much energy as a lithium-ion battery, offers the advantages of increased energy storage. Supercapacitors allow for the power density of capacitors – they can deliver a lot of energy in quick bursts – while also providing high energy storage capabilities and charging incredibly rapidly. Graphene allows for structuring and scaling down, so it has applications in computer processing units (CPUs) and integrated circuits where standard capacitor materials do not.

Graphene supercapacitors may also be able to combine with carbon nanotubes to help connect the geometrically unique graphene structures into a comprehensive network. This

combination might reduce costs and boost capacitance and performance.

Electrical engineers have a lot on their deck, and we can't wait for all these awesome innovations to reach their full potential. These trends will lead us toward the future. Where the lights never go out unexpectedly, a world whereby everything is more comfortable, efficient, and affordable!

After Text Section

4. Answer the questions.

- a. What should electrical engineers do to meet demand of saving energy from the wind, the sun, or any other renewable sources?
- b. Do you have ideas of saving energy from the wind, the sun, or any other renewable sources?
- c. What can function somewhat like rechargeable batteries?
- d. What is the definition of graphene supercapacitors?
- e. Can a supercapacitor often store almost as much energy as a lithium-ion battery?
- f. What can supercapacitors do?
- g. Why do supercapacitors have applications in computer processing units and integrated circuits?
- h. What graphene may supercapacitors be able to combine with carbon nanotubules for?

5. Translate the following words and word combinations into your native language:

hybrid mode	two-port
catcher	full-load amperage
adaptive predictor	skewing
peripolar line	coupled line filter
flashover	brush
linearization	low byte

salient feature	optical tensor-matrix multiplication
thresholding	rheobase
written-pole motor	heavy water
magnetostriction	
quantum wire	

6. Write down 10 sentences in the Passive Voice with words and word combinations from exercise 5.

7. Match the words (1-8) to their definitions (a-h).

- | | |
|---------------------|---|
| 1. pressure | a. the current that flows in a power system in a loop involving earth and (in some usages) other paths apart from the three phases. |
| 2. Kerr effect | b. in lightning, a continuously moving leader lowering charge preceding a return stroke subsequent to the first. |
| 3. ground current | c. a short-duration (microsecond to millisecond) increase in power line voltage. Also called a spike or an impulse. |
| 4. electromagnet | d. a magnet that employs an electric current in a coil to produce a magnetic field. |
| 5. dart leader | e. vessel a steel tank which encloses the core of a nuclear reactor and is generally filled with coolant under pressure |
| 6. vibration damper | f. an ancillary device to a computer that generally provides input/output capabilities. |
| 7. surge | g. any of a number of devices mounted on a power line to reduce vibrations caused by wind. |
| 8. peripheral | h. the quadratic electro-optic effect, particularly in the case for gases and liquids. |

8. Complete the text using the correct form of the verbs in the box.

will	be	able	make	use	saw	can	*2	create
consist	say	plan	hope	expect	emit	decrease		

Researchers from the American University of Massachusetts Amherst have invented a device — Air-gen (air-powered generator) — that uses a natural protein to ¹ _____ electricity from humidity in the air. In their opinion, this technology could have interesting implications for the future of renewable energy, climate change, and the future of medicine.

Air-gen ² _____ of a film barely a dozen microns thick, made up of protein nanowires extracted from the bacterium.

The new technology developed in Yao's lab is non-polluting, renewable and low-cost. It can generate power even in areas with extremely low humidity such as the Sahara Desert. It has significant advantages over other forms of renewable energy including solar and wind because unlike these other renewable energy sources, the Air-gen does not require sunlight or wind, and it even works indoors.

The researchers ³ _____ that the current generation of Air-gen devices are able to power small electronics, and they expect to bring the invention to commercial scale soon. Next steps they ⁴ _____ include developing a small Air-gen “patch” that can power electronic wearables such as health and fitness monitors and smart watches, which would eliminate the requirement for traditional batteries. They also ⁵ _____ to develop Air-gens to apply to cell phones to eliminate periodic charging.

The ultimate goal is to make large-scale systems. For example, the technology might be incorporated into wall paint that could help power houses. Or may develop stand-alone air-powered generators that supply electricity off the grid. Once they get to an industrial scale for wire production. The researchers ⁶ _____ that they can make large systems that will make a major contribution to sustainable energy production.

Betavoltaics – nothing wasted from nuclear waste

Nuclear material is constantly decaying and, in the process,
⁷ _____ radioactive particles. This is why extremely
radioactive material is so dangerous and why properly storing
nuclear waste is so important and so expensive. But this waste
⁸ _____ actually be put to good use. Betavoltaic devices
⁹ _____ the waste particles produced by low-level radioactive
materials to capture electrons and generate electricity.

The output from these devices can be fairly low and
¹⁰ _____ over long periods of time, but because of the
consistent output of nuclear decay they can be extremely long-
lasting. For example, one betavoltaic battery ¹¹ _____ provide
one watt of power continuously for 30 years.

And while they aren't currently fit to work on a large scale,
their longevity (and very compact size) ¹² _____ them ideal
power sources for devices such as sensors installed on equipment
that needs to be operational for long periods.

Ocean wave crashing at shore

A more predictable power source than intermittent
renewables like wind and solar, tidal power isn't new, however
its growth and development has typically been restrained by
high costs and limited availability. That's changing. Last year
¹³ _____ the launch of the first of 269 1.5 MW (megawatt)
underwater turbines, part of world's first large scale tidal energy
farm in Scotland.

Around the world there are existing tidal power stations –
such as the Sihwa Lake Tidal Power Station in South Korea,
which has a capacity of 254MW – but the MeyGen array in
Scotland ¹⁴ _____ to take the potential of the technology
further. It's hoped that when fully operational it will generate
398MW, or enough to power 175,000 homes.

We might not know exactly how the electricity of tomorrow
will be generated, but it's likely some or all of these technologies
will play a part. What is clear is that our energy is changing.

9. Complete the sentences using the prepositions at, from, in or with.

a. The electric motor proved to be so effective that it almost single-handedly replaced steam engines _____ factories and other major industries.

b. Today most new cameras are digital and pretty much every single smartphone has _____ least one as standard.

c. Last year saw the launch of the first of 269 1.5 MW (megawatt) underwater turbines, part of world's first large scale tidal energy farm _____ Scotland.

d. There was a brief revival of interest _____ them _____ the 1970s and 1980s but the last decade or so has become the *de facto* age of the electric car.

e. It would later be harnessed and generated _____ power stations _____ the late 1870s _____ significant contributions and developments being made by Thomas Edison.

10. Write out the main key words into your dictionary.

Lesson 4

ROLES AND RESPONSIBILITIES IN THE ELECTRICAL ENGINEERING

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. What roles and responsibilities in the electrical engineering do you know?
- b. Is electrical engineering an immensely broad field with job roles in a dizzying array of industries?
- c. What field of electrical engineering are you interested in?

2. Translate the following words and word combinations into your native language:

to develop	a range
an equipment	a requirement
a vehicle	Bureau of Labor Statistics
an immensely broad field	to manage
a dizzying array	a variety
a budget	an integral part
fairly	to involve
across	assurance

3. Read and translate the text to get information about roles and responsibilities in the electrical engineering.

What Electrical Engineers Do

Electrical engineers design, develop, test and manage the manufacturing of electrical equipment, from electric motors

and navigation systems to power generation equipment and the electrical components of vehicles and personal devices.

Electrical engineering is an immensely broad field with job roles in a dizzying array of industries. From electric power generation and distribution to cars to smartphones, electrical engineers are integral parts of thousands of companies.

According to the U.S. Bureau of Labor Statistics (BLS), electrical engineers typically:

- Design new ways to use electrical power to develop or improve products

- Develop manufacturing, construction and installation standards

- Direct the manufacturing, installation and testing of electrical equipment

- Manage the production of electrical projects to ensure work is completed well, on time and within budget

While the basic electrical engineer job description is fairly standard across a wide range of electrical engineering jobs, where an electrical engineer works can vary significantly.

“There is a lot of variety in an electrical engineer’s job – from talking to a customer about the requirements of a project, to designing the product, coordinating with manufacturing to get it made, ensuring quality assurance testing goes well, and making sure the product is delivered to the customer on time,” said Monali Mujumdar, an electrical engineer for E Source. “Electrical engineers also provide technical support and after-sales service to clients. Since the engineer works on several projects in parallel that could be in different stages of the product life cycle, a typical ‘day in the life’ involves wearing several hats, which adds spice to the job.”

After Text Section

4. *Answer the questions.*

- a. What must electrical engineers do?
- b. What tells the U.S. Bureau of Labor Statistics?
- c. Which adds spice to the job?
- d. What are your thoughts about roles and responsibilities in the electrical engineering?

5. *Match the words (1-8) to their definitions (a-h).*

- | | |
|---------------------------|--|
| 1. rib waveguide | a. a coding scheme in transform coding in which only those transform coefficients located in a specified zone in the transform domain are coded |
| 2. boundary value problem | b. a low-pass filter that is modulated to form a modulated filter bank |
| 3. zonal coding | c. a type of dielectric waveguide formed by several planar layers of dielectric media; the upper layer, instead of being planar, presents a ridge (rib) where the field is mostly confined |
| 4. drain conductance | d. the set of legal instructions to a machine's processor, expressed in binary notation |
| 5. nullator | e. an error condition detected by the address mapper when the type of request is not permitted by the object's access code |
| 6. prototype filter | f. the increase in drain current when the magnitude of the applied FET drain-to-source voltage is increased. Mathematically, the derivative of drain current with respect to drain voltage |
| 7. protection fault | g. an idealized two-terminal network element that conducts no current and yet maintains zero volts across itself. This element is often used to represent a virtual connection |
| 8. machine language | h. a mathematical problem in which the unknown is a solution to a partial differential equation and is subject to a set of boundary conditions on the problem domain |

6. Write down 10 sentences with the key phrases.

7. Match the words (1-20) with the words (a-t) to form word combinations:

- | | |
|--------------------|----------------|
| 1. mechanical | a. field |
| 2. mechanical | b. controllers |
| 3. manufacturing | c. programs |
| 4. engineering | d. engineering |
| 5. customer | e. parts |
| 6. machine | f. systems |
| 7. a hybrid | g. facilities |
| 8. application | h. lines |
| 9. reading | i. equipment |
| 10. production | j. technicians |
| 11. to automate | k. functions |
| 12. perform | l. computers |
| 13. PLC | m. blueprints |
| 14. hydraulic | n. processes |
| 15. small | o. service |
| 16. the industrial | p. of PLC |
| 17. automated | q. assembly |
| 18. desired | r. sector |
| 19. control | s. programmer |
| 20. logic | t. maintenance |

8. Read this text and fill in the gaps with the appropriate word combinations from exercise 7.

Electromechanical engineering is ¹ _____ that blends aspects of both electrical and ² _____. The result is a branch of engineering focused on designing and creating automated ³ _____, using electrical and mechanical principles. People who study this field become

electromechanical engineering technicians. An associate's degree or certificate is necessary to work in this field. Optional certifications are also available.

The majority of electromechanical engineering professionals are ⁴ _____. These professionals design, test and maintain ⁵ _____. This type of equipment can include production line machinery in ⁶ _____, oil rigs or even unmanned aircraft and submarines.

Regular duties of electromechanical engineering technicians include ⁷ _____ and other design documents to aid in ⁸ _____; designing, testing and manufacturing electronically controlled mechanical systems; fabricating metal housings, fittings and various other metal; ⁹ _____ calibrating ¹⁰ _____ and mounting electronic parts. Additionally, electromechanical engineering professionals are responsible for monitoring, maintaining, troubleshooting and repairing manufacturing parts and systems.

Electromechanical engineering also includes the job of ¹¹ _____. PLC programmers work with programmable ¹² _____ (abbreviated to PLC). These are ¹³ _____ that have inputs and outputs, a built-in operating system and interfaces through which user programs can be loaded.

A PLC is connected to a machine and controllers its ¹⁴ _____. These can be light barriers, temperature parameters, and other measuring devices.

PLC gets information through inputs (relays, sensors, etc.) and interacts with outputs (engines, valves, conveyor belts, etc.). E.g., if the temperature is above the desired level of 30 degrees, then switch an engine off.

A PLC programmer designs ¹⁵ _____ for electrical machines and systems, mostly in ¹⁶ _____ and

seeking ¹⁷ _____. For example, programmable controllers are used to controlling machinery on factory assembly lines in the automobile industry.

PLC programmers develop and optimize processes and also ¹⁸ _____ and fault diagnostics once the process has been implemented.

Often, they also work on ways of visualizing the processes taking place in order to increase the operability of a given system.

They also work in sales and provide ¹⁹ _____ and training to clients. They are in charge of informing clients regarding the use and ²⁰ _____ systems and also of advising the clients on possible conversions. The complexity of the PLC systems varies depending on the project and company.

9. Complete the sentences using the prepositions *at, from, in or with*.

a. Support plants start-ups along _____ commissioning activities.

b. Bachelor's degree _____ electrical engineering degree _____ an accredited school.

c. You would also need 4 - 5 GCSEs _____ grades 9 to 4.

d. They work on ways of visualizing the processes taking place _____ order to increase the operability of a given system.

e. Their duties include troubleshooting for electrical assemblies, supporting the development of systems from concept to manufacturing, and working collaboratively _____ other engineers to create the needed design.

10. Retell the text, expressing your point of view.

Lesson 5

OBJECT, SUBJECT AND PURPOSES OF YOUR PROFESSIONAL ACTIVITY

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. What is the object of your professional activity?
- b. What is the subject of your professional activity?
- c. What are the purposes of your professional activity?

2. Translate the following words and word combinations into your native language:

to maintain	to implement
diverse	a computer-aided design
to supervise	establishing
domestic	enforcing
to depend	a feasibility
an employer	a maintenance
civil	to collaborate
a consultancy	a report
military	similar
utility	a possibility

3. Read and translate the text.

An Electrical Engineer, or Electromechanical Engineer, is an important professional in the power, transport, telecommunication and industrial sectors. Their duties include

researching, designing and maintaining electrical power systems and products used in diverse industries.

