

# COURSE DETAIL

## THREE DIMENSIONAL MODELING

**Country**

Netherlands

**Host Institution**

Utrecht University

**Program(s)**

Utrecht University

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Computer Science

**UCEAP Course Number**

112

**UCEAP Course Suffix****UCEAP Official Title**

THREE DIMENSIONAL MODELING

**UCEAP Transcript Title**

3D MODELING

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## Course Description

3D Modeling pertains to all forms of creating, designing, synthesizing, acquiring, analyzing, and deforming geometric shapes in space. The applications are numerous: from computer graphics and the film industry, through computer-aided design (CAD/CAM) and architecture, to processing of point clouds and procedural modeling. The exercise is performed on the Blender open-source 3D-modeling environment. The following topics are covered: interpolating polynomials, Bezier curves, B-splines implicit surfaces, marching cubes subdivision and mesh representation structures polygonal meshes, mesh compression, hierarchy Delaunay triangulation, tetrahedralization, alpha-shapes LiDAR point clouds, RANSAC, reconstruction, CityGML normal estimation, principal component analysis progressive meshes procedural modeling, L-systems. Prerequisites for this course include a course on computer graphics, algorithms, and programming. The knowledge of linear algebra and basic calculus is very helpful for this course, but not entirely necessary; some of the basics are covered in the context.

## Language(s) of Instruction

English

## Host Institution Course Number

INFODDM

## Host Institution Course Title

THREE DIMENSIONAL MODELING

## Host Institution Campus

Science

## Host Institution Faculty

## Host Institution Degree

## Host Institution Department

Information and Computing Sciences

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