# MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE STATE HIGHER EDUCATIONAL INSTITUTION "NATIONAL MINING UNIVERSITY"

# MECHANICAL ENGINEERING FACULTY The Department of Machinery Design Bases

The methodical instructions for the implementation of laboratory work on the discipline

"The Information and Communication Technology for the Presentation of Scientific Researches"

for master degrees' students, studying on the basis of Bachelor major 050301 "Mining"

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Methodical instructions for the implementation of laboratory research on discipline "The Information and Communication Technology for the Presentation of Scientific Research" will help students produced skills to present scientific documentation in the form of multimedia presentations with usage of modern information technology.

Responsible for the issue the Department of machinery design bases head, Ph.D., Associate Professor – Ziborov Kirill Albertovich.

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#### INTRODUCTION

The spread of web-site design and multimedia information products created the need for qualified specialists of the interdisciplinary profile who has basic knowledge in the field of design, the visual communication, and in computer technology and analytical information processing, who is capable of active work and the adaptation to the changing conditions to develop new knowledge and technologies. Practice shows that the experts, who creates information resources in science or any other field, except deep knowledge in a particular area, needs a high level of information technology and software for the solution of professional scientific tasks.

Training focused primarily on the identity formation of Designer, training of combinatorial thinking skills and the ability to generate creative ideas. The purpose is achieved through the development and stimulation of figurative-graphical minds.

Learning "Information and Communication Technology For the Presentation of Scientific Research" leads students to develop multimedia information systems of any kind of complexity and functionality. Such systems are multi- information and graphically rich projects, they can semantically and stylistically integrate disparate elements (text, graphics, video, animation, sound, etc.). However, they are targeted to a specific audience and meet the fundamental principle of design planning – feasibility optimally combines functional, ergonomic and cultural norms.

The term presentation (from the Latin praesento) has two meanings – broad and narrow. In a broad sense – a statement, a report, or a long-term protection of the finished project overview to discuss the detailed design, the implementation and results and so on. In a narrow sense is a special kind of the electronic documents, which distinguish the complex multimedia content and display management capabilities (automatic or interactive).

The leaders of the software by means of which we can create electronic presentations are:

- 1. Microsoft PowerPoint:
- 2. OpenOffice.org Draw (OpenOffice) the simplified free analogue of Microsoft PowerPoint;
- 3. ACTIVstudio the program to create presentations, and e-books for interactive boards;
- 4. Mimio Studio (Virtual Ink) the program to create presentations for the simplified analogues of interactive boards;
  - 5. Adobe Acrobat Pro, PDF Printers PDF file creation program.
- 6. Adobe Flash (before Macromedia Flash), or simple Flash Adobe's multimedia platform for the creation of WEB-applications or multimedia presentations. It is widely used to create banners, animations, games, and playing on the WEB-page video and audio. The default file extension for compiled flash-files (animations, games and interactive applications) are SWF.

There are many software products of any complexity that specialize in creating presentations, but most distributed is listed below.

The first four programs in the above list, create presentation files with their own extensions of file types, but they allow to convert the types of files to Microsoft PowerPoint and vice versa, that is actually the ability to create presentations in any

application, and then make changes and work with the presentation in the environment of the another application. But you should remember that the Microsoft PowerPoint program of the latest version is certainly one of the most advanced in terms of using of the different technologies. Therefore the presentations created in Microsoft PowerPoint program of the latest versions are usually unable to convert the presentation to be used in environments of other presentation programs. But it's not a big deal, because the presentation created in an environment of any other program, you can display on your screen, the big screen with the projection through multimedia projectors, on any interactive whiteboard or their equivalents.

As a preparatory step before inserting into the presentation graphics objects course "Information and Communication Technology For the Presentation of Scientific Research" includes the processing of graphics using various graphics applications packages. It uses the specialized software as the vector and the raster graphics.

In this edition, the methods of obtaining graphics and other objects of the software: MathCad, AutoCad, Kompas, Corel Draw, Photoshop; and Microsoft PowerPoint as a medium for creating electronic presentations are considered.

#### BASIC CONCEPTS, TERMS AND DEFINITIONS

User interface (of a computer program) refers to the information (such as graphic, text and sound) the program presents to the user, and the control sequences (such as keystrokes with the computer keyboard, movements of the computer mouse, and selections with the touchscreen) the user employs to control the program.

The **command** is a directive to a computer program acting as an interpreter of some kind, in order to perform a specific task. Most commonly a command is a directive to some kind of command line interface, such as a shell.

The **palette** is either a given, finite set of colors for the management of digital images (that is, a **color palette**), or a small on-screen graphical element for choosing from a limited set of choices, not necessarily colors (such as a **tools palette**).

The **toolbar** is a graphical user interface widget on which on-screen buttons, icons, menus, or other input or output elements are placed.

The **ribbon** is a set of **toolbars** placed on several **tabs**. Microsoft and Autodesk software released since 2007 have popularized a form of modular ribbon as their main interface, where large tabbed toolbars, filled with graphical buttons and other controls, are grouped by functionality. Such ribbons use tabs to expose different sets of controls, eliminating the need for many parallel toolbars. **Contextual tabs** are tabs that appear only when the user needs them. For instance, in a word processor, an image-related tab may appear when the user selects an image in a document, allowing the user to interact with that image.

**Resolution independence** is where elements on a computer screen are rendered at sizes independent from the pixel grid, resulting in a graphical user interface that is displayed at a consistent size, regardless of the size of the screen.

The **display resolution** of a computer monitor or display device is the number of distinct pixels in each dimension that can be displayed. It is usually quoted as width  $\times$  height, with the units in pixels.

**Dots per inch** (DPI) is a measure of spatial printing or video dot density, in particular the number of individual dots that can be placed in a line within the span of 1 inch (2.54 cm).

Pixels per centimeter (ppcm), **Pixels per inch** (PPI) or **pixel density** is a measurement of the resolution of devices in various contexts: typically computer displays, image scanners, and digital camera image sensors.

A **color model** is an abstract mathematical model describing the way colors can be represented as tuples of numbers, typically as three or four values or color components. When this model is associated with a precise description of how the components are to be interpreted (viewing conditions, etc.), the resulting set of colors is called color space. This section describes ways in which human color vision can be modeled.

The text **cursor** or caret navigation, is an underscore, a solid rectangle, or a vertical line, which may be flashing or steady, indicating where text will be placed when entered (the insertion point).

**Rasterisation** (or **rasterization**) is the task of taking an image described in a vector graphics format (shapes) and converting it into a raster image (pixels or dots) for output on a video display or printer, or for storage in a bitmap file format.

Current property – the property of option used in the system at the moment.

The **default** refers to a setting or a value automatically assigned to a software application, computer program or device, outside of user intervention. Such settings are also called **presets**, especially for electronic devices.

The **slide** is a individual pages of a presentation. Collectively, a group of slides may be known as a slide deck, hi slider or slide show. Slides may contain text, graphics, sound, movies, and other objects, which may be arranged freely.

**Active Slide** – in the center window is located **Current Slide** of presentation which work is underway.

A PowerPoint **template** is a design based on the Slide Master(s). The Slide Master controls the overall look, color, placement of text and other design elements that are common throughout the presentation.

Each presentation that you create regularly opens with a single **slide master**. When you want more than one slide design (**theme**: special combinations of color, fonts, and effects) in one presentation, just add more slide masters, and then apply a theme to each one.

Slide **layouts** define how content appears on the slides that you add to your presentation. The placeholders on slide layouts inherit formatting, and sometimes size and position, from the slide master. When you add a new slide to a presentation in normal view, you can choose from a variety of slide layouts.

The **placeholders** Boxes with dotted or hatch-marked borders that are part of most slide layouts. These boxes hold title and body text or objects such as charts, tables, and pictures. You would replace the placeholder text with your actual content.

# RECOMMENDATIONS FOR USING OF THE PRESENTATION DESIGN ELEMENTS

### Identifying the Number of Slides You Need

To calculate the number of slides that you need, make an outline of the material that you plan to cover, and then divide the material into individual slides. You probably want at least:

- a main title slide;
- an introductory slide that lists the major points or areas in your presentation;
- one slide for each point or area that is listed on the introductory slide;
- a summary slide that repeats the list of major points or areas in your presentation.

By using this basic structure, if you have three major points or areas to present, you can plan to have a minimum of six slides: a title slide, an introductory slide, one slide for each of the three major points or areas, and a summary slide.