Electrical engineers design, develop, test, and supervise the manufacture of electrical equipment, such as electric motors, radar and navigation systems, communications systems, or power generation equipment. Electrical engineers also design the electrical systems of automobiles and aircraft.

Electrical Engineers design and develop industrial, domestic and commercial electrical systems. Their duties largely depend on their employer and could include the civil service, engineering firms, telecommunications, consultancies, the military, utility companies or the IT industry. The main duties of Electrical Engineers include:

- Designing, implementing, maintaining and improving electrical products and systems.
- Using engineering software and equipment for computer-aided design and other complex technical tasks including AutoCAD
- Establishing and enforcing construction, manufacturing and installation standards.
- Performing feasibility studies for industrial, domestic and commercial technical developments.
- Overseeing maintenance, inspection and system upgrade programs.
- Calculating project costs and delivery timelines.
- Providing quality assurance for ongoing projects
- Collaborating with clients and other professionals.
- Writing reports, giving presentations and meeting with clients and management.

The work of electrical engineers and electronics engineers is often similar. Both use engineering and design software and equipment to do engineering tasks. Both types of engineers also must work with other engineers to discuss existing products and possibilities for engineering projects.

After Text Section

4. Decide whether the following sentences are true or false. Correct the false ones.

- a. Electrical engineers can't design, develop, test and supervise the manufacture of electrical equipment.
- b. Electrical engineers design the electrical systems of automobiles and aircraft.
- c. Electrical engineers' duties could include the civil service.
- d. Electrical engineers' duties largely depend on themselves.
- e. The main duties of Electrical Engineers include lazy watching TV.
- f. Electrical Engineers design and develop industrial electrical systems.
- g. Electrical engineers use engineering, design software and equipment to do engineering tasks.
- h. The work of electrical engineers and electronics engineers is always different.

5. Look through the text and write out the sentences with the Infinitive constructions. Translate them into your native language.

6. Cycle the proper form of the infinitive and fill in the gaps.

1. Earning an electrical engineering degree is the first step _____ you are prepared to work in the critical role of an electrical engineer.
 - a. ensured
 - b. to ensure
 - c. to be ensure
2. The ability _____ with customers, vendors and technicians is essential so the electrical engineer can understand the (project) requirements and meet project goals on time

- a. communicate
- b. to have been communicating
- c. to communicate

3. With so many varied opportunities available, jobs for electrical engineers are continuing _____.

- a. to have grown
- b. be grown
- c. to grow

4. How _____ an electrical engineer?

- a. to become
- b. to have been become
- c. become

5. Manage the production of electrical projects _____ work is completed well, on time and within budget.

- a. ensure
- b. to to ensure
- c. to be ensure

6. Automated technologies continue _____, from robot-assisted surgery to self-driving cars that may one day transport us around major cities.

- a. boom
- b. to boom
- c. to have been boomed

7. Match the words (1-10) with the words (a-j) to form word combinations:

- 1. proximity
- 2. contour
- 3. limit
- 4. stimulated
- 5. Butler
- 6. adaptive

- a. effect
- b. cycle
- c. following
- d. matching
- e. coding
- f. matrix

- | | |
|------------|-------------|
| 7. pattern | g. analysis |
| 8. output | h. system |
| 9. stiff | i. emission |
| 10. shape | j. block |

8. Write down 10 sentences with the word combinations from exercise 7.

9. Read resumes and complete them with the words given below:

programing	Qualifications	knowledge *2	supply
	Languages		
long	attending	Summary	Education *2 term

Brady Kline

City, State, Zip Code

Home: 000-000-0000 | Cell: 000-000-0000

email@email.com

Professional ¹ _____

Exceptionally creative and resourceful Electrical Engineer with a stellar record of safety and customer service. Able to handle multiple projects simultaneously with high professionalism and accuracy. Adept at short- and ² _____ electrical system troubleshooting.

Core ³ _____

- Wide breadth of electrical distribution system experience
- Strong grasp of electrical engineering techniques and principles
- Excellent operational ⁴ _____ of system design and implementation
- Superior proficiency in AC/DC motor drives and programmable logic controls

- Outstanding abilities with Microsoft Office, MATLAB, Lab View, CAD, and C++
- Good ⁵ _____ of high voltage cabling and lighting systems
- Sound skills in preliminary electrical design and contract drafting
- High abilities in developing and evaluating complex engineering projects

EXPERIENCE

Electrical Engineer

6/1/2010 – Present

Company Name

City, State

- Manage all aspects of project processes.
- Maintain records of all technical experiment design and results.
- Resolve design and development issues in coordination with ⁶ _____ and design teams.
- Conduct product measurement and recommended changes as needed.
- Ensure that all performed work is in compliance with ES&H guidelines and requirements.

Electric Engineer

6/1/2006 – 5/1/2010

Company Name

City, State

- Enhanced existing product performance in coordination with development teams.
- Drafted project life cycles to assist other departments as required.
- Ensured reliability and safety of all electrical systems.
- Initiated engineering processes for design preparation.
- Participated in all development process activities.

7

Bachelor's Degree – Electrical Engineering 2006

College Name

City, State

Borys Dorosh

Electromechanical engineer

130 Verkhnya Street

Mykolaiv, ST 54000

(066) 456-7890

borysdorosh@gmail.com

CAREER OBJECTIVE

Electromechanical engineer currently ⁸ _____
National University of Shipbuilding, with 12 months of work
experience. Aiming to leverage a proven knowledge of PLC
⁹ _____, motor control, and methods design skills to
successfully fill the Electromechanical engineer role at your
company. Frequently praised as results-oriented by my peers, I
can be relied upon to help your company achieve its goals.

EXPERIENCE

KONSORT, Mykolaiv – *Electromechanical*

April 2021 – October 2021

Mountain and repair conveyor line.

**Nibulon Shipbuilding-Shiprepair Plant, Mykolaiv –
*Electromechanical***

Match 2019 – August 2019

Mountain and repair electrical equipment.

¹⁰ _____

**The Admiral Makarov National University of
Shipbuilding, Mykolaiv – *Master***

September 2021 – Present

**The Admiral Makarov National University of
Shipbuilding, Mykolaiv – Bachelor**
September 2019 – June 2021
Nikolaev polytechnic college, Mykolaiv – Associate
degree
September 2015 – June 2019

SKILLS

Read blueprints
Control motor
PLC programming
Problem solving
Troubleshooting
Communication skill
Multitasking

11 _____

Ukrainian
Russian
English

10. Write out the main key words into your dictionary.

Lesson 6

PERSONAL QUALITIES FOR PROFESSIONAL ACTIVITY

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. What are the main electrical engineering skills?
- b. From your point of view, which skills do you possess?
- c. What is the place of communication in your profession?

2. Decide whether these tips are true or false. Give your reasons.

a. An electrical engineer as a profession involves developing, designing, testing and supervising the manufacturing of electrical devices and equipment, including navigation systems, electric motors and power generation equipment.

b. Engineers are problem solvers.

c. Critical thinking isn't important in electrical engineering.

d. Electrical design can become a very complex topic.

e. You don't need to have a solid understanding of basic circuit design.

f. There's barely a profession in the world where the ability to communicate isn't important, and electrical engineering is no different.

g. Electronic troubleshooting is a must-have skill for every electrical engineer.

h. The career of an electrical engineer is easy.

3. Read and translate the text. What professional skills do you have now?

When you decide to become an electrical engineer, you're committing yourself to a profession that involves developing, designing, testing and supervising the manufacturing of electrical devices and equipment, including navigation systems, electric motors and power generation equipment.

So, to see if you have what it takes to stay the course and develop a promising career in the field, here are the top 5 electrical engineering skills that you will need.

1. Problem solving

Regardless of their discipline, engineers are, at their core, problem solvers. This is particularly true in electrical engineering, where you are often required to think logically and apply a particular rule or concept to a problem in order to solve it.

2. Critical thinking

Critical thinking is a broad skill that can be applied to a wide array of situations, but it's just as important in electrical engineering. Possessing the ability to approach things differently or take a different view to the norm can make a big difference when you're trying to achieve a certain goal with your project.

3. Basic circuit knowledge

Electrical design can become a very complex topic, especially where large installations are concerned (such as energy grids) or even within highly advanced pieces of small hardware (such as those used in smartphones). Therefore, if you're to have any hopes of getting to grips with it all, you need to first have a solid understanding of basic circuit design.

4. Communication

There's barely a profession in the world where the ability to communicate isn't important, and electrical engineering is no different.

5. Electronic troubleshooting

This is a must-have skill for every electrical engineer.

Electronic troubleshooting involves fault establishment, location and correction through the use of measuring and diagnostic equipment. The level of difficulty can vary depending on which device you will need to work with and repair; in some cases, you might need to test each device component individually to make sure that everything works properly.

As you can see, the career of an electrical engineer – as with many STEM professions – is demanding.

Apart from possessing the requisite technical knowledge, it is also mandatory for you to incorporate other key soft skills into your employability repertoire, such as decision-making and attention to detail.

After Text Section

4. *Answer the questions.*

a. What are the main electrical engineering skills? Compare your answers before reading the text with answers after reading the text.

b. Why are engineers the problem solvers?

c. Why is critical thinking important in electrical engineering?

d. Why do you need to have a solid understanding of basic circuit design?

e. Is communication important in electrical engineering?

f. What involves electronic troubleshooting fault?

g. What is the level of difficulty of electronic troubleshooting fault?

5. *Translate the following words and word combinations into your native language:*

latency	scheduling
active load	transfer function
macro diversity	buffered input/output
soil electrode	equilibrium solution
acceptable delay	homogeneous
	transformation matrix
cross luminance	pseudo-random
K-factor rating	tachometer
Dewar	atomic beam
cumulative distribution	
function (CDF)	X-ray
Kaiser window	

6. Write down 10 sentences in the Passive Voice with words and word combinations from exercise 5.

7. Match the words (1-8) to their definitions (a-h).

- | | |
|----------------------|--|
| 1. lens | a. a measure of the practical lightning or switching-surge impulse withstand capability of a piece of power equipment |
| 2. Wronskian | b. the quality of a transport line or optical system where particle momentum has no effect on its trajectory through the system |
| 3. the sinusoid | c. electric potential and represents the «push» that drives electric charge from one place to another |
| 4. voltage | d. The most ubiquitous and important signal in electrical engineering |
| 5. impedance scaling | e. modifying a filter circuit to change from a normalized set of element values to other usually more practical element values by multiplying all impedance by a constant equal to the ratio of the desired (scaled) impedance to the normalized impedance |

- | | |
|---------------------------|--|
| 6. 90 % withstand voltage | f. in computer vision, the distance to a surface, as perceived subjectively by the observer |
| 7. quadrature | g. matrix whose determinant is used to test the linear independence of solutions to differential equations (such as Maxwell's equations) |
| 8. achromatic | h. one of the halide atoms known for being highly reactive |
| 9. halogen | i. a condition where there is a 90 degree separation between items |
| 10. depth | j. optical element for focusing or defocusing electromagnetic waves |

8. Complete the text using the correct form of the verbs in the box.

to mean to understand to require to ensure *2 to master to work *2 to be *2
--

PLC technicians are experts in providing the basic services of keeping PLC system working. Their professionalism and experience ¹ _____ that system ² _____ as intended and does not suffer from constant failures. Since PLC's handle complex data, they need to be in control complete so that the system is well-maintained. Here are the top skills every qualified PLC technician should possess.

Strong Problem Solving, Change Management, And Communication Skills. Working in the electrical field ³ _____ every PLC technician has to be able to fully grasp electrical designs, concepts, and theories to make them knowledgeable about the field.

Along with strong technical skills, good communication skills also ⁴ _____ to meet with global standards in providing solutions to companies that work across the world. This

⁵ _____ correct relay of messages and the necessary team coordination and solving skills to make tasks easier.

A Good Programming Knowledge Necessary for Job Functions. Qualified PLC technicians are not just good technicians, but they are also highly skilled in basic programming languages. Good technicians ⁶ _____ basic and advanced computer programs including MS Office, MS Project, Visio, Autocad and SAP among others.

These are all part of Electromechanical engendering education program during their training years and is something he ⁷ _____ in order to be a certified PLC technician. Training and experience are also good measures of how competent they are with their profession.

As with every industry, ⁸ _____ a PLC technician needs an ability work under pressure. This is an essential skill required for the job as the demand to create cost-effective solutions that are both usable, efficient, and practical is the primary goal for having an automated system.

It also ⁹ _____ an ability to lead and supervise projects needed to maintain the PLCs functions as problems are bound to occur with its constant use. A good knowledge about environmental, health, and safety requirements to ensure the machine runs optimally and in safe operating conditions is one of the most crucial skills.

¹⁰ _____ a multi-tasker is one big skill needed for the job as a qualified PLC technician. Because the work involves system maintenance and various other electrical supports, you need to be able to work simultaneously when problems arise.

This also means preparing backup plans in cases when the system fails and being prepared when an impending system failure is about to happen. Quality troubleshooting is critical to this. Having personal effectiveness, team skills, and an enhanced

project management ability are not just skills but traits should possess a good PLC technician.

9. Complete the sentences using the prepositions at, from, in or with.

a. Therefore, it's important to focus on calculus _____ school, as well as taking as many maths-related electives as possible _____ university.

b. Qualified electrical engineers can find work _____ a wide range of industries, _____ public servant positions to business ventures.

c. Apart _____ the formal education requirement, you will also need hands-on experience that includes practical problem-solving.

d. Remember: you can have all the knowledge _____ the world, but if you don't know how to be creative and explore new possibilities _____ it, then you're going to be left behind.

e. Although the importance of coding is higher _____ some areas of electrical engineering than others, it's still a very useful skill to possess, particularly when working _____ low-level embedded systems or when analyzing data.

10. Retell the text, expressing your point of view.

Lesson 7

PROFESSIONAL SKILLS REQUIRED IN YOUR PROFESSIONAL ACTIVITY

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. Which skills does the job of an engineer include?
- b. What is the most important thing for an engineer from your point of view?
- c. How does the best Boss look like, what kind of person must he be?

