

	JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY INDUSTRIAL ENGINEERING DEPARTMENT	
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Course Number and Name	PDDE 521: Rendering and Animation Basics
Course Description	This course introduces students to the basic tools and concepts used in Adobe Photoshop and 3D animations tools (like 3ds Max). Photoshop instruction includes using layers, image editing using selection tools, filtering, and touching up a 3D render. Animation instruction (like in 3ds Max) includes importing models, adding materials, lighting a scene, creating a basic animation, photorealism and animation. Students will learn how to take models created in other programs learned throughout the DET program into 3ds Max and bring them to life. Video editing is covered to allow students to create professional animations and videos.
Credits and contact hours	2 Credit hours (6 lab hrs)
Pre-requisites	PDDE 322 Introduction to 3D interactive computer aided platforms
Compulsory/ Elective	Compulsory

Instructor	Dr. Doraid Dalalah
Office Location	Engineering building, M5 L3
Office Phone	720-1000 Ext: 22535
Email	doraid@just.edu.jo
Office Hours	As announced in E-learning

Text Book(s)	• Photoshop for 3D Artists, by Andrzej Sykut, Fabio M. Ragonha, Zoltan Korcsok, Richard Tilbury, 3DTotal Team. • Autodesk 3ds Max 2022 Fundamentals By ASCENT Center for Technical Knowledge.
Software tools	• Adobe Photoshop, 3D max, Other Autodesk products.
References	• Adobe Photoshop Classroom in a Book (2022 release) 1st Edition by Conrad Chavez, Andrew Faulkner.

	• • Adobe.com • Photoshop.com • Autodesk.com • https://www.ascented.com/ • Instructor notes.
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Course Objectives	By the end of this course, students will be able to: 1. Use Photoshop to enhance images, including working with layers, applying selection tools, filters, and touch-ups to achieve realistic product representations. 2. Build, import and manage 3D models in 3D Max, apply materials and lighting techniques to create virtual representations of industrial products. 3. Develop basic animations showcasing industrial products, focusing on photorealism to accurately represent the products in motion. 4. Edit and produce professional animations and visual presentations, emphasizing the key features and functions of different products. 5. Integrate models from other design programs into 3ds Max, animate and render realistic product visualizations for use in virtual catalogs, marketing materials, and presentations.
Measured Outcomes	2,3,4,5

Class Schedule	TBA
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Evaluation		
Assessment Tool	Expected Due Date	Weight
Lab Experiments	Every week	60 %
Final Exam	According to the University Final examination schedule	40 %

Topics Covered		
Weeks	Topics	Tasks

1	Experiment 1: Understanding Color Theory	▪ Explore RGB and CMYK color models, including their use cases. ▪ Experiment with color codes and hexadecimal values. ▪ Adjust color levels, contrast, and brightness in a provided image. ▪ Analyze the effects of these adjustments on the final output.
2	Experiment 2: Introduction to Photoshop and Layers	Create a simple multi-layered image and manipulate layers.
3	Experiment 3: Image Editing with Selection Tools	Edit a provided image using various selection tools to isolate and enhance elements.
4	Experiment 4: Applying Filters and Effects	Apply different filters to images and experiment with blending modes.
5	Experiment 5: Touching Up a 3D Render	Use retouching tools to refine a provided 3D render image.
6	Experiment 6: Introduction to 3ds Max and Model Importing	Import a simple 3D model and explore the basic interface.
7	Experiment 7: Applying Materials in 3ds Max	Texture a model using different materials and shaders.
8	Experiment 8: Lighting Techniques in 3ds Max	Create a basic lighting setup for a provided scene.
9	Experiment 9: Basic Animation Principles	Animate a simple object, such as a bouncing ball, using keyframe animation.
10	Experiment 10: Photorealism in 3D Animation	Adjust lighting, materials, and rendering settings for a realistic output.
11	Experiment 11: Integrating Models from Other Programs	Import a model from another software, fix any issues, and prepare it for animation.
12	Experiment 12: Product Modeling and Rendering: Packaging	▪ Create a 3D model of a product package (e.g., a box, bottle, or container). ▪ Apply materials and textures to simulate realistic packaging. ▪ Add and adjust labels, logos, and other design elements. ▪ Render the package with appropriate lighting to showcase the product.
13	Experiment 13: Product Modeling and Rendering: Surface and Outer Look	▪ Model a 3D representation of a product (e.g., a consumer electronic device, a household item). ▪ Apply realistic materials and textures to represent the product's surface (metal, plastic, glass, etc.). ▪ Focus on small details like buttons, screens, or branding elements.

		▪ Set up a studio-like lighting environment for a high-quality render.
14	Experiment 14: <i>Creating a Professional Animation Video</i>	Finalize an animation project, including editing, sound, and visual effects.

Academic Integrity:

All students are expected to adhere to the highest standards of academic honesty. Any form of cheating, plagiarism, or unauthorized collaboration is strictly prohibited and will result in disciplinary action. Students must produce original work and properly cite all sources and references. The university bylaws will be applied to any misconduct case.

Attendance Policy:

Regular attendance and active participation are essential for success in this course. Students are allowed a maximum of 20% of absence regardless of the excuse. It is the student's responsibility to inform the instructor in advance of any anticipated absences and to make up any missed work.