If there is a large amount of material to present in any of your main points or areas, you may want to create a subgrouping of slides for that material by using the same basic outline structure.

#### Designing a presentation

Design of presentations provides the most direct impact on motivation, speed of perception of material fatigue and a number of other important indicators. Therefore, the interface design should be developed on an intuitive level. Required scientifically based, balanced and thoughtful systematic approach. It is believed that the visual material is not just some information in the form of sensory representations and information model specific experience, which must meet the requirements of aesthetics, ergonomics and design.

One of the main components of the presentation design is a record physiological characteristics perception of colors and shapes. The most important things are listed below.

- 1. Design templates contain color schemes, slides with custom formatting, and styled fonts, all designed to create a particular look. After you apply a design template, each slide you add has the same custom look. PowerPoint comes with a wide variety of design templates. In addition, you can create your own design templates. If you create a special look for one of your presentations, you can save it as a design template.
- 2. Avoid the situation where important information is conveyed only in the form of color. Being friendly to colorblind people does not necessarily mean that one should not use colors. Even for colorblind individuals, colors are very useful cues to distinguish different objects easily and quickly. By carefully selecting colors that are easily recognizable to people with all kinds of color vision, one can maximize the effect of her/his presentations.
- 3. Avoid the situation where texts and objects are obscured with the background. For example, there should be enough contrasts in brightness and saturation between texts/objects and backgrounds. Avoid the combination of colors that have the same

brightness but different only in hue. For example, red characters on green backgrounds is unreadable for colorblind individuals. Use either bright texts/objects over dark backgrounds, or vice versa.

- 4. Make texts and objects as thick or big as possible. When the size of color-coded objects is small, only a few cone cells can be used for recognition. Colorblind people find it especially difficult to distinguish the colors of thin lines and small symbols. For color-coded text, use bold fonts such as Arial or Helvetica, rather than thin Times.
- 5. Use the 7 and 7 rule for legibility: 7 words per line, 7 lines per slide with a 25 word-per-slide maximum. To do this, be sure you use text to highlight, not to narrate.
- 6. Keep text to the essential. Also, highly detailed charts or graphics will not be readable from a distance. Keep them simple. This may mean anywhere from 3 to 6 bullet points and a single, simple graphic that illustrates the slide title. If you can't fit all your points on a slide without moving to a smaller font, break the points up onto separate slides. Bring points onto the slide one at a time with no special effects and "gray out" points after finishing with them. This approach gives better control and pace.

Accountings to these design features greatly affect the efficiency of perception presented in the presentation of information.

#### TIPS FOR USING SLIDES

- 1. Overcome PowerPoint's weak defaults. Begin designing your slides with the alternative template provided by the website Microsoft or other. Don't underestimate the importance of this template in trying to overcome the weak defaults of PowerPoint.
- 2. Many presenters want to know how many slides they should have. You should aim to have no more than one slide for every 1-2 minutes of presentation time (20 minute talk, approx. 10 slides recommended). If your number of slides exceeds this, you risk not providing your audience with enough time to absorb the information from your slides.
- 3. Discuss your slides. It is important that you directly discuss and incorporate your slides into you talk. Don't assume that your audience will just figure it out for themselves. Many presenters will click through slides without directly mentioning and discussing their content. You are essentially the tour guide about your topic during the presentation the slides are an important stop on that tour!
- 4. Practice with the equipment. Make sure you know how your slide advancer works. It is distracting to the audience if you are fumbling with the equipment and it will only serve to make you more nervous. Just arriving a bit early to the room that you are presenting in and familiarizing yourself with the environment and equipment can eliminate many of these issues.
- 5. Practice with your slides. It is damaging to your credibility as a presenter if you are clicking back and forth "searching" for the slide that you want to discuss. You should know precisely where and when each slide is coming in the presentation. A good tip is to put a Post-It note on your computer that lists the numbers of your

important slides. This way, if you do need to jump to a slide, you can just type that number into your computer, hit "Enter," and the screen will jump right to that slide. This is much more professional that clicking back through 12 slides during a session because an audience member had a question about a slide that appeared early in the talk

- 6. Manage the environment. Be sure to take control of the lighting so that your slides can be seen to their best advantage. Many times the lights on top of the screen are left on and the resulting glare makes slides look washed out and difficult to see.
  - 7. Use the laser pointer sparingly.
- 8. Slides aren't always necessary. Perhaps the most important thing to know when using slides in a presentation is when to turn them off. There is no rule that says that it is a good idea to be show slides during the entire talk. Slides are not always the best medium for your information and you should get into the habit of asking yourself, "Is a slide necessary?". Additionally, your slides should not be visible unless they are relevant to what you are currently discussing in your talk. When you finish with the point discussed in a slide, choose to blank the screen so that the audience focuses entirely on you. Blanking the screen can be one of your most powerful tools because it refocuses the attention of the audience onto you.
- 9. Slides aren't the only option for visual aids. Don't be afraid to think outside the box and consider other types of visual aids such as demonstrations and videos.

### Stages of presentation

- 1. Planning kind of presentation, possibly with the use of prototypes.
- 2. Editing and design slides.
- 3. Task effects to a presentation.
- 4. Printout and review before the demonstration.

# PRACTICAL RECOMMENDATIONS FOR THE DESIGN OF THE PRESENTATION IN MICROSOFT POWERPOINT

# Overview of the main structural elements of the presentation

The main **title slide** should consist of:

- The topic name;
- The information on educational institutions;
- The information about the author and the supervisor;
- The date of development.

An introductory slide should consist of:

Contents or lists the major points or areas in your presentation.

**Base slides** should consist of:

- The section title;
- The text and design elements.

Summary slide should consist of:

- The results of the work;
- The conclusions;
- The list of references if necessary.

# Practical advice for designing presentation

- 1. Increase font size 4 points larger than you're comfortable with. This way, the folks in the back row will see it. Try not to make any fonts smaller than 24 points in your presentation.
  - 2. The text should read as well.
  - 3. You must use the maximum screen space (slide space).
- 4. If possible, use upper <sup>3</sup>/<sub>4</sub> square of screen (slide) so that the last row bottom part of the screen is usually not visible.
  - 5. Avoid making your slides too "busy" with lots of colors. Simple is often best.

#### THE UNIVERSAL IMAGE FILE FORMATS

Every time a graphic file is saved on the computer, the program saves the artwork with a specific file format. Some formats are high resolution, some are low; some are specific to the native application (like .doc files are MS Word), while others can be used by different computers and different applications.

Just as different software programs are good at performing different tasks, different file formats are good for different purposes. You wouldn't use MS Word to construct a large table of financial data; you'd use MS Excel. The same principle goes for file formats, some are suited for lower-resolution web graphics and email, and others are high-resolution graphics for printing

Almost all image editors in addition to its own file format support's so-called universal formats. Universal formats can organize transfer image files between different graphic editors. Text editors with feature insert graphics, Internet browsers and specialized graphics file viewer, usually supported by many universal formats. Table 1 shows examples of the most well-known universal formats. Table 2 describes the principle of usage image formats.

Table 1 – Most common universal image formats

Universal bitmap formats	Universal vector formats
BMP (*.bmp) – Bit MaP image	EPS (*.eps) Encapsulated PostScript
GIF (*.gif) Graphics Interchange File	Windows Metafile (*.wmf, *.emf)
TIFF (*.tiff, *.tif) Tag Image File Format	DXF (*.dxf) Drawing Exchange Format
JPEG (*.jpeg,*.jpg) Join Photographic Experts Group	SVG (*.svg) Scalable Vector Graphics
PNG (*.png) Portable Network Graphic	HP-GL (*.hpgl, *.hpg) Hewlett- Packard Graphic Language

**BMP** (Bit Map image) – handles graphics files within the Microsoft Windows OS. Typically, BMP files are uncompressed, hence they are large; the advantage is their simplicity and wide acceptance in Windows programs.

**GIF** (Graphics Interchange Format) – is limited to an 8-bit palette, or 256 colors. This makes this format suitable for storing graphics with relatively few colors such as simple diagrams, shapes, logos and cartoon style images. The GIF format supports animation and is still widely used to provide image animation effects. It also uses a lossless compression that is more effective when large areas have a single color, and ineffective for detailed images or dithered images.