2. Decide whether these tips are true or false. Give your reasons.

- a. A diverse range of skills is necessary to excel as an engineer.
- b. One of the most crucial skills an engineer can possess is weak problem-solving abilities.
- c. A large part of an engineer's job is assessing a situation, identifying problems and then finding solutions.
- d. If you don't have direct experience in the field, you cannot be an engineer.
- e. Engineering projects can be challenging, so a candidate needs to be reliable under stress at all.
- f. By highlighting your ability to fail in difficult situations, you can make yourself appealing to potential employers.
- g. All engineering projects will see an engineer working on his own without coworkers or outside professionals.

h. When working in engineering, you will often need to discuss plans or designs only with your Boss.

3. Read and translate the text to learn about top engineering skills.

What are engineering skills?

The talents required to be a successful engineer include a combination of both hard and soft skills. They allow an engineer to perform the labor of the position and also work with coworkers to operate as a unit efficiently.

12 top engineering skills

No matter the industry, a diverse range of skills is necessary to excel as an engineer. Here is a sampling of some of the most common skills employers look for, as well as examples of how to showcase them in your resume.

1. Problem-solving

One of the most crucial skills an engineer can possess is strong problem-solving abilities. A large part of an engineer's job is assessing a situation, identifying problems and then finding solutions. Employers will want to see that you're capable of handling obstacles in your daily work.

Example: *"Adept at identifying problems resulting in inoperable production machinery, troubleshooting potential causes and devising a solution to return the machine to operating condition as promptly as possible."*

2. Computer science

No matter what field of engineering you are working in, it is likely that you will be required to use computers to do your job effectively. Skills like programming are valuable across a broad range of engineering disciplines and are appealing to prospective employers.

Example: *"Utilized computer modeling programs to develop simulations for structural designs and test the load capacity before finalization of project blueprints."*

3. Industry skills

A hiring professional must be able to determine if you are capable of performing as an engineer in the field of the company for which you are applying. If you don't have direct experience in the field, assess which of your skills are most relevant and highlight them in your prior engineering positions.

Example: *“Performed inspections on active construction projects by contractors, ensuring that all materials and methods being used are to the design specifications, and all craftsmanship is of requisite quality for safe construction.”*

4. Pressure management

Engineering projects can be challenging, so a candidate needs to be reliable under stress. By highlighting your ability to deliver in difficult situations, you can make yourself appealing to potential employers.

Example: *“Managed a team of engineers constructing a new prototype model on an accelerated timeline to have the test model available in time for demo at a major convention that could not be rescheduled, resulting in rave reviews from the press following the debut presentation.”*

5. Teamwork

Few engineering projects will see an engineer working on their own without coworkers or outside professionals. Teamwork skills are essential for ensuring you can cooperate with teammates to succeed as a unit and perform to your highest combined ability.

Example: *“Worked alongside a team of five engineers to develop new body design, increase aerodynamics and improve overall fuel economy.”*

6. Creativity

Often when attempting to find a solution to an engineering problem, you may not have direct experience with an identical problem or need. In these situations, a creative mind can

combine prior experiences in new ways to create a solution to the problem. Creativity is a very important skill that employers will be on the lookout for in your resume.

Example: *“Constructed a customized guide for use with a table saw to allow the carpentry team to more easily create required pieces of lumber, significantly reducing construction time for each project.”*

7. Structural analysis

One common requirement in several engineering fields is the need to perform structural analysis. This skill involves determining the strains that would be placed on a structure or machine under current designs and assessing the ability to withstand those strains. Prior experience with structural analysis shows a potential employer that you are capable of making the calculations required to confirm that proposed plans are safe and functional.

Example: *“Performed quality checks on all new constructions after initial framing to ensure that structural integrity levels were sufficient to continue in the construction process.”*

8. Communication

When working in engineering, you will often need to discuss plans or designs with others. The ability to clearly communicate is essential to collaborative work. It is particularly important when working with non-engineers, as the engineer must take technical information and convey it clearly to those without advanced technical knowledge. This way, progress and options are understood by everyone involved.

Example: *“Met weekly with executives and department managers to discuss the status of all ongoing engineering projects. Explained current projects in terms that all in attendance could understand and delivered updates on planned progress for the upcoming week.”*

9. Attention to detail

When working in a field where precision is important, such as engineering, an individual must have strong attention to detail. Small errors in the drafting or execution of technical plans can result in financial losses and potentially dangerous situations. Employers will want to see an applicant who can demonstrate their ability to not overlook small but important details.

Example: *“Tested malfunctioning computer chips, troubleshooting for apparent signs of physical damage and performing repairs and installations, paying close attention to the precise placement of all wiring and contact points.”*

10. Educational commitment

Anytime you are working in a technological field, be aware that it is constantly changing as new technologies are created and old technologies are improved. The ability to continue learning while in the workforce is valued by employers, as it ensures you always remain on the cutting edge of the field. Continued education also helps to ensure minimal mistakes in the future due to using outdated tools or methods.

Example: *“Attended conferences with industry leaders, participating in seminars and lectures about new methods of performing my daily responsibilities to increase personal and company productivity.”*

11. Data modeling

Often an engineer will be tasked with taking gathered data and creating models that analyze the data to conclude, which can then be applied to practical work. It's important that all modeling and extrapolation from models are performed correctly to avoid costly spending on ineffective productions. Demonstrating your familiarity with data modeling structures will help make you a more appealing candidate to your potential employer.

Example: *“Analyzed rainfall records on a localized level to create expected rainfall and drainage models. Utilized models in the planning of a newly constructed housing development to avoid placing homes in areas at high risk of flooding or erosion.”*

12. Leadership

An engineer is often placed in a position of leadership, even when not formally in a management position or tasked with working with other departments to execute plans. An engineer with the ability to motivate others is an especially valuable member of any staff and is an exciting prospect for any hiring manager.

Example: *“Oversaw the creation of housing development, working in close conjunction with the construction team to ensure all plans were followed and executed satisfactorily.”*

After Text Section

4. Answer the questions.

- a. What kind of engineer is an especially valuable member of any staff?
- b. What is the most important thing to avoid costly spending on ineffective productions?
- c. What technological field is constantly changing as new technologies are created and old technologies are improved?
- d. Which ability is valued by employers most of all?
- e. Where must an individual have strong attention to detail?
- f. Who will want to see an applicant who can demonstrate their ability not to overlook small but important details?
- g. Who can combine prior experiences in new ways to create a solution to the problem?
- h. What skills are essential for ensuring you can cooperate with teammates to succeed as a unit and perform to your highest combined ability?

- i. Why does a candidate need to be reliable under stress?
- j. Which skills are valuable across a broad range of engineering disciplines and are appealing to prospective employers?

5. Translate the following words and word combinations into your native language:

gear	savvy
abutment	angle
ellipse	blueprint
lever	dimension
valve	excavation
oscilloscope	load
transmit	mechanize
mold	fabrication
joint	joint

6. Write down 10 sentences in the Passive Voice with words and word combinations from exercise 5.

7. Match the words (1-8) to their definitions (a-h).

- | | |
|--------------------------|---|
| 1. quantization interval | a. assuming the signal is a sinusoid, the signal power is the square of the rms amplitude |
| 2. power | b. consists of the ordered pair, the first is the real component and the second is the imaginary component |
| 3. digital signals | c. to be a multiple of the integers |
| 4. complex number | d. these additional bits help the receiver determine if an error has occurred in the data bits (the important bits) or in the error-correction bits |
| 5. the resistance | e. the range of values assigned to the same integer |

- | | |
|------------------------------|--|
| 6. to be quantized | f. the simplest error correcting code |
| 7. the error correcting bits | g. in a resistor, the voltage is proportional to the current, with the constant of proportionality R |
| 8. the repetition code | h. sequences, functions defined only for the integers |

8. Complete the text using the following words.

colleagues industries Motivation Leadership skills background Physics Science proves

Industry Skills

Because engineers operate in a variety of ¹_____, some hard skills are vital only to specific industries. That being said, each hard skill below is important in most engineering work.

- Computer ²_____
- Programming Languages
- Statistics
- System Design and Analysis
- Conceptual, Logical, or Physical Data Modeling
- Process Management
- Advanced ³_____
- Structural Analysis
- Nanotechnology
- Communication

Engineering is very technical and relies on concise and accurate communication between ⁴_____. But you will also have to communicate with people outside of the field, such as clients and sometimes the general public, who do not have a technical ⁵_____.

It's important that you are able to translate your specialized knowledge into terms that those within and outside your department can understand. Due to the highly technical demands, communication often ⁶ _____ one of the most challenging soft skills for engineers. Complexities must be broken down into digestible words and concepts for your peers and managers.

- Emotional Intelligence
- Presentation Skills
- Active Listening
- ⁷ _____
- Negotiation
- Ability to Clarify and Paraphrase
- Stress Tolerance

Project Management

Frequently, engineers manage teams and must integrate with auxiliary departments while trying to meet deadlines on a budget. Because of the administrative demands required of most engineers, many of them go on to become CEOs and thought leaders.

Like other professionals that need project management ⁸ _____, some engineers seek a project management certification. Some companies will offer their engineers the opportunity to get certified in project management. If you seek employment as an engineer and already have a bachelor's degree, you can often find graduate programs at low cost that help you take and pass the PMI exam.

Another type of project management training familiar to engineers is Six Sigma training. Based on the Japanese model of Just-in-Time Manufacturing, project managers trained in Six Sigma achieve colored belt titles (similar to martial arts) indicating their level of skill and achievement.

- Strategic Planning
- Risk Management

- Communication
- 9 _____
- Organization
- Scheduling
- Quality Control
- Critical Thinking

9. Complete the sentences using the prepositions at, from, in or with.

- a. A small mistake _____ any point during planning, development, or construction can result _____ failure.
- b. _____ contrast, the soft, or social skills will vary less _____ one industry of engineering to another.
- c. Because engineers operate _____ a variety of industries, some hard skills are vital only to specific industries.
- d. There are several different branches of engineering, each _____ distinct technical skill sets.
- e. Most aspiring engineers will need _____ least a bachelor's degree _____ an engineering school or university, and the best-paid engineers often have a master's degree or Ph.D. _____ their field.

10. Write out the main key words into your dictionary.

Lesson 8

INFORMATION FORMS FOR NEW EMPLOYEES

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. When should an employee information form be completed?
- b. What is the difference between an information form and an application form?
- c. Who has access to the information on an employee information form?
- d. What other forms might a new employee complete?

2. Translate the following words and word combinations into your native language:

Employees, employers, to hire, some paperwork, to keep accurate records, human resources department, to track changes, employment regulations, taxes, onboarding process, to verify, compensation and benefits., job-specific forms, to be eligible to work, the Internal Revenue Service, to withhold, employee information forms, Social Security Number, marital status,, health insurance, type of skill, job description.

3. Read the text below. Choose from (A-H) the one which best fits each space (1-6). There are two choices you don't need to use.

Whenever a company hires a new employee, both the employer and the employee have to complete some paperwork. This helps a company ¹_____ track changes in

employment and follow the employment regulations of its country or state. New hire paperwork also allows an employee to easily organize information for their taxes. Keeping track of the paperwork you file as a new employee can help simplify the onboarding process. Some forms are required by law, such as tax forms, while ² _____. They help verify the new employee understands company policies as well as their compensation and benefits. New employee forms also help a company gather accurate information on each of their employees. Each employer may have different forms ³ _____, but many of them gather the same types of information. Many of these forms need to be updated as your information changes, while others only need to be filled out once.

Job-specific forms are unique to a particular position. These forms ⁴ _____ that directly address your duties, goals and experience.

RS and tax forms are used to confirm you are eligible to work and pay your taxes properly, you should fill out the forms required by the Internal Revenue Service. Employers use the information on tax forms to withhold the correct amount of money from your paycheck and to make their tax contributions as a company. Depending on your filing status and location, ⁵ _____ to pay taxes through your job.

Company policy forms are specific to company procedures. If a company has particular security requirements or behavioral standards, they may ask employees to fill out a document agreeing to their policies.

An employee information form is an important human resources (HR) document ⁶ _____. It contains important personal information about each employee, such as their Social Security number, spouse's contact details and details about employment, including their position, department,

supervisor and start date. On the form, each employee must also provide emergency information, which the company can use to contact a relative or friend in the event of an injury or serious event. An employee information form usually contains five sections:

1. **Employee information.** In this section, an employee provides personal data, such as their full name, address, phone numbers, e-mail address, birth date, marital status, Social Security number and the contact details of their spouse or partner.

2. **Job information.** This section includes key employment information, such as an individual's position, department, employee ID, supervisor, work location, work email address, work phone number, start date and salary.

3. **Emergency contact details.** In this section, an employee provides the contact details of a relative or friend the company can contact in the event of an emergency.

4. **Health information.** Often, companies may also ask employees health-related questions to determine potential allergies and special health requirements or if they are being offered health insurance through the company. If you include such a section in the document, you should add it on a separate page as the Health Insurance Portability and Accountability Act requires you file medical data separately.

5. **Additional information.** Some employers may also ask that employees list interests and hobbies to ascertain what projects an employee may be interested in. Gathering additional personal information, such as a birthday, also enables employers to congratulate employees on important dates adding to employee morale.

Here is a completed example of an employee information form:

О. Б. ДАВИДЕНКО, Т. П. ЗАДОРЖНА

Your Company Name Address Contact Info	
Employee Information	
Name	Charmaine Smith
Address	9324 Kenwood Place, Orlando, FL 32801
Phone Number	407-555-8801
E-mail Address	charmaine.smith@email.com
Social Security Number or Gov- ernment ID	123-45-6789
Birth Date	Nov. 13, 1972
Special Interests (optional)	Baking
Learning Institution(s)	Hillside College, Fort Worth, TX
Marital Status	Married
Spouse's Name	Edward Smith
Spouse's Employer	Mark and Wedell
Spouse Work Number	407-555-9402
Job Information	
Title	Test Engineer
Employee ID	FIN301
Department	Operations Department
Supervisor	Sam Davies
Work Location	Orlando Branch
E-mail Address	c.smith@simmons.com
Work Number	407-555-1430
Start Date	Oct. 1, 2021
Salary	\$52,500 per year
Emergency Contact Information	
Name	Edward Smith
Address	9324 Kenwood Place, Orlando, FL 32801

Work Number	407-555-9402
Relationship	Husband
Health Condition (optional)	Peanuts

- A. that every new employee must complete and maintain
- B. to go to an outside source, such as their insurer's website.
- C. you will likely have to fill out one or more of these forms
- D. often have detailed questions or information
- E. they require new hires to fill out
- F. you can reach out to the human resources department
- G. others may only be required by a particular company or position.
- H. keep accurate records for its human resources department.

