

	<p>Al-Mustaql University / College of Engineering          Prosthetics &amp; Orthotics Eng. Department          Third Class          Subject (Computer Application)          Code (UOMU٠١٠٣٠٥٢)          Asst. Lec. Ghadeer Haider          ١<sup>st</sup> term – Lecture ٦</p>	
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# Computer Application

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## Adobe Photoshop

Is a graphics (design) program used for creating and editing raster images. Produced by Adobe, it is considered the most popular program for graphics editing and digital image manipulation.



**Photoshop** is not a direct prosthetic design tool, but it is an essential support tool for:

- ❖ Image processing
- ❖ Concept design
- ❖ Texture creation
- ❖ Educational materials
- ❖ Visual documentation
- ❖ Improving realism in 3D prosthetic models

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## The main uses of Adobe Photoshop in the field of **Prosthetics and Orthotics Engineering**:

- Image Enhancement and Processing
- Photoshop is used to improve the quality of clinical and technical images, such as
- Residual limb images
- Pressure and load distribution images
- Removing shadows, noise, and distortions for better clarity
- )Visual Prototyping (Concept Sketching
- Before creating a 3D model, engineers can:
- Create initial sketches of prosthetic or orthotic designs
- Adjust proportions, colors, and shapes
- Add annotations and layers for explanation

Photoshop is widely used to create **realistic textures** for

- Artificial skin
- Carbon fiber
- Silicone surfaces
- Plastic materials

These textures can be exported to **Blender, Maya, or SolidWorks** Visualize

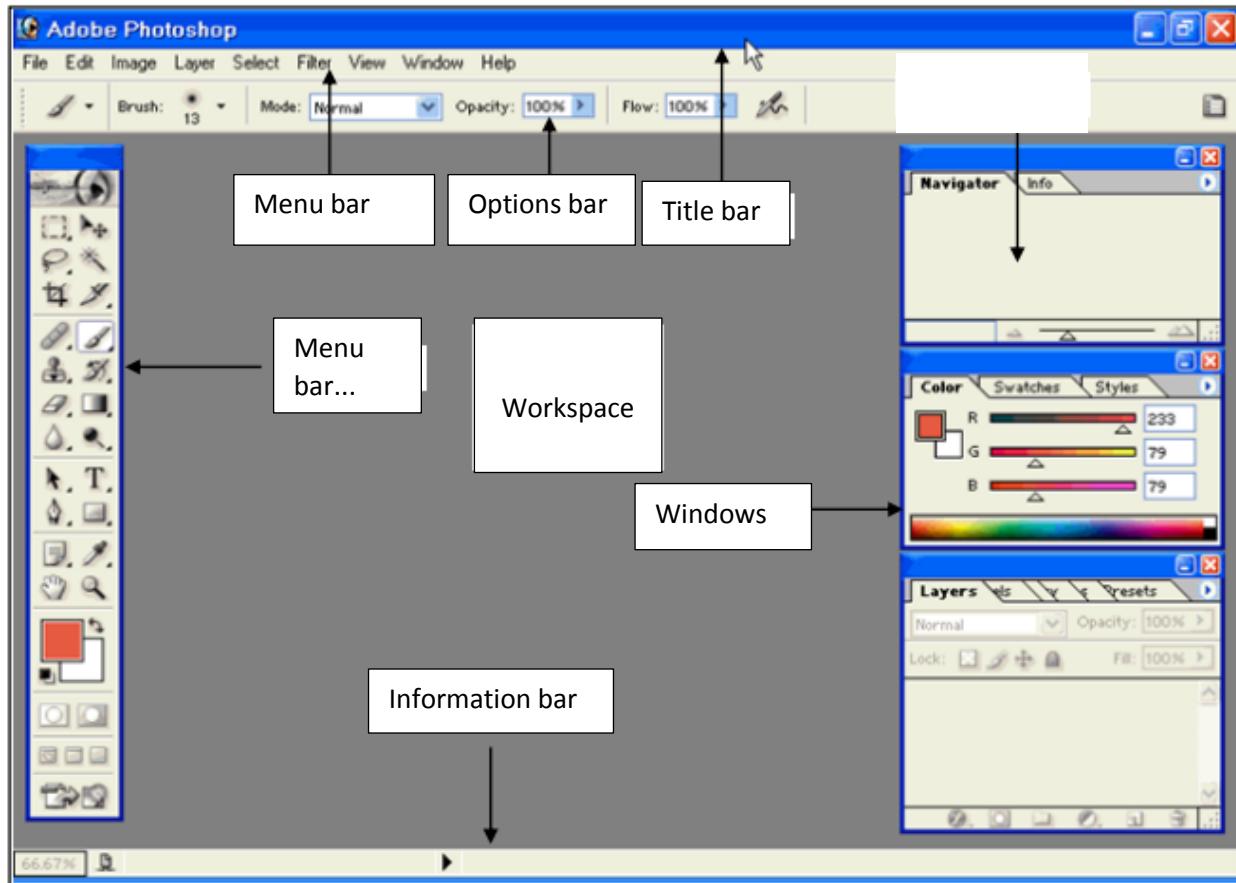
- Creating Educational and Scientific Materials
- For workshops, conferences, or patient education
- Designing scientific posters
- Creating visual guides for prosthetic fitting
- Preparing illustrated reports
- Visual Analysis of the Residual Limb
- Not medical diagnosis, but
- Highlighting pressure or relief areas using color layers
- Marking sensitive zones
- Preparing visual references for socket design Before/After Image Comparisons