TIFF (Tag Image File Format) – format is a flexible format that normally saves 8 bits or 16 bits per color (red, green, blue) for 24-bit and 48-bit totals, respectively, usually using either the TIFF or TIF filename extension. TIFF's flexibility can be both an advantage and disadvantage, since a reader that reads every type of TIFF file does not exist. Can be lossy and lossless; some offer relatively good lossless compression for bi-level (black&white) images. Some digital cameras can save in TIFF format, using the LZW compression algorithm for lossless storage. TIFF image format is not widely supported by web browsers. TIFF remains widely accepted as a photograph file standard in the printing business. OCR (Optical Character Recognition) software packages commonly generate some (often monochromatic) form of TIFF image for scanned text pages.

**JPEG** or **JPG** (Joint Photographic Expert Group) – best for scanned photographs, images using textures, images with gradient color transitions or any images that require more than 256 colors. Used on the Web and in digital photography. Some image data is discarded when it is compressed, reducing the quality of the final file. Not support the transparency.

**PNG** (Portable Network Graphic) – file format was created as the free, open-source successor to GIF. The PNG file format supports 8 bit paletted images (with optional transparency for all palette colors) and 24 bit truecolor (16 million colors) or 48 bit truecolor with and without alpha channel - while GIF supports only 256 colors and a single transparent color. PNG is designed to work well in online viewing applications like web browsers so it is fully streamable with a progressive display option. Support transparency.

**EPS** (Encapsulated Postscript) — is a PostScript document with additional restrictions which is intended to be usable as a vector graphics file format. In other words, EPS files are more-or-less self-contained, reasonably predictable PostScript documents that describe an image or drawing and can be placed within another PostScript document.

**WMF** (Windows Metafile) – is an image file format originally designed for Microsoft Windows. Windows Metafiles are intended to be portable between applications and may contain both vector graphics and bitmap components. It acts in a similar manner to SVG files.

**DXF** (Drawing exchange Format) – is a CAD data file format developed by Autodesk for enabling data interoperability between AutoCAD and other programs.

**SVG** (Scalable Vector Graphics) – is an XML-based vector image format for two-dimensional graphics that has support for interactivity and animation. The SVG specification is an open standard developed by the World Wide Web Consortium (W3C).

**HPGL** – is a printer control language created by Hewlett-Packard (HP). HP-GL was the primary printer control language used by HP plotters. It later became a standard for almost all plotters.

Table 2 – The use of image file formats

For Internet					
photo or image with flowing tones	JPEG				
images with straight lines,					
low colors images,	GIF				
with smooth pouring (without gradient)	PNG				
complex image with a transparent background	PNG-24				
animation	SWF				
icons	ICO				
For printing and storage					
print	TIFF				
storage	PSD				
for logo	EPS (CDR, AI)				
logo for MS Office	WMF				
In photography					
for storage and photo printing, but not low quality	JPEG				
for printing and best quality original	RAW				

**PSD** – the Adobe Photoshop file format, support layers with masks, transparency, text, alpha channels and spot colors, clipping paths, and duotone settings. Because of Photoshop's popularity, PSD files are widely used and supported to some extent by most competing software.

**CDR** (CorelDraw files) – file format is a proprietary file format developed by Corel Corporation and primarily used for vector graphic drawings.

**AI** (Adobe Illustrator) – is a proprietary file format developed by Adobe Systems for representing single-page vector-based drawings in either the EPS or PDF formats.

# 

**Objectives**: to look through the methods and the software by means of it is possible to prepare for importing the footage before the introduction of the electronic presentation document. To learn how to create and use universal graphic formats.

Implementation of modern scientific experts of any industry is impossible without the use of computational methods based on the proven specialized software. Each specialized software works only with it own specific document format, so open files without install of this software is impossible. Because the purchasing of licensed software is not always possible for all members of the scientific process, presentation of the work to the public is difficult.

To avoid difficulties in demonstrating to the masses of the results of research can prepare a report on the done work in the form of electronic or multimedia presentation. Undoubted advantage is that with proper design, format and compile electronic document presentation, it can be demonstrated by any computer equipment without first installing of special software. Electronic presentation may publish on the Web-resources, it simplifying access to materials unlimited number of users.

Before implementation results of scientific work from different software products, they should be properly designed and converted in a universal file format.

### Preparation of materials with development environment interface

With the introduction of electronic presentation materials from different software may be required to show it development environment interface. In this case, need to place application window to full screen capabilities, format the information so that it is fit on one screen. Then press the «PrnScr» (Print Screen) key on keyboard, as result the clipboard of the operating system has obtain raster image (screenshot) with contents of desktop. Next, open the image editor (Paint, Photoshop) and paste images from the clipboard. Process the image if necessary and convert it into the universal raster format JPG, the opening of this graphical format does not cause difficulties in any operating system. Obtained graphic document will be available for implementation in electronic presentation and is preferred.

Some applications using different methods of displaying graphics that does not allow get the image of the process described above. In this case, you must install the software that specializes in screen recording tasks. For example, a means to capture images or individual frames in 3D applications, live video could serve the following software: Camtasia Studio, Fraps, ABBYY Screenshot Reader etc.

# Preparation of materials without development environment interface

Getting of materials without development environment interface can be possible by using universal image file format. Almost each of software products allows you to save information not only in their specific document format, but also in several different universal formats.

Computer-aided design system Autodesk AutoCAD allows you to save the results of it with the command of "Export" from tab "File".

Preferably a universal storage format of vector data is EPS. By opening a document in a graphics editor Adobe Photoshop, you can specify the required resolution, color scheme and the size of the image which guarantees the quality of bitmap images (Fig. 1). For presentations, the value of 72 dpi is sufficient because it corresponds to monitor screen resolution.

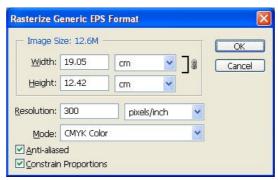


Fig. 1 – The window of opening the document in EPS format

It is also possible to save the document in the BMP format, but there is no way to select the image quality as the aforementioned EPS format.

A system for engineering and mathematical calculations Mathcad allows you to save results in a universal WEB standard HTML. The material such a way saved will not be able to work in a development environment, but is immediately ready for publication in the global network. HTML format can also be opened with a text editor Word which supplied all versions of Microsoft Office, where the material can be edited and then implement the electronic presentation.

Computer-aided design ASCON KOMPAS allows you to save results into a universal raster format JPG, and in time of saving offers a wide set of setting options of image quality (Fig. 2). It is possible to select the width of lines, resolution, scales and color of images.

Параметры документа	
Размер, мм	210.0 x 297.0
Настройка	
Цвет	
установленный для объект	a 💌
Все линии тонкие	
Масштаб 1.	000
Параметры растра	
Цветность	24 разряда
цотпосто	гт разряда
Разрешение, точек на дюйм	72
Оттенки серого	
Размер изображения	598 x 844 точек

Fig. 2 – Window of saving on JPG file format

The vector graphic design systems such as Corel Draw and Adobe Illustrator allow you to open many universal vector and raster formats. Any two-dimensional vector image can be processed in these software and then rasterize with the set-resolution and saved in one of the universal vector or raster formats.

Since the most common of universal formats is raster, it is recommended to prepare graphic documents prior to their implementation exactly in it. The most common and used editor of graphic Adobe Photoshop allows you to easily handle with any bitmap formats. To create the effects and correct deficiencies graphic images its usage is the most promising. To obtain skills for working with raster formats recommended that 4 laboratory work [1].

#### **Questions for self-control**

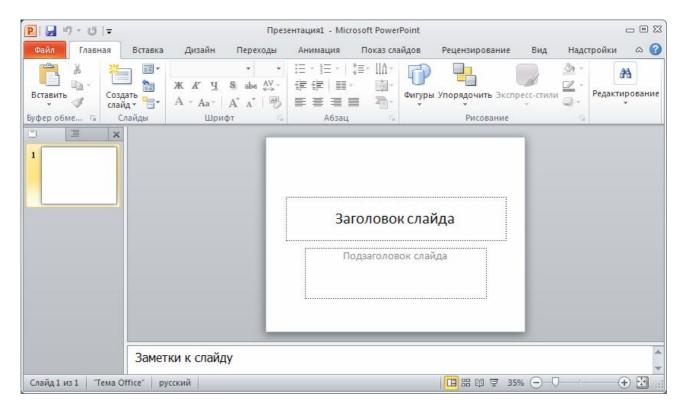
- 1. What kind of the universal bitmap formats of the documents do you know?
- 2. What kind of the universal vector formats of the documents do you know?
- 3. Why do we need the universal format of graphic documents?

