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***About the Author: Dr. Sarjoo Patel**, an Assistant Professor at The Maharaja Sayajirao University of Baroda, Vadodara, holds a rich academic history with a B.Sc., M.Sc., and Ph.D. in Family and Community Sciences. She serves as Associate Director for the Post Graduate Diploma in Hotel Interiors and B.Sc. (Hons.) Interior Design. With two decades of teaching experience, she's contributed significantly with 77 presentations, 21 books authored/co-authored, and over 90 research papers in esteemed journals. Guiding 21 postgraduate students and supervising 4 PhD candidates, she's an active member of various boards and has completed 3 projects, with 4 patents and copyrights to her credit. Dr. Patel actively engages in teaching, research, and extension activities.*

24.1 IMPORTANCE OF SOFTWARE IN INTERIOR DESIGNING

The software allows designers to optimize room size and furniture configurations by facilitating exact space planning and layout. The usage of digital tools speeds up the design process by allowing for rapid changes and updates without having to start from scratch. This not only saves time but also helps in overall project cost efficiency.

The key elements of the importance of software in interior design are as follows:

24.1.1 Planning and Visualizing

Every interior design project begins with a phase of brainstorming. Previously, this may have included everything from building scale models of dwellings to using colored pencils and a notebook. These strategies had two drawbacks: they were time-consuming and usually incorrect. Software in interior design examines the entire design before project implementation.

24.1.2 Taking Down Rework Costs

The needs and expectations of the customer must be addressed even when an interior design project doesn't turn out as planned despite the best efforts of the designer. Reworking the project will cost money that will directly come out of the interior design benefit. Using software guarantees that rework expenses are significantly reduced because of the correctness and simplicity of reworking the design.

24.1.3 Increases General Productivity

Professionals can operate with more productivity to meet the deadlines for the project. Using software for drafting and designing increases the overall productivity as well as provides with variety of ideas and options to make quality designs and cut down the design process.

24.2 TYPES OF SOFTWARE

24.2.1 Software for 2D drafting

AUTOCAD: AutoCAD is a computer-aided design (CAD) software program created and distributed by Autodesk Inc. It is one of the most extensively used and popular CAD software in the world, and it is largely used for generating 2-D and 3-D drawings, and models, in interior designing. It is widely used in many fields like architecture, computer engineering, mechanical engineering, electrical engineering, construction, manufacturing, and for designing products as AutoCAD eliminates the need to draw each idea multiple times. As AutoCAD has varied tools and features, it allows the drafters to design detailed drawings with technical specifications with the advantage of making corrections in the same design every time if the idea is new.

Uses of Autocad in Interior Designing

- i. **Space Planning:** AutoCAD is used to design 2D floor plans that outline the layout of rooms, furniture, fixtures, and other interior features. It assists designers in visualizing layouts and ensuring effective space utilization.

Interior designers may use AutoCAD to generate comprehensive drawings of custom-designed furniture, cabinets, and fixtures, assuring accurate measurements and requirements.

- ii. **3D Visualisation:** Designers may produce realistic 3D representations of interior spaces using AutoCAD's 3D modeling features. These visualizations assist clients in better understanding design concepts and making educated selections.

- iii. **Lighting Design:** AutoCAD is used by interior designers to layout and arrange lighting fixtures, guaranteeing optimal lighting distribution across the room.

AutoCAD assists in the creation of comprehensive electrical and plumbing plans, ensuring that all electrical outlets, switches, and plumbing fittings are properly located.

- iv. **Material Selection:** AutoCAD drawings are utilized to visually and verbally explain material choices such as wall finishes, flooring materials, and worktops.

- v. **Elevations and Sections:** AutoCAD is used to create elevations and cross-sections of interior spaces, which provide a thorough picture of the design from many angles.
- vi. **Detail Drawings:** Using AutoCAD, interior designers make detailed drawings of specific design components such as moldings, trims, and built-in features.

AutoCAD is useful for preparing construction paperwork, such as detailed plans, sections, and schedules, which are required for construction and project management

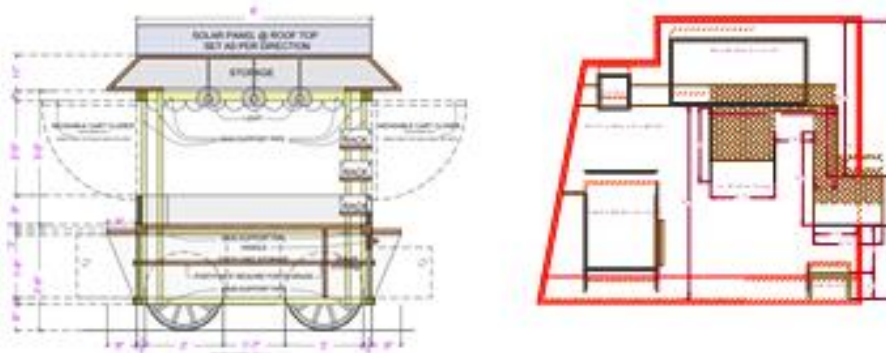


Plate 1: 2D Drafting in AutoCAD

- vii. **Design Modifications:** The versatility of AutoCAD allows designers to make rapid and easy changes to the design to accommodate customer input and changing needs.