After Text Section

4. Answer the questions.

- a. Why do both employers and employees have to fill out some paperwork?
- b. What forms are required by law?
- c. What needs to be done to make the information in the form corresponding to the current situation?
- d. What are the types of new employee forms?
- e. What is an employee information form?
- f. What must be included in an employee information form?

5. Find the words in the text that mean:

- a. A person who is hired by another to perform a service especially for wages or salary and is under the other's control _____.
- b. The work in which one is engaged _____.
- c. Routine work involving written documents _____.
- d. The legally defined marital state. There are several types of it: single, married, widowed, divorced, separated and, in certain cases, registered partnership _____.

e. This team is tasked with all of the logistics surrounding an employee's lifetime at a company, from the recruitment and selection phase to performance management and continued training _____.

f. A person or business that employs one or more people, especially for wages or salary_____.

6. Find synonyms in the text for the following words:

a. aim		f. enrollment	
b. documentation		g. profit	
c. to engage		h. acceptable	
d. authenticate		i. to complete	
e. labourer		j. hirer	

7. Read the text below. For sentences (1-8) choose the correct answer (A, B, C, or D).

As a Federal employee, you ¹_____ have the opportunity to participate in a number of employee benefit and family-friendly programs. If your appointment to Federal employment ²_____ eligibility, you ³_____ elect to participate in health, dental, and life insurance programs; retirement savings plans; flexible spending accounts; long-term care insurance; and vacation and sick leave. In addition, there ⁴_____ a number of family-friendly programs that the Department of Energy (DOE) ⁵_____ its employees, such as alternative work schedules, flexplace/telecommuting, transit subsidy, child development centers, and exercise and wellness facilities.

The employment forms ⁶_____ in this section collect important and necessary information about your individual employment benefit election decisions. They ⁷_____ to

record your election to participate (or not) in the programs for health and life insurance, the Thrift Savings Plan (TSP). They also ⁸ _____ to record your beneficiary information.

The information preceding these forms provides an introduction to the many benefits of working for the Federal government and the DOE.

	A.	B.	C.	D.
1.	have to	may	must	might
2.	confersing	has been confersed	confers	has confersed
3.	may	might	have too	can
4.	is	will be	have been	are
5.	offering	offers	offered	offer
6.	found	find	have found	finding
7.	will use	use	will be used	used
8.	will be used	is used	have been used	are used

8. Filling the blanks with the following words and word combinations: insurance policy coverage, to submit, Human Resources Office, employees, appointment, Basic Life Insurance, eligible.

All Employees in ^a _____ positions are automatically enrolled in ^b _____ unless they choose to waive it. Basic Life Insurance is effective on the first day you enter a pay and duty status.

New employees have 31 days from the date of their ^c _____ to elect additional Optional Insurance or to waive coverage entirely. ^d _____ must be enrolled in Basic Life in order to elect Optional Insurance. Your completed Life Insurance Election Form, SF-2817, must be submitted to your servicing ^e _____ in a timely manner. Additionally,

employees are strongly encouraged ^f _____ the SF-2823 Designation of Beneficiary form.

Basic life ^g _____ is based on your annual basic rate of pay, rounded up to the nearest \$1,000, plus \$2,000 (example: annual salary is \$35,260, rounded up to \$36,000 plus \$2,000 equals \$38,000). FEGLI insurance is a term ^h _____ and has no cash value.

9. Filling out this form with your true information

Your Company Name Address Contact Info	
Employee Information	
Name	
Address	
Phone Number	
Cell Phone Number	
E-mail Address	
Social Security Number or Government ID	
Birth Date	
Special interests (optional)	
Learning institution(s)	
Marital Status	
Spouse's Name	
Spouse's Employer	
Spouse's Work Number	
Job Information	
Title	
Employee ID	
Department	
Supervisor	

Your Company Name Address Contact Info	
Work Location	
E-mail Address	
Work Number	
Start Date	
Salary	
Emergency Contact Information	
Name	
Address	
Work Number	
Cell Phone Number	
Relationship	
Health conditions (optional)	

10. Write out the main key words into your dictionary.

Lesson 9

WRITING AN IMPRESSIVE CV AND EFFECTIVE COVER LETTERS

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. What does a CV stand for?
- b. What is the main purpose of a CV?
- c. How many sections are there in a typical CV? What are they?
- d. What are five common mistakes people make when writing CVs?

2. Translate the following words and word combinations into your native language:

Diploma in Engineering, Electric Power Engineers, Electrical Engineers, Chief Engineer, designed and developed advertising campaign for..., helped increase new customer base by 25 %..., broad experience in (management), successfully administered ..., extensive working experience, responsible for negotiating and completing of contracts with customers/ companies, strong skills, solid academic foundation of key concepts in ..., good-natured, quick, resourceful, reliable, self-confident, leader, unemployed, vacancy, fee, position, extracurricular activities, accomplishments, employment, fill a position, applied upon request, to apply, till present, to claim, to work in the capacity of..., employer, referee, reference, at a salary of, personal strengths, insurance, career goals

3. Read the dialog to find out how many of your ideas about common mistakes in CVs are mentioned?

Alex: Hi, Ella.

Ella: Hi, Alex. How are you doing?

Alex: I'm fine. I'm just calling as I've decided to apply for a couple of admin jobs, and I'd like your help with my CV. Do you have any tips? Any specific mistakes I should watch out for?

Ella: Well, the first one is simply mistakes. You'd be surprised how many people submit CVs with basic mistakes in them. If you've got a whole load of CVs on your desk, this is an easy way to get rid of some to begin with.

Alex: What sort of mistakes are you talking about?

Ella: Spelling mistakes, often. For example, putting the 'i' in the wrong place in 'receive', or writing 'correspondence' with an 'a' instead of an 'e', or spelling 'liaise' with only one T. Then there's another type of spelling mistake, when applicants use the wrong form of words like 'practice' and 'advice'.

Alex: English is such a difficult language sometimes! I guess the answer is to proofread my CV thoroughly and then double and triple check.

Ella: Exactly. The next thing is to keep it short. You've got to grab the employer's attention, and remember they've got other work to do as well as going through CVs. Don't list all of your experience and qualifications, only the stuff that's relevant for the job you're going for. Cut it down to the most relevant and impressive achievements. Less is more, and being concise and to the point will demonstrate your ability to edit well.

Alex: So how many pages should it be?

Ella: Well, I'd aim for one side if possible, certainly nothing longer than two pages.

Alex: That's great. Anything else?

Ella: Yes, be honest.

Alex: But doesn't everyone lie a bit in their CVs?

Ella: It's true that a lot of people stretch the truth, and you should certainly only focus on positive experience and details relevant for the job, but don't be tempted to write anything untrue. First of all, your CV is a legal document, and if they find out you've lied then they can fire you just like that. Secondly, you're going to be a lot more confident in an interview talking about the details on your CV if you've told the truth, than if you've made something up. In my experience it doesn't take very long to spot someone who's lied in their CV and they always get found out sooner or later. It's simply not worth it.

Alex: So honesty is the best policy. And what about getting my CV noticed?

Ella: Well, presentation's important so use nice, neutral-coloured paper and matching envelope. But I think the main thing is to make sure that your CV is written to match the requirements of the job and the culture of the company you're applying for work with. You've got to adapt every CV you write to each job you apply for. It's surprising how many people think they can get away with one CV for all jobs!

Alex: Thanks, Ella. I can't thank you enough.

Ella: You're welcome Alex. Let me know how you get on.

After Text Section

4. Answer the questions.

- a. Does this dialogue contain ideas you haven't thought of?
- b. What words are commonly misspelt in CVs?
- c. Why does Ella believe short, concise CVs are preferable?
- d. Why should not you lie in a CV?
- e. Should you use the same CV for all your applications?

5. Look at the following extracts from CVs. Identify and correct the spelling mistakes. (the number of mistakes is given in brackets). Use a dictionary to help you.

a. In my previous job I was responsible for dealing with my bosses' correspondence, passing on their telephone messages, and arranging appointments with visitors. (7)

b. Apart from the academic benefits, the experience of studying abroad enabled me to practice my foreign language skills and develop my strengths in non-academic areas. (10)

c. During my time as an assistant in the personal department, my main achievement was when I led a project which focused on improving strategic business planning. (9)

6. Fill in the table with the following statements:

<i>Do</i>	<i>Don't</i>
a. Be honest. Untruths are easy to uncover and lying on your CV is a criminal offence	a.
b.	b. Overuse buzzwords

Include quotes from previous employers. Tailor your personal statement (and CV in general) to each application. Provide evidence of skills and experience but to keep it brief. Copy and paste from your cover letter. Use the job description to help form your profile. Stick to the word limit. Include unnecessary personal information such as your age, marital status etc. Check for spelling and grammar mistakes, Use clichés, slang or jargon. Read it aloud once you've finished writing to make sure it flows.

7. Read this bad CV example. Find and correct the mistakes made by this applicant. How would you improve this CV?

Jameson Gould
City, State Zip Code
T: 000-000-0000
E: email@email.com
Professional Summary

I am a motivated go-getter, skilled electrical engineer with a degree in electrical engineering and robust experience in the field. Naturally detail- oriented and a self – starter. I trained in the design of electrical systems, and have concentrated knowledge of the implementation process as well. I have experience leading teams and working collaboratively with others in fast-paced environments. My analytic abilities, strong interpersonal skill and reliable nature make me an asset to many teams.

Work Experience
Electrical Engineering Assistant
2009-2014

- Preparing excellent technical drawing.
- Assisted in electrical design process as required by supervisors.
- Maintaining organized archive of drawings and other electrical design documents.
- Honed project management skills.

Electrical Engineer
2014-2019

- Managing electrical design process from start to finish.
- Increase productivity and reduced waste across the electrical design process.
- Worked in fast-paced manufacturing environment.
- Promoted from my previous position as an assistant.

Lead Electrical Engineer
2019-Present

- Supervised team of five other electrical engineering employees.
- Ran electrical engineering intern program.
- Oversaw all areas of electrical component and system design and managed design process from start to finish.

- Analyzed and redid company's project management approach, achieving a 50% time savings and a 50% increase in productivity.

Education and Training

Bachelor of Science in Electrical Engineering 2009

Hinsley University:

- Strong aptitude and experience working with engineering design software to achieve designs that match up to specifications and fit the job at hand gained through positions ranging from assistant to lead engineer.
- Experience leading mid-sized teams in my current job and adhering to strict production schedule without sacrificing on accuracy and electrical engineering best practices.
- Project management experience and ability to see projects through from concept to design and implementation, gained from current position as lead electrical engineer.
- Advanced interpersonal and collaborative skills learned and tested in all positions, especially as a mid-level electrical engineer.

Hobbies and Interests

- Am active in several music groups and I play the piano, guitar and banjo. Perform at local venues, festivals and events and write original music. Very interested in physical fitness and healthy eating and am currently training for a triathlon.

8. Read the cover letter and complete the sentences using the prepositions: from, at, about, in, to, as, for, by, of, as with. You will need to use some prepositions more than once.

Dear Sir,

It is a pleasure to be applying ^a _____ the Electrical Engineer position ^b _____ Crane & Jenkins, as I feel it is an

exceptional company that prides itself ^c _____ providing excellent customer service. After the rave review ^d _____ my friend ^e _____ his new position ^f _____ Crane & Jenkins, I knew I needed to apply ^g _____ this fantastic company. As an experienced Electrical Engineer, it is an honor to be applying to a trusted company.

During my tenure ^h _____ an Electrical Engineer at River Tech, my responsibilities included evaluating and testing electrical systems, confirming component capabilities, developing manufacturing processes, designing testing methods, collecting data and preparing reports ⁱ _____ the data, complying ^j _____ regulations, and training other technicians. During my tenure, I assisted ^k _____ the creation of a telemedicine kiosk, bettering the lives of countless patients around the world ^l _____ making it easier for them ^m _____ access the equipment needed to have an effective telemedicine session.

My bachelor's degree in Electrical Engineering has proved invaluable. I studied a multitude of subjects including calculus, chemistry, computer science, analytic geometry, aerospace engineering, integrated circuit design, telecommunication systems, and physics. My education taught me all of the necessary skills I needed to succeed ⁿ _____ an Electrical Engineer. Throughout my academic career I also gained oral and written communication abilities, strengthened my mathematical skills, and grew as a product designer.

Thank you for your time and consideration. I look forward ^o _____ learning more about the Electrical Engineer position at Crane & Jenkins.

Sincerely,
Malik Rabb

9. Before you write your own cover letter, study the following. What distinguishes a cover letter from a CV?

Introduction	• I am writing in response to the job which I saw advertised in the...; • I would like to be considered for the position of ... • I am writing to apply for a place on your work training scheme; • I believe that I have all the necessary skills and qualifications for this post\$ • I believe that I would be suitable for this post.
Qualifications and experience	• I have ... years experience working in this field; • I have had considerable experience working with ...; • I have been a qualified ... for three years; • I am a fully qualified ... ; • I have passed the ... (license); • I have taken the course in Excel; • I graduated from the university with a Grade Point Average of 90 (100.0 scale); • I am currently studying on a Master's Degree Programme at(name of the University).
Personal qualities and additional skills	• I enjoy working in a team; • I enjoy the challenge of meeting targets; • I am patient and thorough in my work; • I am able to carry out most tasks in German; • I am fluent in English; • I am computer literate; • I have a good working knowledge of Excel.
Say why you want the job	• I would like the opportunity to learn more about ...; • I would like the opportunity to work for a large, international company like ...; • This job would offer me more experience in my chosen field.