# Laboratory work № 2 Microsoft Power Point. Preparing layout of the electronic presentations.

**Objectives:** to look through Microsoft PowerPoint software environment and to learn the interface, the skills palettes, the commands and the instruments.

#### The interface of Microsoft PowerPoint

Workspace Microsoft PowerPoint property is set to the default (Fig. 3).



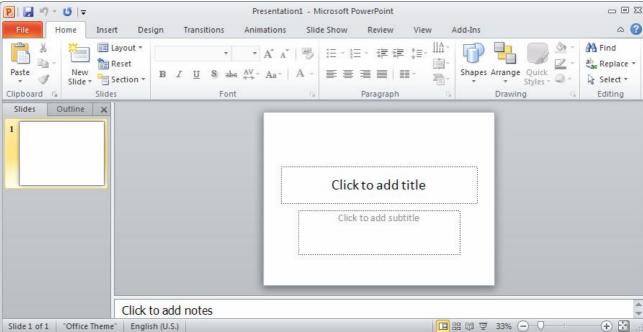


Fig. 3 – The interface of Microsoft PowerPoint

In the window of PowerPoint available following elements:

- Quick Access Toolbar (also known as the QAT) is a small toolbar (next to the Office Button in Office 2007), pressing by very you can customize to add more icons that launch options which you use more often. Also, the QAT can be moved to under the Ribbon if required.
- **Ribbon** this element has all the commands that PowerPoint users need, the commands are organized as buttons within the various tabs of the Ribbon. Double click a tab to minimize the Ribbon.

**Tabs** – the Ribbon has several tabs that become active depending upon what you have selected. You can also select any tab of the Ribbon yourself. These tabs in turn are divided into groups. Click on the small down arrow ■ that appears on the lower right-hand side of some groups (i.e. Home tab Clipboard, Font, Paragraph, or Styles groups) to open the corresponding dialog box.

- Slide pane placed on the left of the interface, this pane contains two tabs: the Slides tab and the Outline tab. The Slides tab shows thumbnails of all the slides in the open presentation. The Outline tab shows the same slides in outline view.
- **Notes pane** is used to insert speaker notes for the current slide, the content is not visible on the slide area.
- **Status bar** is a horizontal strip at the bottom of the interface that provides information about the open presentation like slide numbers, theme name, etc.

#### **Ribbon** consists of several tabs:

The **«File» tab** (**«Office»** button for MS Office 2007 – gives you to access to the PowerPoint options which control the features of the PowerPoint application itself. The options are organized into categories that include Popular, Proofing, Typography, Advanced and Customize. For example, you can change PowerPoint's default blue layout color to silver or black. The PowerPoint options are something to try when you become comfortable using the program. You will not need them to create your presentation.

The **«Home» tab** (Fig. 4) contains your most often-used commands including cut, copy and paste. You'll also see **groups** for Font, Paragraph, Styles, and Editing.

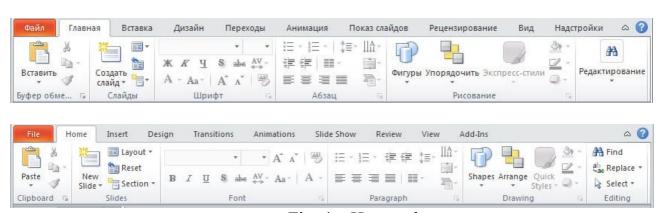


Fig. 4 – Home tab

The **«Insert» tab** (Fig. 5) is where you go to add in objects to a slide as well as edit any objects you add. Objects include tables, images, clip art, shapes, WordArt, video clips, and audio clips. You can even import items from other programs.

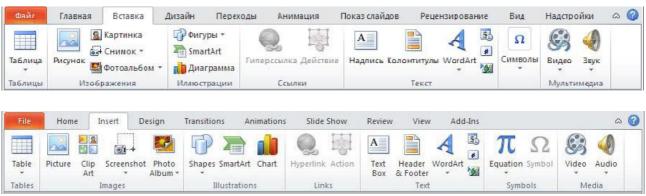


Fig. 5 – Insert tab

The **(Design)** tab (Fig. 6) is where you go to control how your entire presentation will look: it's theme, colors, fonts, style and even add in theme effects.

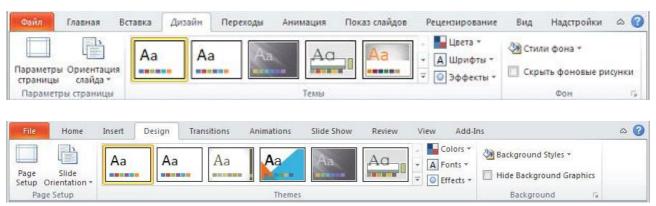


Fig. 6 – Design tab

The **Animations tab** is where you go to add animation to any object as well as add transition effects to the slides.

The **Slide Show tab** is where you go when you want to test how your presentation will run. From this tab you can alter the timing of the slides, record narration, specify what slides get used in a show, and pick what mode it will run in.

The **Review tab** is where you go when your presentation is about finished, but you may want to do some final checks like spelling or use the thesaurus to replace some words. You can also add in comments to slides to provide some additional documentation.

The **View tab** is where you go when you want to switch between PowerPoint's views: Normal, Slide Sorter and Slide Show. From the View tab you can also change the formatting of a slide's master layout, re-arrange your slides, or use tools such as zoom and gridlines to help get your slide content exactly how you want it. If you have several presentations open, you use the View tab to organize and move about the different Windows.

Some features have too many options to be handled in a drop-down list or dialog box. When one of these features is activated, a **Contextual tab** or **Program tab** will open up as well.

Contextual tabs are activated when working with objects such as tables, text boxes or pictures. When you click on an object, the Format tab appears to the right of the View tab. Above this is an another tab showing what tools you can access for the type of object you are working with. It will say Picture Tools if the object is a picture, Drawing Tools if it's a text box, and so on. Click on either Format or the tab above it to reveal its tools. Like other tabs, the Contextual ones contain Groups and Command buttons. Simply click outside of an object to hide the Contextual tools. The Home tab will appear.

# Creating a new presentation

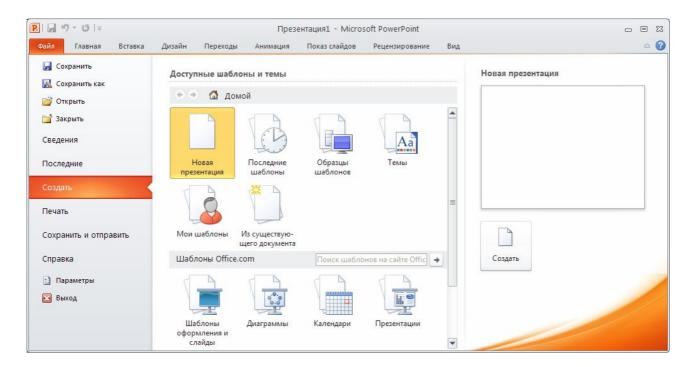
Click the **File** tab ( Office button for Office 2007) and select **New**. Available templates and Themes on your computer and the Office.com site display (Fig. 7).

Double-click the default, **Blank** presentation icon to open a new presentation based on this template. A blank presentation opens in a new window.

In PowerPoint a Slide Layout named Title Slide always appears first. PowerPoint "thinks" that you want to start your presentation with a title. So, logically, the Title Slide appears in the main section of the screen (Fig. 3).

A new blank presentation displays a "title" slide containing preformatted title and subtitle text boxes.

On the slide title field course introducing of presentation title, and in the subheading field – information about author and other data. Layout title slide like any other, if necessary, can be changed by calling the context menu on a particular slide in the Slide tab and selecting Layout. Possible for the same purpose, use command **Layout** list from group **Slides** of **Home** tab.