AutoCAD may link with BIM (Building Information Modelling) software, allowing designers to interact with other disciplines such as architects, engineers, and contractors for a more holistic design approach.

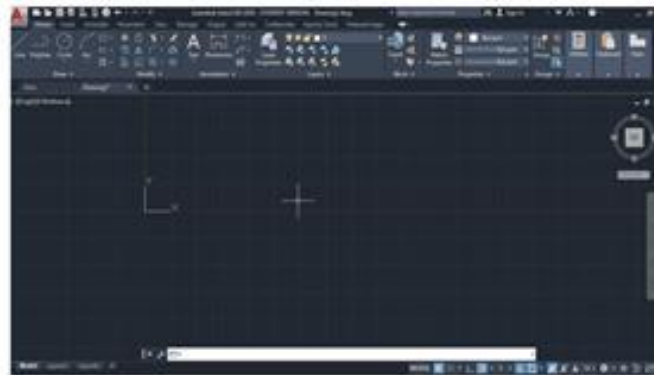


Plate 2: AutoCAD Window

- viii. **Presentation Drawings:** AutoCAD drawings may be used in client or client presentations to effectively explain design concepts.

Benefits of AUTOCAD in Interior Designing

Easily accessible, elegant presentation, 2d & 3d capabilities, efficient, productive, precise and accurate.

24.2.2 Software for 3D

SketchUp: SketchUp is a commonly used 3D modeling program in the field of interior design. It has an easy-to-use interface and powerful capabilities, making it a great choice for building detailed and realistic 3D interior space models.

Uses of SketchUp in Interior Designing

- i. **3D Space Planning:** Interior designers may use SketchUp to generate comprehensive 3D models of interior spaces, including rooms, furniture, and fixtures. Designers may visualize and change the space's arrangement to maximize utility and beauty.

Rendering tools in SketchUp allow designers to generate accurate visualizations of their interior designs. Clients and stakeholders may make more informed judgments if they have a better understanding of the proposed design.

- ii. **Material and Finish Selection:** Designers may apply numerous materials and finishes to the 3D model, allowing them to experiment with various colour schemes and material possibilities before finalizing the design. SketchUp is used to create unique furniture items that are fitted to the exact needs of the interior area.
- iii. **Lighting Design:** Interior designers may use SketchUp to add lighting fixtures to the model and see how different lighting options alter the mood of the room. **Cabinets and Storage Design:** Designers may utilize SketchUp to develop unique cabinets and storage solutions that blend in with the overall design.
- iv. **VR Integration:** Some SketchUp versions have VR integration, allowing designers to explore their creations in immersive virtual surroundings, offering a more accurate feeling of space. SketchUp is frequently used during the early phases of interior design to explore different design concepts and then further refine to polish the final design.
- v. **Interior Detailing:** Interior designers may enhance the overall design presentation by adding fine details such as moldings, trimmings, and ornamental components to the 3D model.



Plate 3: 3D Drafting in Sketchup

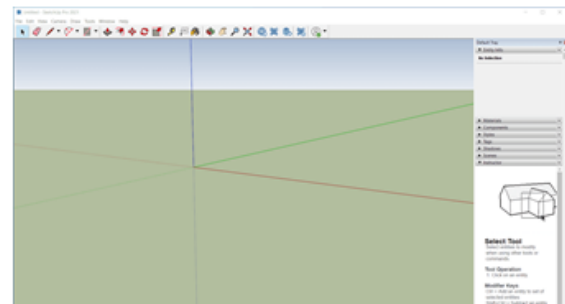


Plate 4: Sketchup Window

24.2.3 3D MAX

3D Max is a computer graphics program that may be used to create 3D models, animations, and digital photographs.



Plate 5: 2D Drafting in Autodesk 3ds Max



Plate 6: Autodesk 3ds Max Window

Uses of 3DS Max in Interior

Autodesk 3ds Max is a powerful 3D modeling, rendering, and animation software widely used in the field of interior design. It offers a range of tools and features that make it a popular choice for interior designers and architects. Here are some common uses of 3ds Max in interior design:

- i. **3D Modelling:** With 3ds Max, designers can build detailed and realistic 3D models of interior rooms, complete with furniture, fittings, and architectural components. These models can be used for client visualization and communication.
- ii. **Rendering:** The program has extensive rendering features that aid in the creation of high-quality, photorealistic pictures of interior designs. Designers may use this to present their thoughts and notions in a visually attractive manner.
- iii. **Lighting Simulation:** 3ds Max has a variety of lighting tools and settings, allowing designers to experiment with various lighting configurations to produce the desired atmosphere and mood within the interior space.

- iv. **Material Creation:** Designers may use 3ds Max's material editor to generate and apply multiple materials to their 3D models, imitating various surface finishes such as wood, glass, metal, cloth, and so on.
- v. **Animations:** 3ds Max may be used to generate animations that exhibit multiple angles and perspectives of the interior design for presentations or virtual tours. Animations may assist clients in grasping the flow and usefulness of a place by bringing concepts to life.

