CAD III
Semester: 1 (Fall)
Stage: 3
Number of Credits: 4 semester credits/6 quarter units

Prerequisites	CAD II
Assessment weighting	100% continuous assessment
Element	Drawing, Design
Supports stage and course learning outcomes	• Consolidate conceptual, contextual, ethical and material considerations in the design and realisation of space and form. • Communicate concepts, ideas and proposals to a high degree of visual and technical expertise in terms of drawing - freehand sketching, architectural drawings and computer-generated imagery.

Module aims	The primary aims of the module are to: • Achieve a very good standard of 3D computer-aided design. • Introduces students to new software such as Sketch-up and Viz 4. This is essential in order to scaffold the later CAD module and Project work. • Support project work The secondary aim is to: • Support the course and stage learning outcomes specifically with reference to the Design (Project Work), Technology and Drawing..

Module learning outcomes
On completion of this subject students will be able to:

- Apply 3D CAD software to construct 3D images of interiors
- Understand and apply basic principles of lighting and rendering interiors

Syllabus content

Introduction to 3D CAD: Co-ordinate Systems
Introduction to course; revision of 2D AutoCAD; defining world co-ordinate and user co-ordinate systems; orientation of the current UCS; changing the position and orientation of UCS.

3D Entity Representation
Explanation of system variable thickness: designing an extrusion thickness to a 2D

entity; entering 3D points for an entity; absolute, relative and polar co-ordinates; drawing exercises.

The Command Layer
Drawing Commands, X,Y,Z point filters; Conversion of 2D entities to produce 3D drawings; 3D drawing entities (e.g. 3D Face, and 3D polyline.); Drawing exercises System variables concerning drawing appearance;

Managing Surfaces
Making 3D face edges invisible; Polygon mesh specifying each vertex; Producing surface models using pre-loaded surface commands; Introducing the D View command. (perspective view)

Modifying Drawings
Modifying 3D drawing using 2D editing commands; Using the polyedit command to modify the vertices of a surface mesh; fitting B-spine surfaces to polygon meshes; exploding a polygon mesh to 3D faces.

Viewports
Using the Viewports command; Creating multiple viewports
Select 3D viewpoints to display a model from various points; creating blocks of 3D entities; Developing the D-View command

Introduction to Sketch-Up
Introduction to basic principles of use of this software for constructing 3D computer models.

Introduction to Viz.4
Introduction to basic principles of use of this software for the use of computer visualization of a building interior.

Teaching/learning methodology:

Students will be taught in interactive workshops in a specialised computer lab. Each session will incorporate a tutor-led demonstration of software applications. This demonstration will be pre-recorded and will be made available for students on CD for reference and use. In order to achieve the learning outcomes, each session will also incorporate a practical session where students learn by experimenting with different media.
Problem-based learning will also be used as a teaching methodology. Both group and one-to-one discussions will be encouraged. This module interrelates with other year modules in that students can scan and manipulate images of **Project Work**. Assignments are an integral part of the teaching methodology. Students will be expected to maintain very regular contact with their assignment supervisor. The responsibility to arrange one –to-one tutorials rests with the student.

Method of assessment:

This module is assessed by continuous assessment. The formative assessments will take the form of class tests, assignments and research presentations that involve visual presentation material.
The summative assignment is conducted by means of portfolio/process-folio appraisal.

Recommended reading			
AutoCad in a Nutshell	Dorothy Kent	O'Rielly	2000
The ABCs of Architectural and Interior Design Drafting	Tony Cook	Prentice Hall	2001
Inside AutoCad 2000	Bill Burchard	New Riders	2000
Inside AutoCad 14	Bill Burchard	New Riders	2002
3D Modelling in AutoCad	CD Rom	005.369	
Architectural Modelling and Rendering with AutoCad R14	Branco Koleravic		1998
Inside Adobe Photoshop 6	CD Rom	005.369	
The Photoshop 6 Wow Book	Linnea Dayton	Peachpitt Press	2002

Supplementary reading			
CD Rom Tutorial and Notes	Mark McKenna	GCD	2003