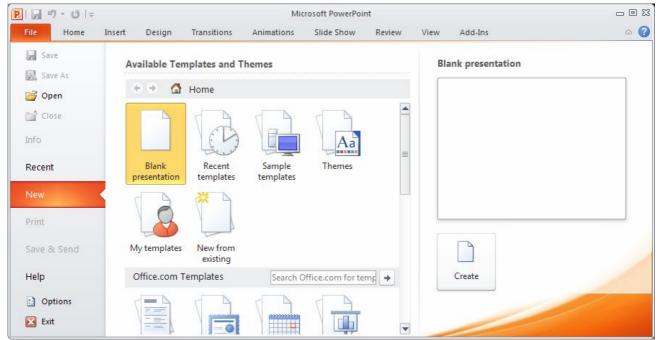


Fig. 7 – Creating new file

#### **Hotkeys**

For comfortable work with the system be possible to use the function keys as follows:

- ◆ F1 open the Help window.
- ◆ Ctrl+F1 show or hide the ribbon.
- ◆ Ctrl+F4 close the active window.
- ♦ Alt+F4 close the application.
- ◆ F5 start a presentation from the beginning.
- $\bullet$  S stop or restart an automatic presentation.
- ♦ Esc end presentation.
- ◆ F6 move to the next task pane from another pane in the program window (clockwise direction). You may need to press F6 more than once.
- ◆ Shift+F6 move to a pane from another pane in the program window (counterclockwise direction).
- ◆ Ctrl+F6 when more than one PowerPoint window is open, switch to the next PowerPoint window.
- ◆ F7 spelling check.
- ◆ Shift+F9 show or hide the grid.
- ♦ Alt+F9 show or hide guides.
- ◆ Ctrl+A select all slides/text/objects.
- ◆ Ctrl+C copy selected object or text.
- ♦ Ctrl+N create new file.
- ◆ Ctrl+O open file.
- ◆ Ctrl+V paste cut or copied object or text.
- ♦ Ctrl+P print.

- ♦ Ctrl+S save the file.
- ◆ Ctrl+X cut selected object or text.
- ◆ Ctrl+W close the active window.
- ♦ Ctrl+Z undo the last action.

**Task:** create a new document of PowerPoint, add slides, add and format text, draw up text using animation.

#### An algorithm of laboratory work

- 1. There are many ways to start PowerPoint. Your computers might be set up differently. Activate the Windows main menu then press All Programs Microsoft Office PowerPoint.
- 2. Assign a name for your presentation, and then while working from time to time save it.

Click the **File** tab ( for Office 2007) – **Save As.** The **Save As** dialog box appears. In the **File name** field text box, type *My Presentation*, in **Save as Type** field choose *PowerPoint Presentation*.

The presentation is saved with the file name 'My Presentation'. In the **Save** in box, select the path to the location where you want to save your presentation. You can save it to a folder on your hard disk drive, a network location, disk, the desktop, or another storage location. Then press **Save** button.

- 3. Make a title slide.
- 3.1. The title slide should include: name of the topic, information on educational institutions, information about the author, and date of creation.

Slide that automatically appears in the presentation contains two placeholders, one of which is formatted header, and the second – for the subtitle.

When you click on the placeholder, an insertion point ( | ), appears, allowing you to enter the text into the placeholder. Please enter into header placeholder text «ПРЕСТИЖНІ МІЖНАРОДНІ РЕЙТИНГИ», and into subtitle placeholder enter text "Державний вищий навчальний заклад «Національний гірничий університет»", and apply the information about the author and date of creation (Fig.8).



Fig. 8 – Example of Title slide

The text in your presentations contains the message that you want your audience to receive. The message is very important and therefore the correct formatting of the text is also extremely important. The size, font and color are vital to the readability of your message. Using the **Font** group of **Home** tab make set up the presentation text. Decoration of text – at the discretion of the student.

#### 3.2. Select a new slide layout.

Select the **Home** tab of **ribbon**. Make sure that you are in Normal view, display the slide you want to change. Press the **Layout** button arrow. PowerPoint display list of the Slide Layout gallery (Fig. 9). Click to select the slide layout you want.

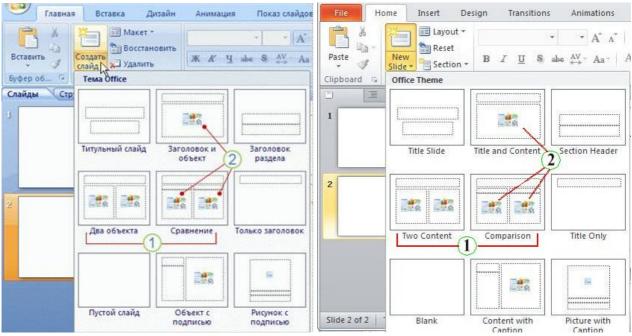


Fig. 9 – Slide Layout gallery

For making new slide press the **Blank**.

A new slide appears and the tab **Slides**, where it stands out as the current and in the slide area.

If you want to use the same model as for the previous slide, simply click the **New Slide** button, instead of clicking the arrow next to it.

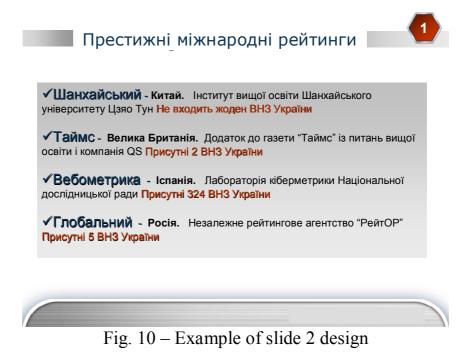
3.3. Fill the slide.

Add text to the title slide field: «Престижні міжнародні рейтинги».

In placeholder "Text" slide add a list of «Таймс, Шанхайський, Вебометрика, Глобальний».

Some placeholders automatically format your text in a bulleted list. This is because bulleted lists are so frequently used in PowerPoint. To make the bullets, select text for formatting and press **Bullets** command in the **Paragraph** group on the **Home** tab.

Enter a text description of each of listed below ratings (Fig. 10). Please make your own slide design.



4. Change the appearance of text using animation.

There are many ways to change the appearance of text on a slide, the main buttons tab "Home" designated for formatting characteristics of the font style, size, color, paragraph and more options, such as animation and converting in SmartArt pictures.

Custom animation effects can be applied to any object, text field, images etc. (for example "Shapes").

Select the object you wish to animate and then click the **More** button in the **Animation** group of the **Animation** tab or press **Add Animation** button in the **Advanced Animation** group of the **Animation** tab (Fig.11).

Animations are grouped into four categories. Entrance effects, Exit effects, Emphasis effects, and Motion Paths. You can get a Live Preview of how the animation will look by hovering your mouse over an animation effect.

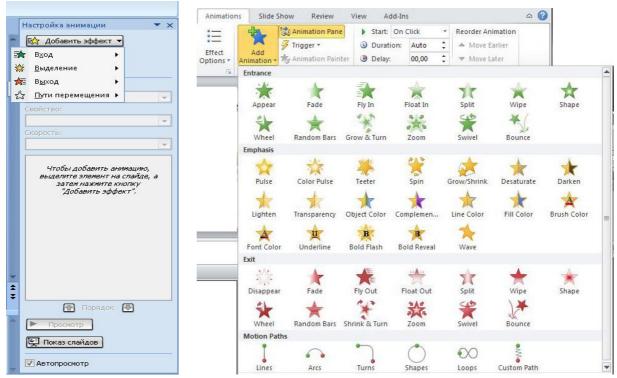


Fig. 11 – List of animation effects

You can get a Live Preview of how the animation will look by hovering your mouse over an animation effect.

You can view a list of the animations applied to a slide by opening the Animation Pane. Select the Animation Pane button from the Advanced Animation group to display the Animation Pane on the right (Fig. 12). You'll see that each animation effect in the animation pane has an assigned number to the left.

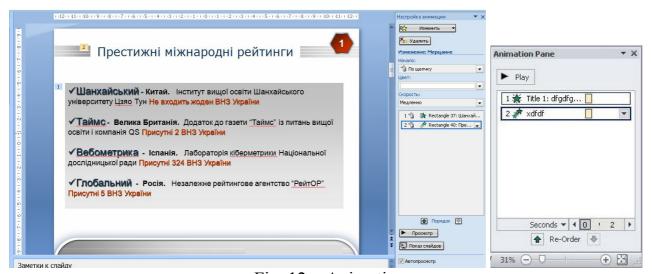


Fig. 12 - Animation pane

If the Effect Options button is available when your animation is selected, then that particular animation has some additional effect settings that can be configured. You can access the Effect Option by right-clicking on the animation in the Animation Pane (Fig. 13), or by selecting **Effect Options** on the ribbon. Please add some effect options, for example change the amount of spinning and whether the object will spin clockwise or counterclockwise.