End the letter	• You will find a copy of my CV enclosed; • I would be happy to attend an interview at a time convenient to you; • Please do not hesitate to contact me if you require any further information; • I look forward to hearing from you soon.
-----------------------	--

10. Write your own CV and cover letter to apply for the job you are interested in. This site may help you in finding a suitable job:

<http://www.connexions.gov.uk/jobs4u>

Lesson 10

PREPARATION AND PARTICIPATION IN INTERVIEWS

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. What is an interview?
- b. State the difference between an interviewer / interviewee?
- c. What qualities make a good interviewer?
- d. Have you ever been interviewed for a job?
- e. How do you feel about going for an interview?

2. Translate the following words and word combinations into your native language:

to look for, to seek (a job), to qualify, be qualified, to apply (to a firm; for a position), to fill out an application, to interview, to be interviewed, to hire/employ, to be employed, to dismiss/fire/sack, to make redundant, to earn/make (money), to be responsible for, to be promoted, to be transferred, to resign work, (employment, job, position), applicant, personnel, experience, background, education, training, salary, wages, fee, duties, responsibilities, skills, abilities, craft, profession, references, recommendations full-time, part-time, temporary, available, immediately, to evaluate, to succeed, a candidate, to gauge, job description, co-curricular activities, transferable skills, a career counselor, body language, interviewee.

3. Read the text to get the information what you should do to be successful in a job interview? Make a list under these headings:

- Before the interview
- During the interview
- After the interview

THINGS TO DO BEFORE, DURING AND AFTER YOUR INTERVIEW

An employer will invite you for an interview if they believe that you have the skills to succeed at their company. In the interview, they will seek to evaluate your genuine interest in the company and the role, your preparedness for the position, and your potential to add value to their team. Your answers to the questions they ask will help them assess your skills, experience, and motivation. Below, you will find suggestions on how to prepare for the interview and demonstrate that you are the best candidate for the position.

We often hear from employers that candidates do not know enough about their companies when they interview. Employers gauge how interested you are by how much you know about their organization. This research is an easy way to improve your interview skills. Find out as much as you can about the position, company, and industry:

- Learn about current trends and events that might impact your future employer.
- Review the organization's website and social media activity.
- Try to speak to people in the organization through LinkedIn, peers, faculty, or family to gain insider knowledge.
- Make sure that you reread the job description and can communicate why you would be a good fit for the position.

It is also important to have a purpose in mind and communicate it to the employer. You will need to be able to show that you can support the company's needs. You should

think about how the combination of your work experience, personal qualities, and academic or co-curricular activities make you uniquely qualified for the position. Identify transferable skills and make the connection between your experience and the position requirements.

While the main goal of the interview is for an employer to evaluate you as a candidate, it is also one of your few chances to learn more about them. There are many aspects of a job that you can only uncover by speaking with the employer. Identify questions that can help you determine if this is the right position for you. Consider asking questions about the role, division, organization, and industry.

Many people practice for an interview by writing down answers to common interview questions. While organizing your thoughts on paper is helpful, the best practice is done verbally, alone, with a friend, mentor, or career counselor. You can schedule a practice interview with a career counselor to get feedback on your interview style, presentation, and body language. For independent practice in a virtual format, we recommend «Big Interview», which you have access to for free through our office. You can practice answering interview questions by industry or job function, record yourself, and use their tool for self-assessment or share any video with a mentor for feedback.

During the interview:

- Listen carefully to the interviewer.
- Make sure you answer the question your interviewer is asking.
- Relate your skills, accomplishments, and objectives to the needs of the company.
- Focus on the positive aspects of your training and experience. You don't have to apologize for any perceived lack of experience or background.

- Observe the people and office space to get a sense of the company's culture.

- If you do not have the interviewer's contact information request a business card so that you can send a thank you note.

Body language is a very important indicator of a candidate's personal characteristics. Your posture, eye contact, and hand gestures all contribute to the impression you make on the interviewer. The following examples of proper body language and behavior specific to the U.S. job market may help you assess your presentation:

- **POSTURE:** Your posture can convey confidence or insecurity. Sit up straight to send a message that you are comfortable and confident.

- **EYES:** Maintain eye contact with your interviewer and others in the room. If you focus all of your attention on one person, you will not engage other interviewers.

- **HANDS:** Avoid fidgeting. Use your hands to express yourself in moderation.

- **LANGUAGE:** Be clear and direct. Avoid the use of filler words such as «um» or «like» between phrases or sentences. Do not ramble. When you finish making your point, stop! Silence is acceptable.

After the Interview send a thank you note within 24 hours of the interview. If you do not hear from the employer after the hiring timeline they initially indicated follow up professionally, and only once. Call or email the interviewer or human resources representative and inquire about the position and the new hiring timeline. Evaluate your performance. Did any questions stump you? Now is the time to improve your answers for the next interview.

After a first round interview you may be called back for additional rounds of interviews depending on the employer's process. If a job offer is provided on the spot, which is uncommon,

it is appropriate to thank the employers and to tell them that you need more time to consider the opportunity. At that point, ask about the company's timeline and deadline for your answer.

Interviewing can be one of the most stressful parts of the job search process, but following these suggestions will allow you to feel confident in your preparation!

After Text Section

4. Decide whether these statements are true or false.

Correct the false ones.

- a. Don't do any research into the company you are applying for a job with.
- b. Wear your favorite clothes for the interview.
- c. Analyze your skills and experience and identify areas where they match the job requirements.
- d. Try to predict the questions which the interviewer might ask you. Plan how to answer them.
- e. Don't speak too quietly, too quickly or be too hesitant.
- f. Don't give clear, direct answers to questions.
- g. Little lies are a necessary help if you don't know something
- h. Your answers shouldn't be one word or one sentence, but also shouldn't be too long.
- i. You should give equal attention to all interviewers and maintain eye contact.
- j. If you don't answer a question well you mustn't phone up soon afterwards. It will look like an obsession on your part.

5. Fill in the gaps with the correct form of the verbs.

1. Well, before _____ for this position I did some research into the market and Futerra came out on top.
 - a) apply;
 - b) applied;
 - c) applying.
2. I had a look at your website and _____ see that you work with a variety of people.
 - a) can;
 - b) could;
 - c) might.

3. Well, it's really something that _____ me to Futerra.
a) attracted; b) attracting; c) attract.
4. The Junior Consultant post _____ these two areas at a company with a well-established reputation.
a) has combined; b) combine; c) combines.
5. You _____ across online as an exciting dynamic place to work.
a) coming; b). come; c) came.
6. It is clear from your website that Futerra _____ a quite a small company.
a) is; b) has been; c) is being.
7. I definitely feel from everything I _____ about Futerra, that this is the type of organization I'd like to work for.
a) learnt; b) learn; c) have learnt.

6. Look at the following questions. Write the type of the question (a-c) next to each question (1-13).

a. Questions that require you to talk about yourself, your ambitions, your personality;

b. Questions that require you to prove you have researched the job and company you have applied for work with

c. Questions that require you to demonstrate you have the skills and experience required for the job.

1. Can you tell us something about yourself? _____

2. How did you become interested in electrical engineering?

3. Why are you hoping to work for our company? _____

4. Why do you think you are the best candidate for the role?

5. What are your long-term career goals? _____

6. What skills do you think are most important for an electrical engineer? _____

7. What do you like best about electrical engineering?

8. Do you prefer to work on your own or part of a team?

9. What were some of your responsibilities in your last position? _____

10. Do you specialize in any particular area of electrical engineering? _____

11. What professional development opportunities would you like to pursue? _____

12. What course or courses did you find most useful during your university career? _____

13. Describe a situation in which you made a mistake while working on an electrical engineering project. What did you do?

7. Answer the questions in Exercise 6. Which questions are easiest to answer? Which are the most difficult? Try to think of some more questions for each category (a-c).

8. Put the following questions to the appropriate answers:

1. Describe your ideal boss.

2. What type of work environment do you prefer?

3. How Do You Handle Failure?

4. What skills are needed to become a competent Electrical Engineer?

5. Why do you want to work for us as an Electrical Engineer?

6. Tell me about yourself why you will make a good Electrical Engineer for our company?

a

“Thank you for inviting me to be interviewed for this position today. I would like to think I am a safety-focused, results-driven, and professional electrical engineer who can be relied upon to carry out my tasks competently within strict rules

and procedures in a fast and efficient manner. I say this because over years I have developed lots of transferrable skills, qualities and experience that make me highly effective as an electrical engineer. For example, in my previous role my supervisor would often ask me to work on challenging electrical projects that needed an analytical and data-driven approach. I understand there comes a huge amount of responsibility as an electrical engineer, and if you hire me within this position, I will work hard to repay the faith you will have shown in employing me.“

b

“As soon as I saw the position advertised, I knew this was where I wanted to work as an electrical engineer. There are three specific reasons why I want to work for your company. You have a strong reputation within the industry as a high-achieving organization, which means I will be able to work on various electrical tasks and projects utilizing my skills and experience in the process. You also have a reputation as a supportive employer who encourages your staff to continually train, improve, and maintain professional competence. Finally, I am looking for long term employment as an electrical engineer, and providing I perform to high standards in the role, which I can assure you I will do, I plan to stay here for a long period of time.”

c

“Whilst there are different skills needed to be an effective Electrical Engineer there are 8 that I rely in to perform consistently to high standards in my work. These include an ability to operate safely whilst following rules and procedures. This is the number 1 most important skill needed to be an Electrical Engineer. You also need excellent problem-solving skills, because essentially Electrical Engineers are problem-solvers. You need a high level of competence in technical circuits and electrical concepts, analytical and critical thinking skills, and also strong organizational capabilities to manage your workload and deliver tasks and projects on time”.

d

“I have always lived by the maxim that nobody is perfect, so I am relatively comfortable taking responsibility for my shortcomings. My approach is to figure out what I could change to avoid similar circumstances in the future”

 e

“I enjoy working in an environment where the members of the team have a strong sense of camaraderie and a good work ethic. I like working with competent, kind, funny people who like to get things done. It’s important to me to feel that I can trust my team members to always do their best because I do.

 f

“I value an employer who communicates clearly with his employees. I am a strong written and oral communicator and appreciate employers who value those skills. In the past, I have had some employers who have been less clear in conveying their ideas and directions than others. While I work very well independently and do not require excessive supervision”,

9. Tick the answers you think are right.

	Always	Sometimes	Never
1. Smile all the time.			
2. Ask the permission to smoke			
3. Chew gum if you are nervous.			
4. Wear a suit and tie (men) or a dress (women).			
5. Keep quiet if you don’t understand a question.			
6. Feel nervous.			
7. Ask a lot about money.			
8. Come on time.			

9. Refuse to answer a question you don't like.			
10. Come the last moment			
11. Ask about future holidays			
12. Think about questions before the interview.			
13. Ask questions.			
14. Dress neatly.			

10. Write out the main key words into your dictionary.

Lesson 11

DISCUSSING PROFESSIONAL INTERESTS AT MEETINGS

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. How often do you take part in conferences and meetings?
- b. Do you prefer informal conversations or formal group meetings?
- c. Do you use written notes to aid your spoken participation in the meetings?

2. Translate the following words and word combinations into your native language:

To wrap up, to vote, unanimous, show of hands, punctual, proxy vote, participant, opening remarks, overhead projector, objectives, mandatory, to implement, guest speaker, grievance, to designate, deadline, conference call, comment, commence, closing remarks, clarification/ verification, casting vote, chairperson/ chair, brainstorm, boardroom, board of directors, ballot, AOB (Any Other Business), to allocate, agenda, to adjourn, to accomplish, AGM (Annual (yearly) General Meeting).

3. Read the text and arrange the following headings according to its parts:

- a. Closing a Meeting
- b. Small Talk
- c. Calling a Meeting

- d.* Writing an Agenda
- e.* Welcome
- f.* Allocating Roles
- g.* Comments and Feedback
- h.* Regaining Focus
- i.* Voting
- j.* Objectives

1. _____

A successful meeting has no surprises. With proper preparation and careful organization, a meeting can run smoothly. The most typical complaint about meetings is that they run too long. Meetings that run longer than necessary can be very costly to a company or business. Setting goals and time limits, keeping to the agenda, and knowing how to refocus, are key components of an effective meeting.

There are a number of ways that you may call or be called to a meeting. Some meetings are announced by e-mail, and others are posted on bulletin boards. If a meeting is announced at the end of another meeting, it is important to issue a reminder. A reminder can also come in the form of an e-mail or notice. Verbal announcements or reminders should always be backed up by documented ones. The date, location, time, length, and purpose of the meeting should be included. It is also important to indicate exactly who is expected to attend, and who is not.

2. _____

In order to keep the meeting on task and within the set amount of time, it is important to have an agenda. The agenda should indicate the order of items and an estimated amount of time for each item. If more than one person is going to speak during the meeting, the agenda should indicate whose turn it is to “have the floor”. In some cases, it may be useful to forward the agenda to attendees before the meeting. People will be more likely to participate in a meeting, by asking questions or offering feedback, if they know what is going to be covered.

3. _____

The person in charge of calling and holding a meeting may decide to allocate certain roles to other staff members. Someone may be called upon to take the minutes, someone may be asked to do roll call, and someone may be asked to speak on a certain subject. This should be done either in person, or in an email.

4. _____

Whether you are holding the meeting or attending the meeting it is polite to make small talk while you wait for the meeting to start. You should discuss things unrelated to the meeting, such as weather, family, or weekend plans.

5. _____

Once everyone has arrived, the chairperson, or whoever is in charge of the meeting should formally welcome everyone to the meeting and thank the attendees for coming. If anyone at the meeting is new to the group, or if there is a guest speaker, this is the time when introductions should be made. The person in charge of the meeting can introduce the new person, or ask the person to introduce him or herself.

6. _____

Before beginning the first main item on the agenda, the speaker should provide a brief verbal outline the objectives. Anyone, including you, may be assigned to take the minutes at a meeting. Often someone who is not participating in the meeting will be called upon to be the minute-taker.

7. _____

It is easy to get off topic when you get a number of people in the same room. It is the chairperson's responsibility to keep the discussion focused.