24.2.4 V-RAY

V-Ray is a specialized technology that artists and designers use to make computer-generated images appear extremely lifelike. It's like a magical tool that transforms 3D models into images with wonderful lighting, colours, and materials. V-Ray is widely used in architecture, interior design, and film to generate beautiful visualizations that appear virtually real-life. It contributes to the appearance of virtual worlds and things, deceiving our eyes into believing they are genuine.

Uses of V-RAY in Interiors

Realistic Lighting: V-Ray includes extensive lighting features that allow interior designers to precisely imitate natural and artificial lighting. It aids in the creation of realistic and dramatic lighting effects, which may have a considerable impact on the mood of interior spaces.

- V-Ray's material rendering capabilities guarantee that varied surfaces, such as wood, metal, cloth, and glass, seem incredibly realistic. Designers may include a variety of material finishes and textures in their interior designs.
- V-Ray excels in creating photorealistic renderings of interior spaces, allowing clients and stakeholders to better comprehend and visualize the final design.

24.2.5 LUMION

Lumion can transform 3D models of interior rooms into extremely realistic and aesthetically attractive visualizations, providing clients and stakeholders with a clear and immersive knowledge of the design.

- i. **Real-Time Rendering:** The real-time rendering features of Lumion enable designers to observe instantaneous changes to the interior space as they make design modifications, making the design process more interactive and efficient.
- ii. **Lighting Simulation:** With Lumion, designers may experiment with various lighting situations, demonstrating how natural and artificial lighting affects the atmosphere of the interior space throughout the day.
- iii. **Material and Texture Showcase:** Designers can use a variety of materials and textures on interior surfaces to help customers visualize various material possibilities and finishes.
- iv. **Visualization of Furniture and décor:** Lumion's 3D object collection contains furniture, décor, and accessories that can be put within the interior space to help clients picture the final arrangement.

- v. **Landscape & Surroundings:** Lumion enables designers to incorporate external components such as gardens, pools, and landscapes to demonstrate how the interior space interacts with its surroundings.
- vi. **Weather and Season Settings:** Designers may change the weather and season settings, allowing customers to experience the interior space in a variety of weather circumstances.

24.2.6 PHOTOSHOP

Photoshop is an application for designers, web developers, graphic artists, photographers, and other creative professionals. It is commonly used for image editing, retouching, picture composition, website mockups, and effects. Images that are digital or scanned can be altered for usage online or in print. Website layouts may be generated in Photoshop and their designs can be finalised before developers begin coding. Graphics may be made and exported to be used in other programs.

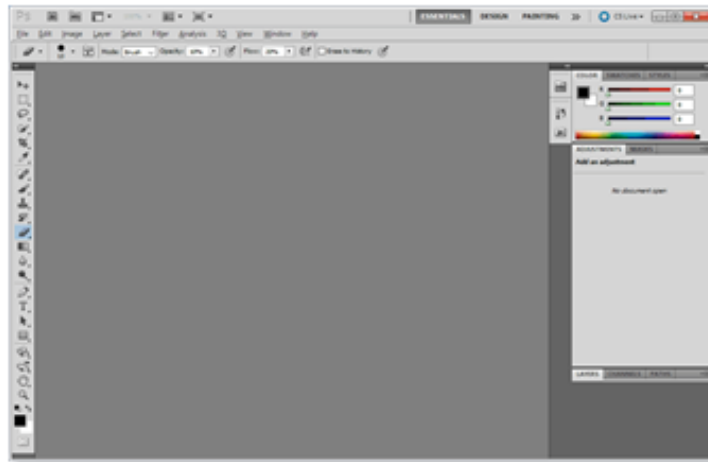


Plate 7: Photoshop Window

Uses of Photoshop in Interior

- i. **Image Editing and Enhancement:** Interior designers can use Photoshop to edit and improve images of spaces, furniture, and accessories. They can change the lighting, colours, and contrast to make photographs that are more aesthetically attractive.
- ii. **Create mood board:** Designers use Photoshop to create mood boards and collages, which compile numerous design aspects such as colour palettes, materials, furniture, and décor objects to convey a unified and inspiring vision for the project.
- iii. **Texturing and Pattern Design:** Photoshop is useful for producing bespoke textures and patterns that can be added to 3D models created in other programs such as 3ds Max or SketchUp. Designers may create one-of-a-kind wallpapers, textiles, or floor textures to complement their design concepts.

- iv. **Material and Colour Experimentation:** Photoshop is useful for experimenting with various colour schemes and material combinations. Designers can use computerized renderings of interior rooms to apply paint colours, wallpapers, and materials.
- v. **Visualization:** Interior designers may use Photoshop to generate digital sketches and conceptual drawings to demonstrate their early design ideas and thoughts.
- vi. **Presentation graphics:** Photoshop is great for creating clean and professional presentation visuals, such as cover pages, project branding, and slideshows that display the interior design project.

End of Chapter Exercise

1. Explain the importance of software in interior design.
2. List the software used in interior designing with its application.

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