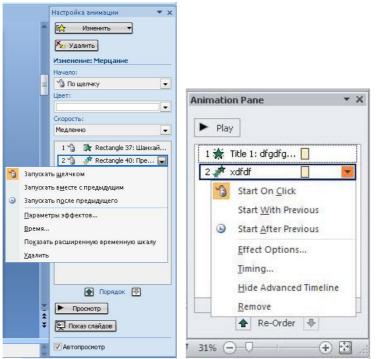


Fig. 13 – Effect settings

The available options will vary by effect and not all animation effects will have Effect Options settings. In effect, applied to a list of ratings on the current slide, apply next settings Fig. 14.

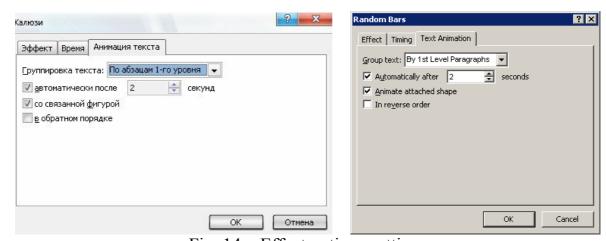


Fig. 14 – Effect options settings

5. Add slide transition effects.

Sitting through PowerPoint presentation can sometimes get a little boring. You can make your slideshows more interesting by adding transitions between the slides in your presentations.

Select the slide to which you want to apply a transition. On the **Transition to this slide** tab (**Animation** tab for Office 2007), select the **More** button to reveal the all transition options in the gallery or pick Fade effect (Fig. 15).

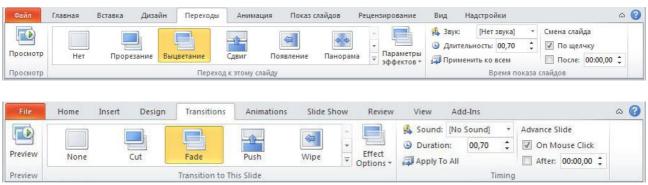


Fig. 15 – Transition to this slide

You can add additional customizations in the **Timing** group. You can add sound by selecting one of the options in the Sound dropdown list.

For each slide of presentation set up transition effects and apply sound.

Preview your transition by clicking the **Preview** button on the **Transitions** tab, then save the presentation.

#### **Questions for self-control**

- 1. What actions should be taken to create a new presentation?
- 2. How to choose a slide layout?
- 3. What are the effects and the possibilities of the design slides?

# Laboratory work № 3 Editing and adding effects to the electronic presentation

**Objectives:** to learn how to create and edit an electronic presentation that contains information displayed in tabular, textual and graphical form, using appropriate tools and commands. To master the skills of electronic presentations: edit, add notes, setting appropriate presentation topics, add SmartArt items.

# An algorithm of laboratory work

- 1. Please open the presentation created in previous laboratory work. Then add new slide.
  - 2. Please insert the table in slide (size: 6 columns, 8 rows).

On the **Insert** tab, in the **Tables** group, click **Table** button (Fig. 16).

- 2.1. Do one of the following:
- click and move the pointer to select the number of rows and columns that you want, and then release the mouse button (Fig. 16, a).
- click Insert Table, and then enter a number in the "Number of columns" and "Number of rows" lists (Fig. 16, b)

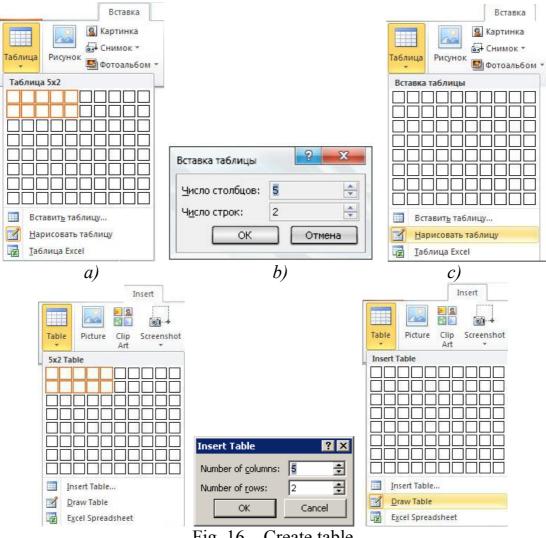


Fig. 16 – Create table

- on the **Insert** tab on the **Ribbon**, click the Table button in the **Tables** group and then choose "Draw Table" from the menu that appears (Fig. 16, c). PowerPoint changes the cursor to a little pencil. Draw the overall shape of the table by dragging the mouse to create a rectangular boundary for the table. A table with a single cell is created and Table Tools is displayed on the Ribbon.

Drag lines across the table (Fig. 17). For example, to split the table into two rows, point the cursor somewhere along the left edge of the table and then click and drag a line across the table to the right edge. When you release the mouse button, the table splits into two rows. For each slice, point the cursor at one edge of where you want the new cell to begin and click and drag to the other edge.

To erase a line, click the **Table Tools Design** tab, click **Eraser**, and then click the line that you want to erase. When you finish, press ESC.

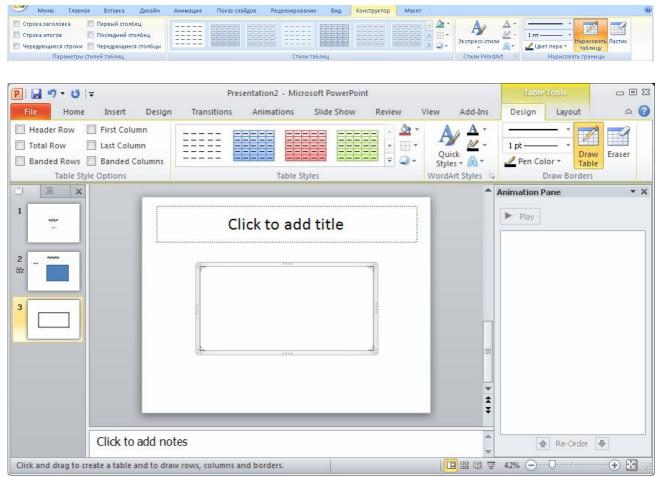


Fig. 17 – Setting up of external borders of table

#### 3. Add text to a table.

To add text into a table select the cell of table and enter data from keyboard or past from clipboard.

4. Please make table and slide as shown on Fig. 18.

#### Кращі університети світу – 2011 Іноземні Іноземні Витрати на Лауреати студенти Нобелівської 1 студента викладачі (дол.США) (%) премії (%) 106 042 19 Гарвард 88 165 090 11 5 22 50 Стенфорд Массачусетський 6 7 216 008 25 64 технологічний інститут **Університет** 51656 19 31 7 61 Каліфорнії, Берклі 57 763 6 41 27 130 Кембридж Каліфорнійський 1018837 5 78 25 31 технологічний інститут Прінстонський 178 380 8 36 19 29 університет Колумбійський 7 6 113 459 23 104 університет Державний ВНЗ: "НГУ" Sobolv@nmu.org.ua

Fig. 18 – Example of table design

5. Add a new slide. Import into slide table from Excel and Word.

Науково-методичний цент

- 5.1. To copy a selection of Excel or Word data onto your PowerPoint slide, do the following:
  - open the document that contains the information that you want to copy.
  - select and copy the data that you want. You can press "CTRL + C" to copy the data or use **Copy** button from **Home** tab of Rebel.

Example of table from Microsoft Word or Excel (Fig. 19).

	ТОП - 200 Україна				
	2007	2008	2009	2010	2011
Місце НГУ серед технічних університетів України	5	4	3	3	3
Загальне місце НГУ в рейтингу	17	14	6	6	7

Fig. 19 – Example of table

5.2. In PowerPoint, click the slide where you want to paste the copied data. On the Home tab, in the Clipboard group, click the Paste button or arrow below for using options of formatting.

Note. You can also copy and paste table from the presentation to Excel worksheet or document Word.

5.3. Add a new slide and in PowerPoint create Excel table on it (Fig. 19).

Select the slide that you want to insert an Excel spreadsheet on. On the **Insert** tab, in the Tables group, click Table, and then click Excel Spreadsheet (Fig. 20). Create a table shown in Fig. 21.

*Note*. When you insert an Excel spreadsheet to your presentation, you can take advantage of some Excel spreadsheet functions. In PowerPoint, the newly added spreadsheet becomes an OLE embedded object. Therefore, if you change the theme (colors, fonts, and effects) of your presentation, the theme applied to the spreadsheet does not update the spreadsheet you have added. Also, it is not possible to edit the table by using options in PowerPoint.