8. _____

When issues cannot be resolved or decisions cannot be easily made, they are often put to a vote. Most votes occur during meetings. Votes can be *open*, where people raise their

hands in favour or in opposition of the issue. In an open vote, the results are evident immediately. Other votes, such as who should be elected to take on a certain role, are private or *closed*. During private votes, attendees fill out ballots and place them in a box to be counted. When a motion is voted and agreed upon it is carried. When it is voted and disagreed upon it is failed. Most often votes are put to a majority. If there is a tie vote, the chairperson will often cast the deciding vote. The results may not be counted until after the meeting.

9. _____

During the meeting, participants will comment, provide feedback, or ask questions. They can start with “Could I just say one thing?” or “If I could just come in here...”.

10. _____

There are different reasons why a meeting comes to an end. Time may run out, or all of the items in the agenda may be checked off. Some meetings will end earlier than expected and others will run late. There is almost always one last thing to say, even after the closing remarks. A chairperson might close the meeting and then make a last-minute reminder. Instructions for tidying up the room may also be mentioned. The end of the meeting is also the time to thank anyone who has not been thanked at the beginning of the meeting, or anyone who deserves a second thank you. Congratulations or Good-luck can also be offered here to someone who has experienced something new, such as receiving a promotion, getting married, or having a baby.

After Text Section

4. Decide whether the following sentences are true or false. Correct the false ones.

- a. The person who is in charge of the meeting is the person who takes the minutes.
- b. The best way to call a meeting is to inform each participant individually by phone.

- c. An agenda should outline the order and amount of time to spend on each item at the meeting.
- d. Engaging in small talk throughout the meeting is an effective way to keep the focus.
- e. When someone agrees with a motion it is “seconded”
- f. The person who is speaking during a meeting is the person who “has the floor”.
- g. A polite way to indicate that you want to make a comment during a meeting is to say: “If I could just come in here...”
- h. When there is a tie vote, it is customary for the chairperson to ask one participant to reconsider his/her decision.
- i. During the closing remarks, the person holding the meeting should introduce new staff members or guest speakers.
- j. Reminders are typically announced after all of the items on the agenda have been covered.

5. Fill in the gaps with the most appropriate words.

- 1. We ran out of time and were forced to _____ the meeting.
 - a. allocate
 - b. address
 - c. adjourns
- 2. If you have a _____ please wait until Marie has finished speaking.
 - a. commence
 - b. comment
 - c. formality
- 3. The board members couldn't come to a _____ so they had to hold a vote.
 - a. grievance
 - b. designate
 - c. consensus

4. Markus was away on business, so _____ was assigned.
- a. a show of hands
 - b. an apology
 - c. a proxy vote
5. Before we _____ I want to remind everyone to sign the attendance form on the way out.
- a. wrap up
 - b. strategize
 - c. recommend
6. In his _____ the chairman thanked everyone for doing such a good job.
- a. final agenda
 - b. last ballot
 - c. closing remarks
7. I'll _____ as soon as all of the board members take a seat.
- a. verify
 - b. commence
 - c. brainstorm
8. Since everyone was so _____ we were able to finish the meeting early.
- a. participant
 - b. punctual
 - c. confidential
9. We'll be discussing this year's profits at the _____ next month.
- a. AOB
 - b. AGM
 - c. GAM
10. At the meeting, the MD put forward _____ to eliminate all part-time positions.
- a. an action
 - b. a caution
 - c. a motion

6. Look through the text and write out the sentences in Passive Voice. Translate them into your native language.

7. Fill in the blanks with the correct passive form of the verb in brackets.

Meetings ¹ _____ (can, grade) by size into three broad categories: the assembly—100 or more people who ² _____ (expect) to do little more than listen to the main speaker or speakers; the council—40 or 50 people who are basically there to listen to the main speaker or speakers but who can come in with questions or comments and who ³ _____ (may, ask) to contribute something on their own account; and the committee—up to 10 (or at the most 12) people, all of whom more or less speak on an equal footing under the guidance and control of a chairman.

We ⁴ _____ (concern) in this article only with the “committee” meeting though it ⁵ _____ (may, describe) as a committee, a subcommittee, a study group, a project team, a working party, a board, or by any of dozens of other titles. It is by far the most common meeting all over the world and can perhaps ⁶ _____ (trace) back to the primitive hunting band through which our species evolved. Beyond doubt it constitutes the bulk of the 11 million meetings that—so it ⁷ _____ (calculate)—take place every day in the United States.

8. Match the words (1-8) with the words (a-h) to form word combinations used in the text. Use these word combinations in your own sentences.

1.	proper	a.	members
2.	bulletin	b.	remarks
3.	verbal	c.	preparation
4.	staff	d.	votes

5.	closing	e.	speaker
6.	tie	f.	boards
7.	guest	g.	ballots
8.	filled	h.	reminders

9. Distribute the expressions into the following categories:

- a. Welcome
- b. Roll Call/Apologies
- c. Watching the time
- d. Regaining Focus
- e. Voting
- f. Closing a meeting
- g. Reminders
- h. Thanks and Congratulations

Before I let you go let us all give a big thank you (*everyone claps*) to Thomas for baking these delicious cookies. Again, I want to thank you all for taking time out of your busy schedules to be here today. If I didn't already say this, please remember to introduce yourself to the new trainees. I guess that will be all for today. All in favour? (Those who agree raise their hands or say "Aye".) Let's stick to the task at hand, shall we? You can discuss this among yourselves at another time. I think we've spent enough time on this topic. It looks like everyone is here today. Hello, everyone. Thank you for coming today. Unfortunately, Ken cannot join us today. He has been called away on business. All opposed. Motion to hire more electrical engineers, moved by Thomas. I think we're steering off topic a bit with this. We're running short on time, so let's move on. If you notice anyone missing, please let Jane know so that she can make a note of it. I really appreciate you all for attending today. Well, look at that...we've finished ahead of schedule for once. If no one has anything else to add, then I think we'll wrap this up.

10. Look through the agenda below and make up the opening speech to the meeting.

Managers' Meeting

To reduce costs in IT department

Date: 3rd March 2022

Place: 3rd floor

Participants: Beatrice Martin (IT manager); Natalie Wilmore (human resources manager); Anthony Southall (CFO)

Agenda

1. IT department running costs (Beatrice Martin)
2. Proposals for reducing costs (Anthony Southall)
3. Staff cuts (Natalie Wilmore)

Lesson 12

PROFESSIONAL COMMUNICATION VIA THE INTERNET

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

- a. How many hours do you spend on communicating with your colleagues on professional issues?
- b. Do you feel the Internet has revolutionized the way you interact with your colleagues?
- c. What online communication tools do you know?
- d. What is your favourite mode of communication via the Internet and how it has helped you?
- e. What are the advantages and disadvantages of communicating online with your colleagues?

2. Translate the following words and word combinations into your native language:

Business environment, to spread across locations, to boost worker productivity, to save time, tracking projects, posting updates, managing a mobile workforce, to clearly track the progress of projects, to run behind schedule, to assign different tasks, important dates and deadlines, to collaborate on changes, **on**-time project completion rates, instant messaging, a third-party server, a streamlined system, unified communications solutions, a staggering growth rate of, internal and external networking, a self-contained social network, to redirect traffic, to empower stakeholders.

3. Find synonyms for the following words. Check with a dictionary.

Collaboration, crucial, communication, to boost, productivity, employees, consultants, assignment, to track, to share, to allow, executives, schedule, deadlines, intrusive, to be encrypted, third-party, business stakeholders.

4. Read the text and arrange the following headings according to its parts:

- a. Social Networks at Work
- b. Project Management and Collaboration Tools
- c. Web Conferencing and Collaboration
- d. VoIP and Unified Communications
- e. Business-class Instant Messaging

1. _____

In today's business environment – where employees, contractors, consultants and partners are spread across locations – it's crucial to have online communications and collaboration tools. They boost worker productivity and save time that's usually spent in tons of meetings. The following five Web tools and services are changing the way we work. There are several popular subscription Web services for tracking projects, posting updates, assigning tasks, sharing files and managing a mobile workforce. Some of the best-known are Basecamp, @Task, WorkZone and ProjectSpaces. Here are some of the most common features of these online project management and collaboration tools:

- No requirements for special software, just a Web browser and Internet connection
- Allow employees, managers and executives to clearly track the progress of projects, seeing which ones are completed, on track or running behind schedule

- Allow managers to easily assign different tasks to different team members and for team members to report back on their progress
- Everyone has access to a group calendar with important dates and deadlines
- Team members receive e-mail or RSS (Really Simple Syndication) alerts when changes or comments are made on their project
- Users can easily share documents of any file type and collaborate on changes
- Managers and executives can print reports on employee productivity, on-time project completion rates, etc.
- Freelance and contract employees can track how many hours they've worked on a given project
- Several of these programs allow you to update project status from a mobile device like a Web-enabled PDA or cell phone
- Some programs can plug into other popular business management Web services like Oracle, SAP, PeopleSoft and Salesforce.com

2. _____

Workplace instant messaging can be a powerful collaboration tool. Faster than e-mail, less intrusive than a phone call, it's a great way to ask quick questions, share files and set up instant voice, Web or videoconferences. Programs like AIM Pro and KonoLive take instant messaging beyond simple chat. They allow document sharing, desktop sharing, conferencing and secure, encrypted messaging, array.

3. _____

Companies specialize in Web conferencing, audio conferencing and videoconferencing solutions with built-in collaboration tools. Conferences are hosted on a third-party

server and can be set up easily and instantly through a Web interface.

4. _____

By integrating all types of communication – voice, e-mail, IM, fax and video – over an Internet Protocol (IP) network, it's possible to manage all of your communications from a single Web workspace. Smaller businesses can use a streamlined system like the one from Skype. Larger, more complex organizations could employ VoIP and unified communications solutions from companies like Cisco or Avaya.

Today VoIP phone systems are booming. The VoIP market is expected to witness a staggering growth rate of 13% between 2019-2025, clearly indicating its popularity.

An array of internet telephony applications come bundled with Web browsers, whereas the others are standalone products. Another internet-based communication tool is Voice over Internet Protocol (VoIP). It sends voice packets using IP as opposed to PSTN (Public Switched Telephone Network). As soon as the voice packets reach its destination, it again gets converted into voice data for the receiver.

5. _____

Businesses are quickly realizing the potential of online social networks for collaboration, communication, and internal and external networking. A company can create a page or group on a popular social networking site like Facebook or build a self-contained social network with a service like Ning. Social media is a powerful tool that empowers people to communicate with business stakeholders, family, and friends in any part of the world. Facebook, Twitter, Linked In, and Instagram are some leading social media sites that are interactive and engaging for global audiences.

Undoubtedly, social media is one of the popular modes of Internet communication. Here are the major benefits that business can accrue by using social media for communication:

- Faster and easier communication with target customers – it provides responsive service for their queries and problems.
- Businesses can enhance organic visibility in multiple channels.
- A great way to redirect traffic on your landing page and website to create brand awareness.
- A tool for holistic customer engagement, social media platforms help businesses interact with customers. It provides real-time feedback to retain customer loyalty and increase customer lifetime value.
- Social media portals help in advertising, promotions, and market research.

The WWW (World Wide Web) has made distances shorter and thus the world a smaller place. It has opened doors to many opportunities. With Internet communication, you can easily talk to or email your clients or video chat with anyone across the globe with the click of a button.

While the Internet has tons of advantages, it does not come without certain pitfalls. It is important to be extremely careful while sharing sensitive information online as many hackers can misuse your data. So, leverage the power of the Internet to enhance the quality and scale up your communication!

After Text Section

5. Arrange the following questions according to the text. Answer them.

- a. How companies can realize the potential of social networks?
- b. What does instant messaging mean?
- c. How do on-line communications tools help us in our professional life?
- d. What are web services like Workzone and ProjectSpaces used for?

- e. What are the main functions of such web services?
- f. What other on-line tools for professional communication do you know?
- g. What popular web tools are most often used in the workplace?
- h. What social networks are leading for professional communication?
- i. What advantages of social networks can you name?
- j. What is VoIP technology and how does it work?

6. Find the collocation from exercise 4, what type they are.

7. Match the words (1-7) with the words (a-i) to make widespread collocations.

1.	instant	a.	sense
2.	crucial	b.	presence
3.	social	c.	rules
4.	video	d.	interaction
5.	communication	e.	text
6.	literally	f.	communication
7.	physical	g.	skills
8.	typed	h.	messages
9.	orthographic	i.	aspect

8. Use collocations from exercise 7 to complete these sentences.

Characteristic of internet communication

Consuming resources responding to change and generating offspring, the internet may not be alive in ¹_____, but it displays characteristics that are certainly vibrant.

Internet communication, especially chats, ²_____ or emails, presents several characteristics that minimize exposure to other or being judged by others.

The partners to the communication are invisible to one another, except for much less frequent use of ³ _____ though webcam. Partners of interactions may remain totally anonymous and present themselves under a nickname.

Another ⁴ _____ of internet communication is the lack of ⁵ _____ and in particular of face to face. ⁶ _____ are not considered as being important and commas are only used if they are necessary to make oneself understood.

In chat room, one can just observe communications, with no fear of being seen by others or of being asked to participate in the interaction.

Internet allows a better control of the ⁷ _____ itself. Individuals not only can choose with whom and when to communicate but also have time to compose the message and they feel less pressure. When the person writes they tend to express things that might not be expressed at all in other modes of communication. Internet communication requires simpler ⁸ _____ than real-life face to face interaction. Most internet communication is based on ⁹ _____, images, animation, and sound. Messages can be easily saved, retrieved, copied, forwarded, encrypted and backed up.

9. Read the following netiquette rules and discuss them with your partner. Which rules do you find more suitable for professional communication on the Internet? Complete the list of rules with your own.

- Remember the human on the other side of the electronic communication.
- Adhere to the same standards of behavior online that you follow in real life.
- Know where you are in cyberspace.
- Respect other people's time and bandwidth.
- Make yourself look good online.

- Share expert knowledge.
- Keep flame wars under control.
- Respect other people's privacy.
- Do not abuse your power.
- Be forgiving of other people's mistakes.
- Treat others as you would like to be treated.

10. Write out the main key words into your dictionary.

Lesson 13

DEALING WITH TELEPHONE CALLS

Pre-Text Section

1. Tuning-in: Before reading the text, discuss the following questions:

1. Would you prefer to have an interview face to face or on the telephone?
2. Why is it increasingly popular for initial interviews to be held over the phone?
3. What are the advantages of telephone interviews for the candidate?
4. When is the best time to arrange a telephone interview?
5. Why should you smile during a telephone interview?
6. What is the candidate's main aim in most telephone interviews?

