LITHUANIAN UNIVERSITY OF AGRICULTURE
INSTITUTE OF INFORMATION TECHNOLOGY
Department of Information
STUDY SUBJECT DESCRIPTION

COMPUTER AIDED DESIGN (CAD) AND COMPUTER GRAPHICS

Study level: BSc (BSc, MSc, PhD) Number of ECTS credit points: 4.5

Teaching method: Lectures combined work with computer, supported by multimedia.
Prerequisites: Basic knowledge of informatics.
Teaching aids: Scripts referring to the actual topics are distributed during lectures.
Examination method: Individual project presentation, upon appointment.
Registration for course: Two weeks before the beginning of the course.
Registration for examination: With lecturer, personally or by phone, week before end of course.
Remarks: This lecture is suitable for students of any branches.

INTRODUCTION

After completing the course students should obtain the knowledge and ability to make engineering, technical and others drawings with computer aided software.

- have a clear overall picture about the most popular software for computer graphics design;
- have good knowledge about types of engineering, technical and others drawings;
- have knowledge and practical skill to use one of the most popular computer aided software for engineering, technical and others drawings;
- have knowledge about the working in the group, administrating and allocate team work;
- service to be able to communicate with other specialists.
Syllabus

Theory (8 hours):

Introduction. Working with graphical primitives in two and three dimension. Using editing commands to modify graphical primitives. Review of AutoCAD additional tools. Viewports and coordinate system of AutoCAD. Printing and plotting.

PRACTICE CLASSES (32 hours)

1. **Drawing graphical primitives (35 %)**
   Use commands LIMITS, ZOOM and GRID. Drawing lines, polylines, Circle, arc, making open and closed shapes. Make a dimension.

2. **Editing graphical primitives (35 %)**

3. **Working with additional tools (25 %)**
   Write and use simple LISP script. Calculate angles, areas, perimeters, lengths, section areas. Use macro commands.

4. **Workshop (5 %)**
   Presentation and discussion of practical home work project.

INDEPENDENT WORK (40 hours)

1. Individual home work  16 hours
2. Auditoria works (3)  12 hours
3. Preparation for workshop  8 hours
4. Examination  4 hours

LITERATURE

MAIN LIST


ADDITIONAL LIST


Study programme prepared by
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1. Introduction (5 %)
   - Review of CAD software.
   - Introduction to AutoCAD software, area of use,
   - Introduction to AutoCAD user interface.
     - Starting and ending of work.
     - Methods to enter commands.
     - Scale of screen views.

2. Working with graphical primitives in two and three dimension (25 %)
   - Points.
     - Types of points.
     - Methods to enter and draw point.
     - Attributes.
   - Lines.
     - Types of lines.
       - Solid.
       - Dashed.
       - Centre.
       - Other.
     - Properties of lines.
     - Shapes from lines.
   - Polylines.
     - Types of polylines.
     - Properties of polylines.
     - Modification of polylines.
     - Areas to use polylines.
   - Circles.
     - Methods to draw circle.
       - Using centre and radius or diameter.
       - Using tow points.
       - Using three points.
   - Arcs.
     - Methods to draw arcs.
       - Using Start, end and radius.
       - Using Start, end and centre point.
       - Case to draw arc with other parameters.

3. Using editing commands to modify graphical primitives (50 %)
• Copying graphical primitives.
• MOVE command and its properties.
• Mirroring graphical primitives.
• Breaking lines.
• Using commands FILLET and CHAMFER.
• Using commands TRIM and EXTEND.
• Using command OFFSET.
• Creating and using graphical primitive’s blocks.
• Drawing text and its properties.
• Using scales.
• Working with the colours.
• Drawing dimension on graphical primitives.

4. Review of AutoCAD additional tools (10 %)
• Using internal LISP script language.
• Using internal graphical calculator.
• Using Visual Basic macro commands.
• Using integrated help system.
• Tools to help work in the themes.
• Review of tools how to distribute projects to internet.

5. Viewports and coordinate system of AutoCAD (5%)
• Purpose and areas of use viewports.
• Review of coordinate system.
  • User defined coordinates.
  • World coordinate systems.

6. Printing and plotting (5%)
• Installing and setting printers and plotters.
• Prepare project to print or plot.
• Using layouts for different printer settings.