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## Photoshop helps **engineers**

- Visualize cosmetic cover designs
- Test different skin tones
- Add decorative patterns or custom artwork
- Preparing 2D Images for 3D Printing Workflow

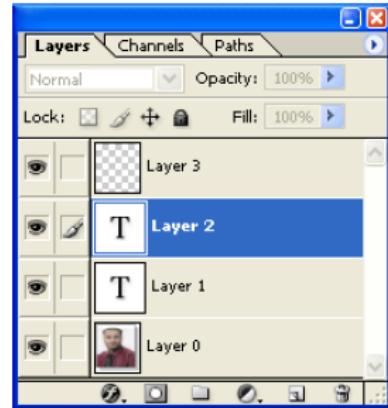
## Interface of adob Photoshop



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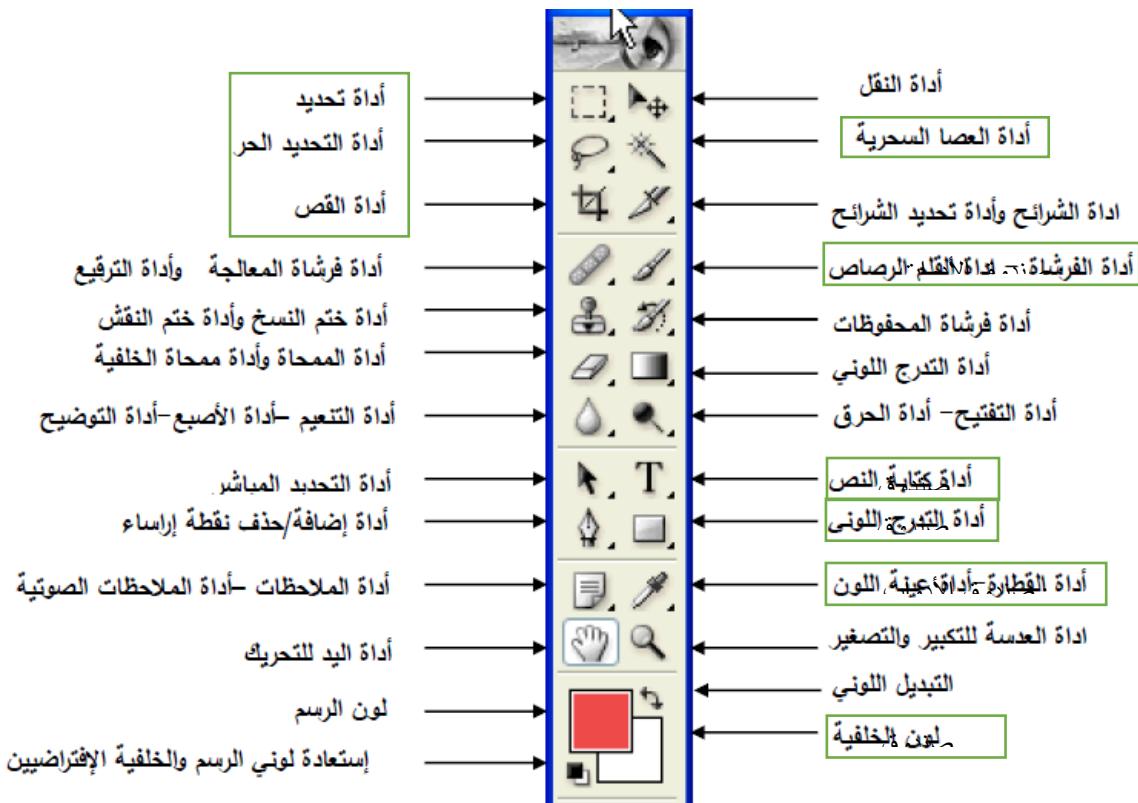
## Layers

**Layers:** These are used to organize and arrange a design so that work can be done on each layer without affecting the others. **Merge:** Adding, erasing, deleting, or modifying a layer.



## The Toolbox:

The Adobe Photoshop toolbox is the vertical bar that usually appears on the left side of the Adobe Photoshop program and contains many tools.



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### Group ١: Selection and movement tools

- Selection Tool – lets you choose, move, and isolate parts of an image so only that area is affected by edits.
- Lasso Tool – makes free-hand selections by clicking and dragging around an area to create a custom shaped selection.
- Crop Tool – trims or removes parts of an image outside the area you define, helping you focus on a specific composition.
- Magic Wand Tool – selects pixels of similar color with a single click, useful for isolating areas based on color.



### Group ٢: Image processing tools, including retouching and color brightness adjustment

- Brush Tool – paints color strokes on the canvas with adjustable size and hardness, like a traditional brush.
- Gradient Tool – fills an area with a smooth transition between colors, from linear to radial gradients.
- Eyedropper Tool (Color Sampler) – samples a color from anywhere in your image to set it as your foreground/background color.



### Group ٣: Text writing tools

- Text Tool (Type Tool) – adds and edits editable text directly on your image.



### Group ٤: Zooming in and out and image movement tools