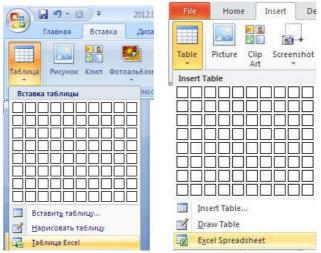


Fig. 20 – Insert Excel Spreadsheet command

Коефіцієнт використання рейтингових показників

показник	1-5	6-100	101-200	201-300	301-400	401-500	501-600	601-724
коефіцієнт	42	26	20	15	13	11	10	7

Fig. 21 – Excel table

#### 6. Apply a new or different table style to table from Fig. 21 (slide 4).

*Note.* A table style (or Quick Style) is a combination of different formatting options, including color combinations that are derived from the theme colors of the presentation. Any table that you add has a table style applied to it automatically.

Click the table that you want to apply a new or different table style to. Under Table Tools, on the **Design** tab, in the **Table Styles** group, click the table style that you want. To see more table styles, click the **More** button.

*Note*. To remove a table style, under Table Tools, on the **Design** tab, in the **Table Styles** group, click the **More** button, and then click **Clear Table**.

7. Add clip art (bitmap image or a combination of shapes) on slide 5.

Click the slide that you want to add the clip art to. On the **Insert** tab, in the **Images** group, click **Clip Art** (Fig. 22). In the Clip Art task pane, in the Search for text box, type a word or phrase that describes the clip art that you want, or type all or some of the file name of the clip art. To narrow your search, in the Results should be list, select the check boxes next to Illustrations, Photographs, Videos, and Audio to search those media types. Click **Go**. In the list of results, click the clip art to insert it.

Move the clip, resize, rotate, add text, and perform other changes.

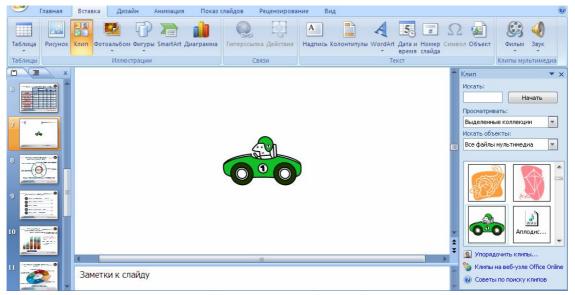


Fig. 22 – Inserting Clip Art

8. Create a slide with text «Доброго здоров'я».

Convert slide text to a SmartArt graphic.

*Note.* A SmartArt graphic is a visual representation of your information that you can fully customize. Converting your text to a SmartArt graphic is a quick way to convert existing slides to professionally designed illustrations.

Click the placeholder that contains the text on the slide that you want to convert. On the **Home** tab, in the **Paragraph** group, click **Convert to SmartArt Graphic** (Fig. 23). In the gallery, click the layout for the SmartArt graphic that you want.

The gallery contains layouts for SmartArt graphics that work best with bulleted lists. To view the entire set of layouts, click More SmartArt Graphics.

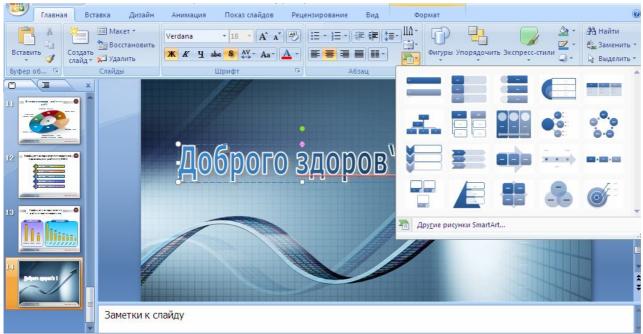


Fig. 23 – Convert slide text to a SmartArt graphic

Resize image SmartArt, rotate, add text, and apply a different Style.

9. Apply new layout to slide 6.

Click the slide that you want to apply a layout to. On the **Home** tab, in the **Slides** group, click **Layout**, and then select the layout that you want.

10. Duplicate the slide.

*Note.* To add a slide that contains the content of an existing slide in a presentation, you can duplicate the slide.

In the pane that contains the Outline and Slides tabs, click the **Slides** tab. Select one or more slides that you want to duplicate. To select multiple slides, click a slide, and then press and hold CTRL while you click the other slides. On the **Home** tab, in the **Slides** group, click the arrow next to **New Slide**, and then **click Duplicate Selected Slides**.

11. Change the order of slides.

In the pane that contains the Outline and Slides tabs, click the Slides tab. On the Slides tab, select the slide thumbnails that you want to move, and then drag them to their new location (Select slide 5 and move it up on 1 slide).

- 12. Delete the slide 6. In Normal view, on the pane that contains the Outline and Slides tab, click the **Slides** tab, right-click the slide that you want to delete, and then click **Delete Slide**.
  - 13. Apply the theme to presentation.
- 13.1. On the **Design** tab, in the **Themes** group, click the document theme that you want to apply.

*Note*. To preview how the current slide looks with a particular theme applied, rest your pointer on the thumbnail of that theme. To view more themes, on the **Design** tab, in the **Themes** group, click **More** button (Fig. 24).

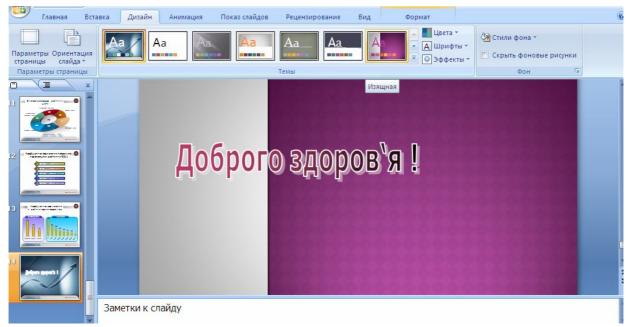


Fig. 24 – Presentation themes

- 13.2. By default, the default theme is applied to all your presentation. But if some slides are selected in a moment of applying the theme, new theme applied only to selected slides.
  - 14. Create notes pages.

*Note*. However, before printing notes pages, consider viewing your notes in Presenter View instead. You can view your notes as you deliver your presentation on a second monitor to conserve paper and printer ink.

Use the notes pane in Normal view to write notes about your slides. You can type and format your notes as you work in Normal view, but to see how your notes pages will print and to see the full effect of any text formatting, such as font colors, switch to Notes Page view. You can also check and change the headers and footers of your notes in Notes Page view. Fill the note page to slide 1 (Fig. 25).

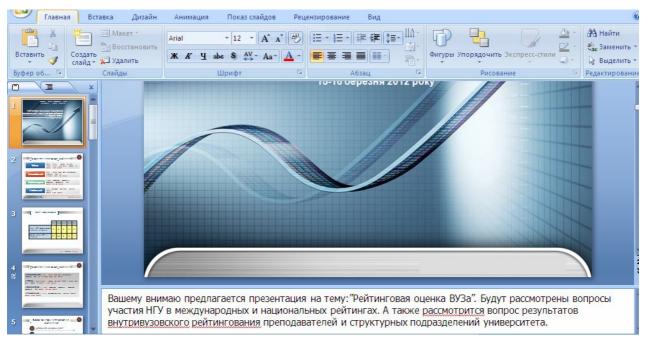


Fig. 25 – Adding notes

# 15. Add hyperlinks.

*Note*. In PowerPoint, a hyperlink can be a connection from one slide to another slide in the same presentation (such as a hyperlink to a custom show) or to a slide in another presentation, an email address, a Web page, or a file.

- 15.1. Select the text or the object that you want to use as a hyperlink.
- 15.2. On the **Insert** tab, in the **Links** group, click **Hyperlink**.
- 15.3. Under Link to, click Place in This Document.
- 15.4. Under **Select a place in this document**, click the slide that you want to use as the hyperlink destination.
  - 16. Check spelling and review the presentation.
  - 16.1. Press CTRL+HOME to select slide 1.
  - 16.2. On the **Review** tab, in the **Proofing** group, click **Spelling** (Fig. 26).