2. Fill in the table with the correct expressions

Making contact	Taking a call	Asking for a name or information	Asking the caller to wait	Connecting	Giving negative information	Telephone problems	Leaving or taking a message
		Where are you calling from?					
	Can I help you?				I'm afraid the line's engaged. Could you call back later?		

I'm sorry, there's nobody here by that name; This is John Brown speaking; Where are you calling from?; Sorry, I think you've dialed the wrong number; I'm sorry, he's out of the office today;. I'm trying to contact to...; Could you hold on please?; Just a moment please; I'm afraid you've got the wrong number; I'd like to speak to ...; The line's free now, I'll put you through. X speaking; Thank you for holding; Hello / Good morning / Good afternoon; The line is very bad. Could you speak up please?; Sorry, I didn't catch that. Could you say that again please?; I'll connect you now / I'm connecting you now; Who's speaking?; Could you make sure he/she gets my message please?; I'm afraid she's in a meeting at the moment; Where can he/she reach you?; When can he contact you?; He/she isn't in at the moment; Hold the line please; Could you spell that please? Could you ask him/her to call me back?; Are you sure you have the right number / name?; I'm afraid I can't hear you; I'm afraid we don't have a Mr./Mrs./Ms/Miss. ... here; Can I leave / take a message?; Could you repeat that please?

3. Read the text and arrange the following headings according to its parts:

- a. Let the Interviewer Guide the Conversation
- b. Connect with the Interviewer
- c. Thank the Interviewer
- d. Addressing the Interviewer
- e. Practice Your Greeting
- f. Tone of Voice
- g. Prepare Your Greeting
- h. Answer the Phone Professionally

Phone interviews are common these days and can be very convenient. But just because you don't have to get formally dressed and show up in person to an interview doesn't mean you shouldn't prepare. A phone interview should be treated

much like an in-person interview. That means you only have a few seconds to make an initial impression over the phone. When an employer calls you for a telephone interview, the way you greet him plays the same role as shaking his hand in a face-to-face interview. How you answer a phone interview is the first impression you make, and it sets the tone for the rest of the call. Even if you're taking the call from your dining room table, answer with the same level of professionalism you would if you were at your desk answering a call from a customer.

If you're wondering how to answer the phone for a phone interview, here are some tips.

1 You want to be right near your phone at the time of your phone interview conversation so that you don't miss the call. If you are using a cell phone, make sure it's charged and that you get good reception where you are. When the phone rings, pick it up in a timely manner. You don't need to jump to answer on the first ring, but don't let it almost go to voicemail. When you answer, state your name clearly and pleasantly to let the interviewer know that she's reached the correct person.

Examples:

Hi, this is John Jones.

Hi, this is Rebecca Andrews. Is this Mr. Roy?

2 If you fumble with your words when you answer the phone, the interviewer may think you have poor communication or social skills. Prepare your greeting and practice it before the call. Keep a script by the phone to help you focus and remember how to answer a phone interview.

Examples:

Hi, Mr. Jones. Thank you for calling. I'm so glad we are able to do this interview over the phone.

Hi, Kim. I was expecting your call. Thanks for taking the time to talk with me today.

If you're taking the call at home, let others in the house know you're expecting a business call and need privacy and quiet. Keep children and pets out of the room and choose a quiet space for the call. If the call was not pre-arranged and you can't talk or need to gather your thoughts, ask the interviewer when you can call him back.

_____3_____ In a face-to-face interview, the interviewer uses visual cues such as body language and eye contact to assess your character and personality. In a phone interview, he has only the tone of your voice to rely on. Your voice communicates as much about you as these visual cues, so it's important to be mindful of what you convey through your speech when you answer the phone for an interview. Strive for a friendly, professional tone and smile when you speak to convey enthusiasm. Always be polite.

Examples:

Yes, this is still a great time to talk! What questions can I answer for you?

I can't quite hear you. Let me step outside and see if I get better reception. Do you mind holding on just a moment?

_____4_____ How to answer the phone for a phone interview should be professional, but you can always inject some of your own personality into it. If you're not sure what you are going to say, practice your greeting with a friend. Have her call you so you can answer the phone as if she is the interviewer. That way you'll be more comfortable with how to answer a phone interview.

_____5_____ Address the interviewer by her title and last name unless she has instructed you to call her by her first name only. This may happen during the course of the conversation or may not happen at all. Follow the interviewer's cues.

Example:

This is still a great time to chat, Mrs. Swanson. Thank you for asking.

6 When figuring out how to start a phone interview, decide how you want to thank the interviewer. It's a good idea to thank the interviewer both at the start of the telephonic interview conversation and at the end. Your appreciation sets a positive tone for the rest of the conversation and helps end the call on a positive note.

Examples:

Thank you so much for taking the time to talk with me today. I'm looking forward to hearing more about the position.

I really appreciate you interviewing me for this position. It sounds great.

7 Part of making a good impression is being able to connect with the interviewer. Your phone interview conversation should include a question directed toward the interviewer that shows you are interested in him. Interviewers often ask at the outset if there are any questions you have before they get started. Now is the time to mention something you noticed in your research of the interviewer and the company. It can be hard to tell over the phone if you are connecting with the interviewer, but there is usually an ease to the conversation if you are.

Examples:

I noticed on the website that you have worked at the company for about five years. Do you mind me asking how you got started with the company?

I see you're calling from a 310-phone number. What part of Los Angeles are you in? I used to live there.

8 When it comes to the actual interview portion of your phone interview conversation, let the interviewer lead. She will have specific questions she wants to ask at the start of the call and may have a predetermined order for what questions to ask. Try your best to not interrupt when she's asking questions and answer the questions in the order they are asked.

If you start your phone interview conversation on the right foot, it can give you the confidence boost you need to continue with a great interview.

After Text Section

4. Decide whether the following sentences are true or false. Correct the false ones.

a. Initiating a first interview over the phone is a very rare practice these days.

b. Telephone interviews have benefits for the applicants because of the obvious financial saving, and applicants may feel more relaxed within their own environment

c. It is not essential that you organize a time for a telephone interview that is convenient for you.

d. You should suggest a time when you are unlikely to be disturbed, and you are confident that you have prepared sufficiently to convince the interviewer you are the right person for the job,

e. During the interview you should • avoid smiling, as this will not help you to relax and project a silly image to the interviewer and will not alter the tone of your voice.

f. Do not use the person's title (Mr. or Ms. and their last name). Only use a first name.

g. Do not ask the interviewer any additional questions

h. Keep in mind your goal is to befriend the interviewer

5. Look through the text and write out conditional sentences. What type are they? Translate them into your native language.

6. For sentences (1-10) choose the correct answer (A, B, or C).

1. Would you know what to do if you _____ a heart attack?

2. If it hadn't been for you, I _____ here now.
3. As long as she _____ me, I'll be there for her.
4. I wouldn't be living here if I _____ the choice
5. If there hadn't been a fire extinguisher, the house _____ down.
6. You _____ become a member unless you receive an invitation.
7. _____ happier if you had never met her?
8. If I _____ her, now I would be happier.
9. _____ the exam even if I have to cheat.
10. They might have spent the whole week at the campsite, provided they _____ enough food and water.

	A	B	C
1	were having	would have	would be having
2	wouldn't be	wouldn't have been	hadn't been
3	needs	needed	will need
4	had	were having	would have
5	had burned	would have burned	would burn
6	wouldn't be able to	hadn't been able to	cannot
7	would you have been	had you been	will you ne
8	have never met	did never met	would never meet
9	pass	I'm going to pass	would pass
10	had brought	would bring	would have brought

7. Decide whether the following phrases (a-h) express repetition (R), clarification (C) or more information (I).

- a. I'm sorry, could you say that again? _____
- b. I didn't quite catch what you said. _____
- c. I'm having trouble hearing you. Can you hear me clearly? _____

- d. Could you explain what you mean by? _____
- e. So, if I understand you correctly. _____
- f. Do you mean ...? _____
- g. Could you elaborate a little on ...? _____
- h. Could you tell me what that would involve? _____

8. Complete the following dialogs from telephone interviews using the phrases in Exercise 7.

a.

Candidate: _____ what you mean by piece rates?

Interviewer: Piecework is a form of performance-related pay, where you would be paid a fixed piece rate for each unit you produce.

b.

Candidate: I'm sorry, _____, as I didn't quite catch what you said?

Interviewer: Yes, of course. My name is Mr. Johnson and I'm calling to discuss your application for an internship here at Ariel Publishers.

c.

Candidate: _____ that when the company is busy, I would be required to work overtime?

Interviewer: Yes. Of course overtime rates are higher than normal pay.

d.

Candidate: I'm having trouble hearing you. _____?

Interviewer: Yes, I can hear you perfectly this end, although if you can't hear me well, perhaps I'll try and call you back on a landline.

e.

Candidate: Your advertisement mentions administrative work _____ what that would involve?

Interviewer: Well, basically it means keeping our records up-to-date and sending a weekly email to our clients.

f.

Candidate: So, _____, what you're saying is the job may involve some overtime?

Interviewer: Yes, but you would be paid extra for this.

9. Choose the best response for each one

1. When did you start your current _____
(= job)?

- a. position
- b. place
- c. work

2. I left my last job because I felt that they didn't recognize my _____

- a. accomplishments
- b. accommodations
- c. acclimation

3. I've always been a team _____. (= I've always worked well with other people)

- a. play
- b. worker
- c. player

4. I believe I'm a good _____ for this position.

- a. fitness
- b. fit
- c. man

5. Tell me a little about your _____ job
(= your last job).

- a. past
- b. finished
- c. previous

6. I developed good communication skills _____
as a customer service representative.
- a. while working
 - b. when working
 - c. by working
7. What does “rep” stand for?
- a. representative
 - b. republican
 - c. reprimand
8. You shouldn’t discuss salary until the interviewer _____ (= starts talking about it).
- a. brings up
 - b. brings it on
 - c. brings it up
9. An interviewer might ask you what your “salary _____” are. This is the formal way of asking how much money you require.
- a. needs
 - b. requirements
 - c. desires
10. Many companies want to hire someone who can _____ well.
- a. take pressure/stress
 - b. handle pressure/stress
 - c. get pressure/stress
11. I had a good working relationship with my _____ (= boss).
- a. supervisor
 - b. superior
 - c. superintendent
12. During an interview, you might be asked to describe how you _____ (= resolved) a difficult situation.
- a. dealt

b. dealt with

c. went through

13. We need someone who can work under minimum

a. supervision

b. supervisor

c. superior

14. Instead of using the word “difficult” to describe something, you should use a more positive word like:

a. really hard

b. challenging

c. awful

15. Is there an _____ of which you are particularly proud?

a. action

b. atonement

c. achievement

10. Write out the main key words into your dictionary.

GLOSSARY

AC Current: AC stands for alternating current. At regular intervals, this is an electric current that changes direction many times a second.

Ammeter: It is possible to measure the flow of electrical current. When a circuit gets tested, connect an ammeter in series.

Ampacity: There is a maximum amount of electric current that a device can carry.

Ampere-Hour (Ah): Ah, is the battery capacity measured in a unit. To get it, multiple the current (in amperes) by the time (in hours) when the current flows. For example, a battery that provides 5 amperes for 20 hours is 100 ampere-hours.

Ampere (A): A unit of measure gets used to determine the intensity of the electric current. The current flow is one coulomb per second, and ampere is equal to that.

Apparent Power: They get measured in volt-amperes (VA). Apparent power is equal to the RMS current and RMS voltage.

Armature: The part of a motor that moves. It's made up of conductors that move through a magnetic field to provide power or force. Generator regulators with pivoted points are referred to as armatures.

Capacitance: An electrical charge stored by a body. The electric charge is measured in farads by the electric charge ratio to the voltage across the object.

Capacitor: An electric charge is stored in a device consisting of at least one pair of conductors. Capacitors are used for controlling voltage spikes.

Circuit: A closed path is where electrons travel from a source to another. Circuits consist of series, parallel, or any combination of the two.

Circuit Breaker: An automatic device that can stop the flow of current. After fixing the cause of the failure or overload, the circuit breaker needs to be reset. Circuits are protected from faults with the help of circuit breakers and relays.

Conductor: Any material that has an electric current flowing through it. Conductive materials do not have high resistance. The most frequently used conductors are copper and aluminum wire.

Corona: A corona discharge is a discharge of electricity due to the air surrounding a conductor that is charged with electricity. Unless care is taken to limit the strength of the electric field, corona discharges can happen.

Current (I): There is an electric charge going through the conductor. The electric current is compared to the water flow in the pipe and measured in amperes.

Cycle: The alternating electrical wave goes from zero to a positive peak, to a negative peak, and then back to zero. See Frequency.

Demand: Over a certain period, the average value of power and related quantity can get calculated.

Dielectric constant: A quantity is used to measure the amount of electrical energy that can be stored.

Dielectric strength: Without experiencing failure of its insulation, a pure material can have a maximum electric field that is not broken down.

Diode: The flow of current can only be allowed in one direction by the device. Current can flow when there are a positive anode and a negative cathode.

Direct Current: Also known as DC, it means direct current. There is only one direction in which the DC current flows.

Electrolyte: It is possible to make a substance capable of conducting an electrical current with its dissociation into ions. A storage battery has an electrolyte, which is the solution of sulfuric acid and water.

Electromotive Force (EMF): A difference of potential can cause an electric current. It is measured in volts.

Electron: There is a particle that rotates around an atom. It has a deficiency of electricity.

Electron theory: The theory explains the exchange of free electrons between the atoms of a conductor. It's one theory used to explain the direction of the current flow.

Farad: A unit of measuring capacitance. A farad is the same as a coulomb per volt.

Feeder: They are all the circuit conductors between the service equipment and a separate system or power supply source.

Feeder Pillar: A power box, also known as a distribution pillar, is a cabinet used to store electrical equipment. The feeder pillar is a central circuit that distributes electricity from the upstream circuits to the downstream circuits.

