

## OBJECTIVES OF THE COURSE

The basics of technical drawing and technical thinking

Able to independently design a project that would be functional in the real world

Ergonomics

Design

## REQUIREMENTS FOR SUCCESSFUL COMPLETION OF THE COURSE ARE:

Own project (medical equipment, artificial replacement of the human body, etc.)

Technical project in solidworks

Presentations

Technical drawing

## CONCEPT DESIGN AND ITS DEFINITION

Design is the creation of a plan or convention for the construction of an object, the creation of a system, a product architectural plans, technical drawings, business processes, wiring diagrams, graphic design, product design).

## FUNCTION OF DESIGN

The aim of the design is to connect the functional and aesthetic aspects of the proposed object or system as efficiently as possible.

## DIVISION OF DESIGN

industrial design

product design,

interior design

design in the store

graphic design

web design

fashion design

floristic design

service design

playful design, etc.

## DESIGN AS A SCIENCE, DESIGN AND MARKETING, BRAND POLICY

Value

Emotion

Innovation

Process

Uniqueness

Art

Amateurism

Thrown out money

Luxury

Only visual aspects Pouze vizuální aspekty

## DESIGN PROCESS , DESIGN ANALYSIS

4 parts

**Empathy** : Empathy is the cornerstone for successfully mastering the design challenge . During this phase , designers need to understand the problem that awaits their solution before they can come up with anything .

**Defining** : During the definition phase , all information collected during the previous phase is analyzed . The aim is to establish a clear definition of the problem

**Idea creation** : The creation of an idea is a period of a project in which all the team's attention is focused on the generation of design possibilities

**Prototyping and testing** : Prototyping means creating either scaled down products or sample versions of services. During testing, the prototypes are then gradually tested, either in a group of the design team or by the user.

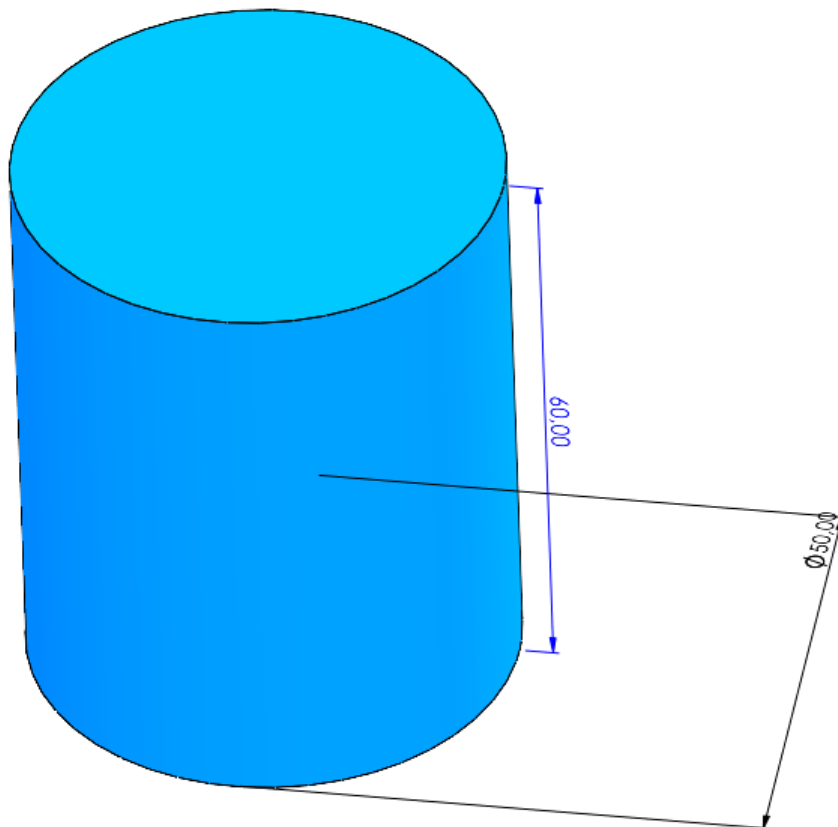
Syllabus of the practical part:

1. Getting to know the SolidWorks environment (part, assembly, technical drawing)

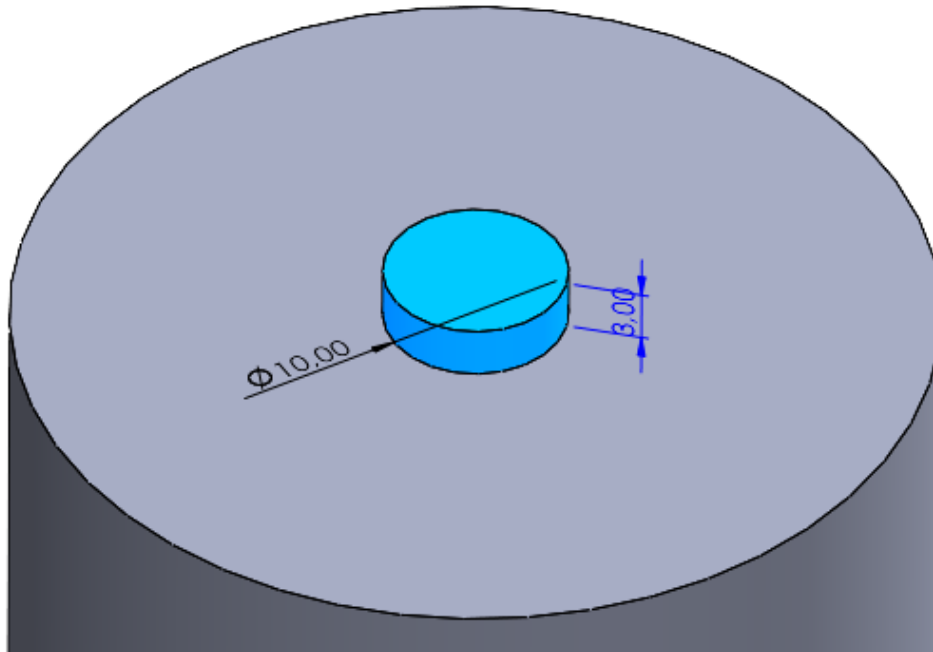
2nd – 4th Part (sketch, element – 3D object)

5. Simple assembly and basic connections

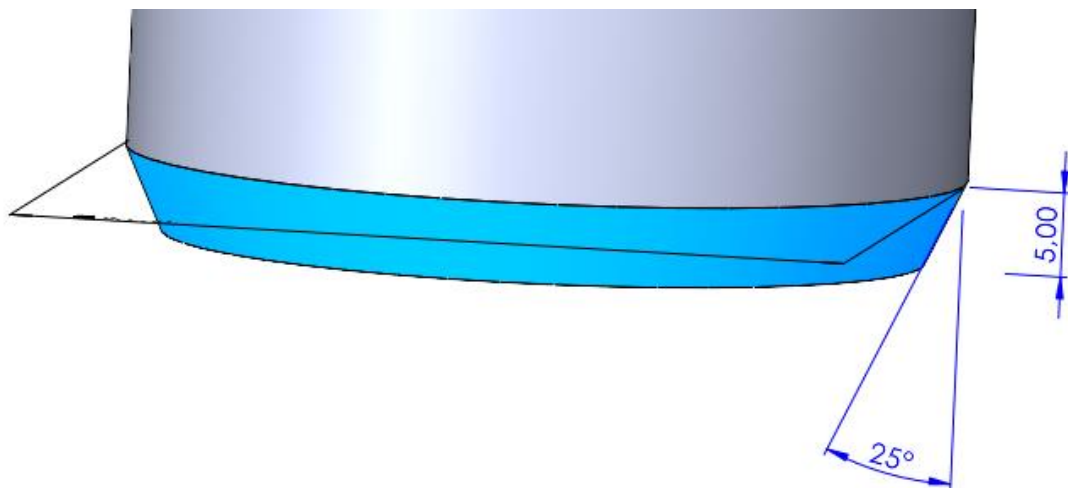
2.1 Create a cylinder - sketch a circle, taking care to give full definition. Then add circles by extruding the base. TIP: Try creating a cylinder by drawing a sketch of the divider and rotating it around the longer side.