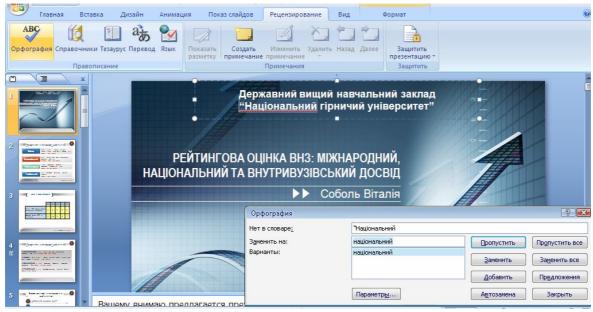


Fig. 26 – Check spelling

- 16.3. Use reading view to deliver your presentation not to an audience (via a large screen, for example), but instead to someone viewing your presentation on their own computer. Or, use Reading view on your own computer when you want to view a presentation not in full-screen Slide Show view, but in a window with simple controls that make the presentation easy to review.
- 16.4. The **Start Slide Show** group, that includes **From Beginning** and **From Current Slide**.

To view your presentation in Slide Show view from the first slide click **From Beginning** button on the **Slide Show** tab, in the **Start Slide Show** group.

To view your presentation in Slide Show view from the current slide click **From Current Slide** button on the **Slide Show** tab, in the **Start Slide Show** group.

17. Notice print.

To help you save paper and ink, you'll want to prepare your print job before you print (Fig. 27). PowerPoint provides views and settings to help you specify what you want to print (slides, handouts, or notes pages) and how you want those jobs to print (in color, grayscale, black and white, with frames, and more).

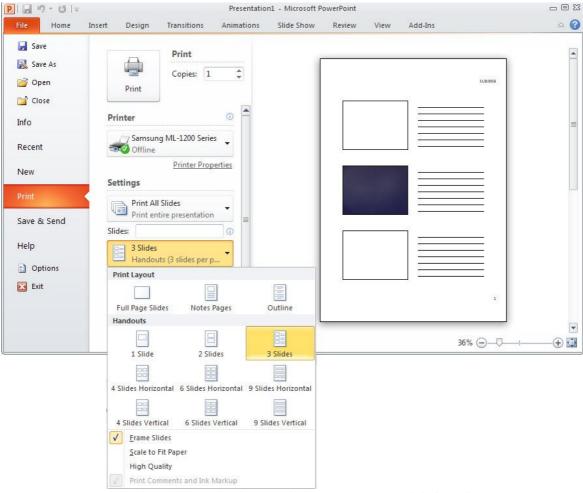


Fig. 27 – Printing 3 slides per page with handouts

- 17.1. Відкрийте презентацію, для якої потрібно надрукувати роздавальні матеріали.
- 17.2. Click the File tab. Click Print, and then under Print, in the Copies box, enter the number of copies that you want to print (Fig. 28).



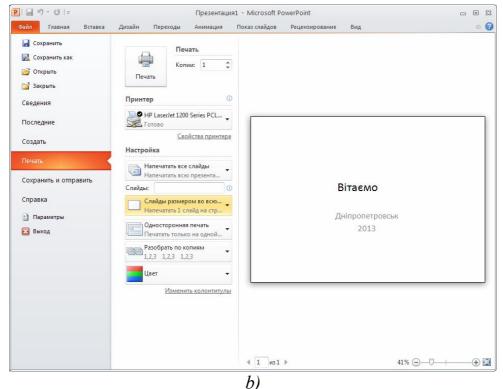


Fig. 28 – Print menu: a) – Office 2007; b) – Office 2010

- 17.3. To click one or multiple slides per page in handout format, under Handouts, click the number of slides you want per page, and whether you want them to appear in order vertically or horizontally.
  - 17.5. Press **Print** button.

#### **Ouestions for self-control**

- 1. What is a template, a theme?
- 2. How to add new slide to your presentation?
- 3. What elements (objects) can be used in the presentation?

# Laboratory work № 4 Save a presentation in the universal formats

**Objectives:** To learn to keep an electronic presentation done in the universal file format playback.

Often is necessary to provide high-quality version of the presentation to the public (as an attachment in an email, post to a web page, CD/DVD disk).

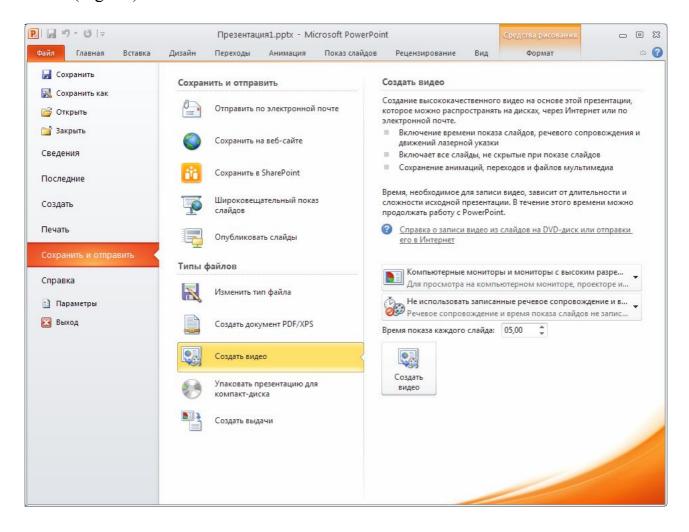
In order to have the opportunity to play an electronic presentation on any computer equipment without bindings to the specified operating systems and applications processing files PowerPoint 2010 presentation has a wide toolkit export document presentation in universal formats of different types of documents.

1. In PowerPoint 2010, you can now save your presentation as a Windows Media Video (.WMV) file, and distribute it confidently, knowing that your animated,

narrated, multimedia presentation will play without a glitch. If you do not want to use the .WMV file format, you can use a preferred third party utility to convert your file to another format (.AVI, .MOV, etc).

- 2. You can save your presentation as an image, a PDF or XPS file, or as an HTML file and then send your publication in e-mail, either as an e-mail message or as an attachment. Each slide of presentation can be saved as JPG or PNG image files.
- 3. You can create CD/DVD media with automatic start kit presentation and links to download the Microsoft presentations viewer.
- 4. Possible to make a detailed report on the structure and presentation of graphical representation and content as a text file for MS Word.

To perform of all these actions need to use the command "Save&Send" tab "File" (Fig. 29).



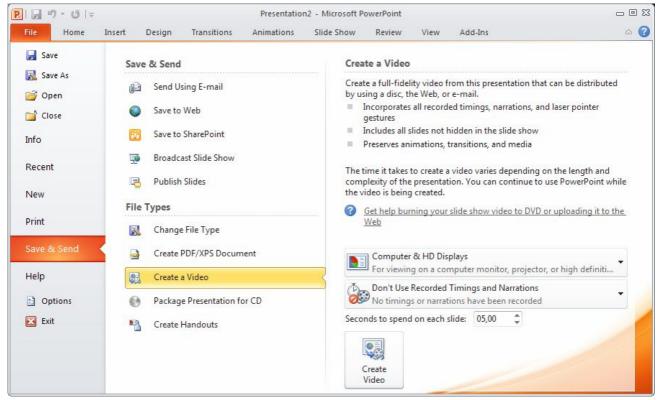


Fig. 29 – "Save&Send" window

**Task:** make next type of documents from document based on PowerPoint presentation created before: presentation in a PDF format, presentation as a video file, a JPG image of each slide presentation.

### An algorithm of the laboratory work

- 1. Open a presentation file.
- 2. Create a PDF version of the presentation by pressing the command "Save&Send" from tab "File" then select "Create PDF / XPS Document". In the right

side of window appear button if you click on it that's will be opened dialog box of saving presentation in PDF or XPS file selected by user.

3. Turn your presentation into a video.

Turning your presentation into a video is a new way to distribute and deliver it. When you want to give a high-fidelity version of your presentation to colleagues or customers (either as an e-mail attachment, published to the web, on a CD or DVD), save it as a video file. And you can control the size of the multimedia file and the quality of your video (fig. 29).

On the «File» menu, click «Save&Send». Under «Save&Send», click «Create a video». To display all video quality and size options, under «Create a video», click the «Computer & HD Displays» down arrow. After all click «Create Video». In the «File name» box, enter a file name for the video, browse for folder that will contain this file, and then click «Save».

4. To create JPG images of each slide presentation, press the command "Save&Send" tab "File" and select "Change File Type". In the right side of window appear list of possible file types of presentations. In the section "Image File Types" need to select "JPEG File Interchange Format" and then click "Save As" button



#### **Questions for self-control**

- 1. Why do you have to convert the PowerPoint documents to other formats?
- 2. What features of creating documents in PowerPoint do you know?
- 3. Is it possible to Live Stream the publication on the Internet of the PowerPoint presentation?

#### REFERENCES

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