Ferroresonance (nonlinear resonance): A kind of resonance in electric circuits can occur when a circuit is fed from a source with a series of capacitance. The circuit is disrupted by opening a switch. It can cause problems in the electrical power system and pose a risk to the equipment and personnel that use it.

Frequency: The amount of cycles in a second. It is measured in Hertz. If there is one cycle per second and 60 cycles per second, the frequencies are 1 and 60, respectively.

Fuse: A circuit interrupt device is a strip of wire that can melt and break an electric circuit if the current gets too great. After fixing the cause of failure, it is necessary to replace the fuse with a similar one with the same size and rating.

Generator: A tool that changes mechanical energy into electrical energy.

Ground or Earth: A common return path for electric current. A reference point for an electrical circuit to test voltage.

Ground Fault: A connection between a conductor of an electrical circuit and conductors usually not current-carrying is called an ungrounded conductor.

Grounded Conductor: This an intentional grounded system or circuit conductor.

Grounded (Grounding): There is a connection to the ground or to a body that extends it.

Henry: A unit used for inductance.

Hertz: A unit of measure. The previous term of cycle per second has been replaced.

Impedance: When a voltage is applied, a measure of opposition is presented to the current. Resistance to AC circuits has only magnitude, but impedance has both magnitude and phase, which is different.

Inductance: Measured in henry (H).

Inductor: An iron core with a coil of wire surrounding it. The inductance is related to how many turns the coil has.

Insulator: Electric current isn't flowing freely in any material. Glass, rubber, air, and plastic are some of the materials that have high resistance. Used to protect life and equipment from electric shocks.

Inverter: Direct current is turned into alternating current through an apparatus.

Kilowatt-hour (kWh): Power in kilowatts and time in hours is what this output is Equal to 1000 Watt-hours. A 100W light bulb will use $100\text{W} \times 1 \text{ kilowatt} / 1000 \text{ Watts} \times 4 \text{ hours}$ to produce the same amount of energy. kWh is the unit of electricity sold.

Kilowatt-hour Meter: This is a device that measures electrical energy use.

Kilowatt (kW): Equal to 1000 watts.

Knockout Set: A knockout set or also a punch set. An electrician likes to use a knockout punch to make new holes in electrical boxes or panels. You can choose from various sizes of knockouts in a knockout punch set. You can operate manual knockout punches with a wrench.

Load: Light, transformer, heaters, and electric motor are some of the electrical energy consuming things.

Load Rejection: When there is a sudden loss of load in the system, the generating equipment is over-Frequency. A load rejection test shows that the system can respond to a sudden loss of load by using its governor. Load banks are used for these tests to make sure electrical power systems are up and running.

Mutual Induction: It happens when you change the current in one coil to another.

Neutral Conductor: A system that is supposed to carry current under normal conditions has a conductor connected to a neutral point.

Ohm (Ω): This is a unit of measure. When a potential difference of one volt is applied to a circuit's resistance, one ohm is equivalent.

Ohm's Law: An equation explaining the relationship between current, voltage, and resistance.

Ohmmeter: The instrument is used to measure the resistance of the circuit.

Open Circuit: The flow of current through a circuit can be interrupted by a broken wire or switch known as an open circuit. It is similar to a closed valve for water.

Overload: When equipment is above a full-load rating or a conductor above an ampacity persists for a long period of time.

It can cause damage or overheating. A fault is not an overload if it is a short circuit or a ground fault.

Parallel Circuit: You can find multiple paths for electricity to flow in a circuit. The load connected in a separate path will receive the full circuit voltage, and the total circuit current will be the same as individual branch currents.

Piezoelectricity: When mechanical stress is applied to a substance, it can cause electric polarization.

Polarity: A common phrase applied to the positive and negative poles of a magnet or electrical mechanisms such as a battery or coil.

Power: The electric circuit can transfer electrical energy at a certain rate. It is measured in Watts.

Power Factor: The ratio of the electrical power to the product is known as the dissipated power ratio. Reactance causes the difference of value in the circuit.

Protective Relay: A relay device is supposed to trip the circuit breaker if there is a fault.

Reactive Power: Electric and magnetic fields of AC equipment are established and maintained by a portion of electricity. An AC circuit does not have a current or a voltage in phase-measured in VARS.

Rectifier: An electrical device that converts alternating currents into direct ones by allowing the current to only travel in one direction. You can find half-wave and full-wave rectifiers.

Relay: A coil switch has a small current that can be used to control a big current.

Reluctance: The magnetic field determines the resistance of a magnetic circuit.

Resistance: There is an opposition to an electric current. When flowing through a pipe, you can compare electrical resistance to water's friction-measured in ohms.

Resistor: A wire or carbon device that has a resistance to the flow of current.

Rotor: A rotating part of an electrical machine can be a generator or motor.

Self Induction: When there is a change in the current, it's called voltage.

Semiconductor: A solid substance with conductivity between an insulator and most metals. It could be caused by temperature effects or the addition of impurity. Devices made of semiconductors, notably silicon, are essential components of most electronic circuits.

Series Circuit: A circuit that has one path for electricity to travel through. The current in the circuit has to go through all of the loads to get to the source.

Series Parallel Circuit: A parallel series circuit is an electric current that has groups of parallel-connected receptive devices in it.

Short Circuit: A fault in an electric circuit can get caused by inadequate insulation, which can cause the current to follow a by-path.

Solid-State Circuit: Semiconductor devices such as transistors and diodes are used in electronic circuits.

Transistor: The device has three connections and can be used for amplification and rectification.

True Power: Measured in Watts. You can see the power in things like acoustic waves or mechanical phenomena. The voltages and currents are in phase in a direct current circuit or in an AC circuit with pure resistance.

VARs: There is a unit of measure. The power flowing into a reactive load may be considered the imaginary part of apparent power or the imaginary power.

Variable Resistor: This is a resistor that you can adjust.

Volt-Ampere (VA): A unit measures the apparent power. The RMS current and RMS voltage are what makes it up.

Volt (V): A unit is a measure. One volt is the same as the difference of potential that drives one ampere of current.

Voltage: The pressure that causes the electrons to flow can be compared to the water pressure that causes the water to flow, measured in volts.

Voltmeter: An instrument used to measure the force of the current. There is a difference of potential between the points of the circuit. A high internal resistance connects the points where the voltage is to be measured.

Watt-hour (Wh): A unit of electrical energy is the same as a single watt of power.

Watt (W): This is a unit of power. One watt is equal to one joule per second and is the same as the power in an electric circuit with a potential difference of one volt and the current ampere.

Wattmeter: The wattmeter is an instrument that you can use to measure the electric power in a circuit.

Waveform: A graphical representation of electrical cycles shows how much variation there is over a period of time.

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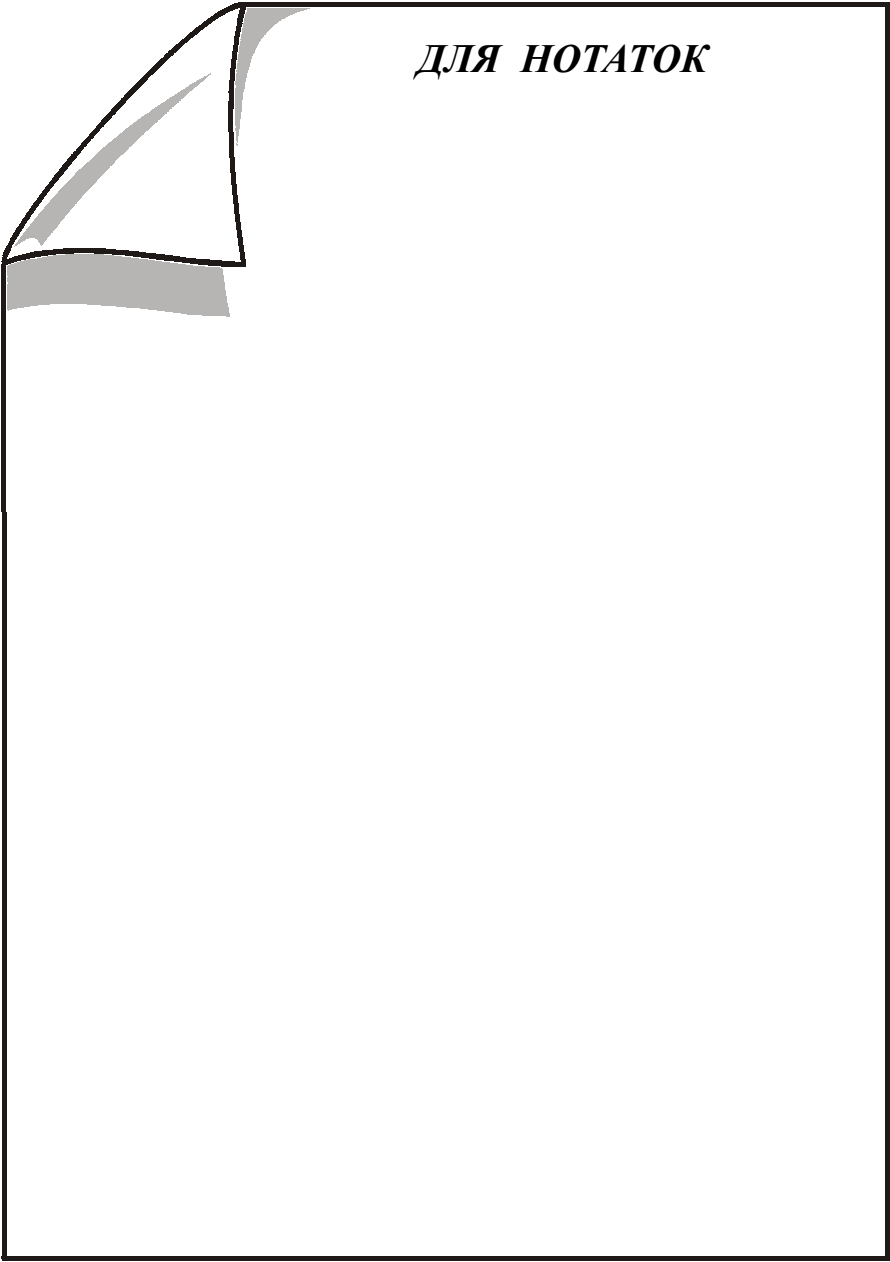
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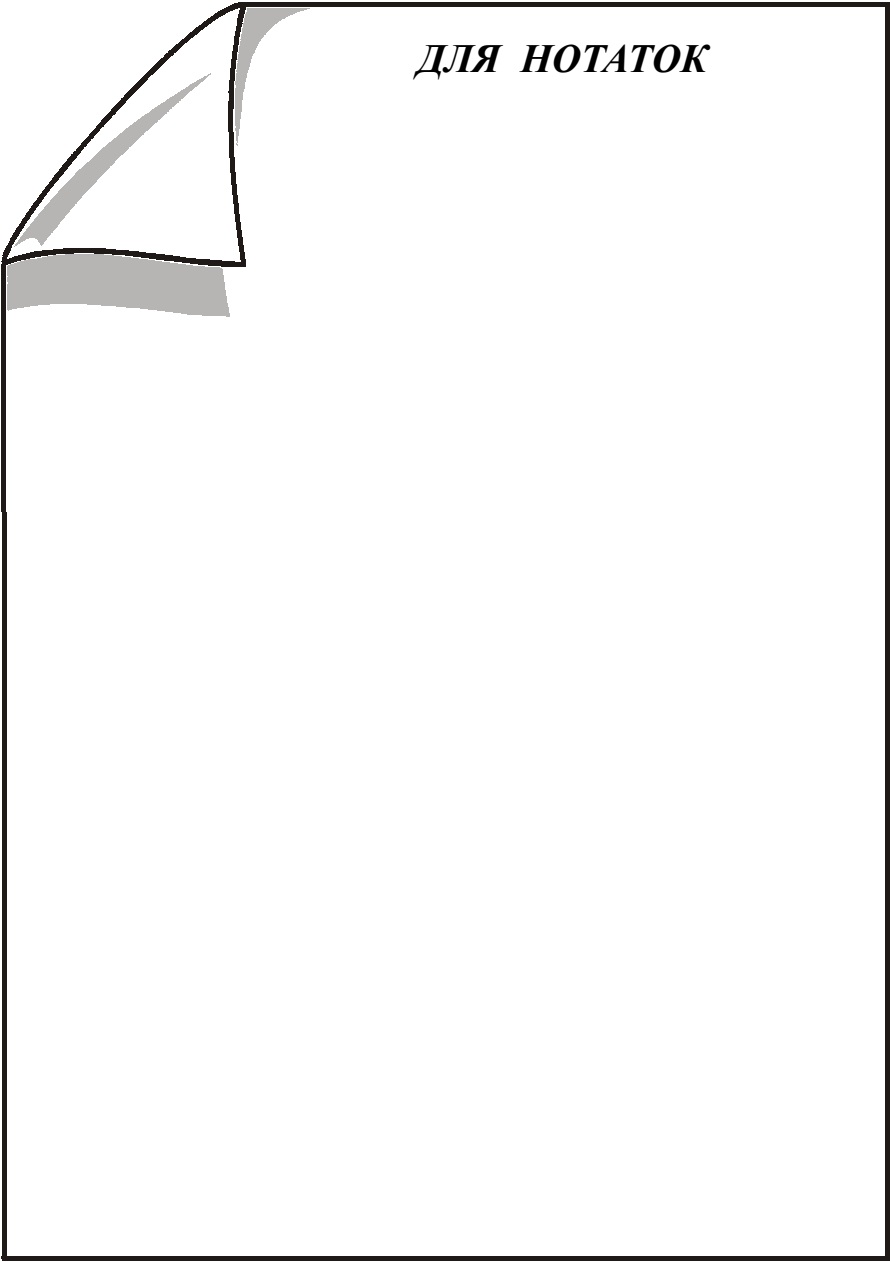
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ДЛЯ ЗАДАТОК



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Навчальне видання

ДАВИДЕНКО Олена Борисівна
ЗАДОРЖНА Тетяна Павлівна

**ENGLISH FOR CAREER DEVELOPMENT
IN ELECTRICAL ENGINEERING**

Навчальний посібник

(англійською мовою)

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