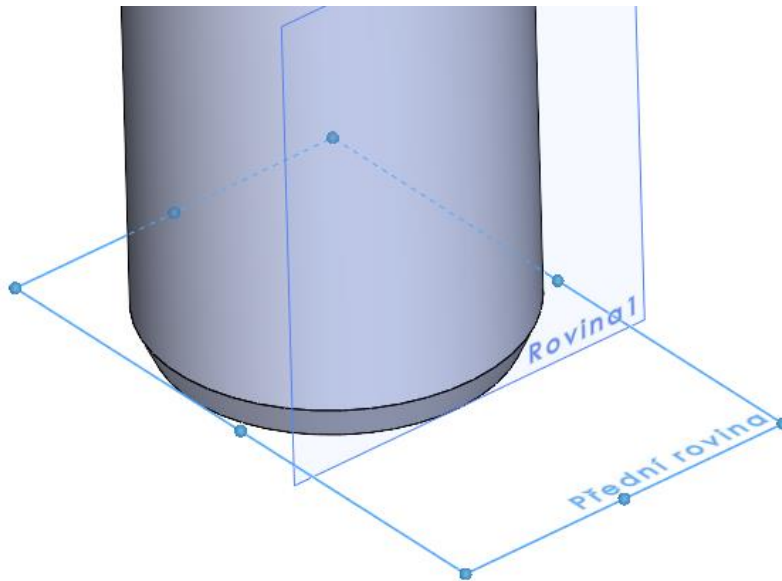
2.2 Create a stem to attach the head. Add the sketch of the circle to the upper base of the cylinder and extrude the base.



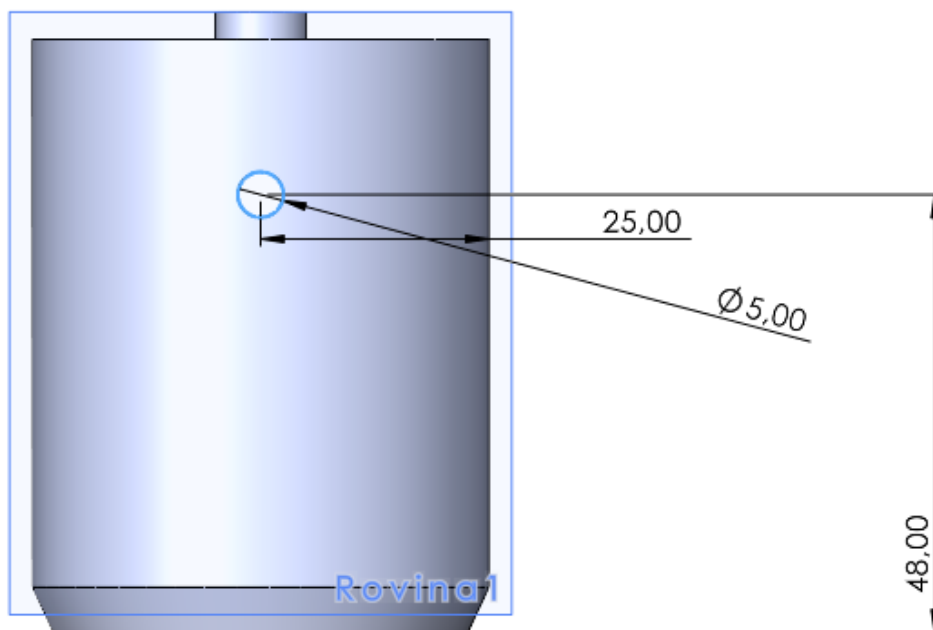
2.3 Chamfer the lower part of the hull (cylinder) – project the sketch of the circle from which you created the cylinder into the new sketch on the lower base of the cylinder. Add an element by extruding it at a specified angle.



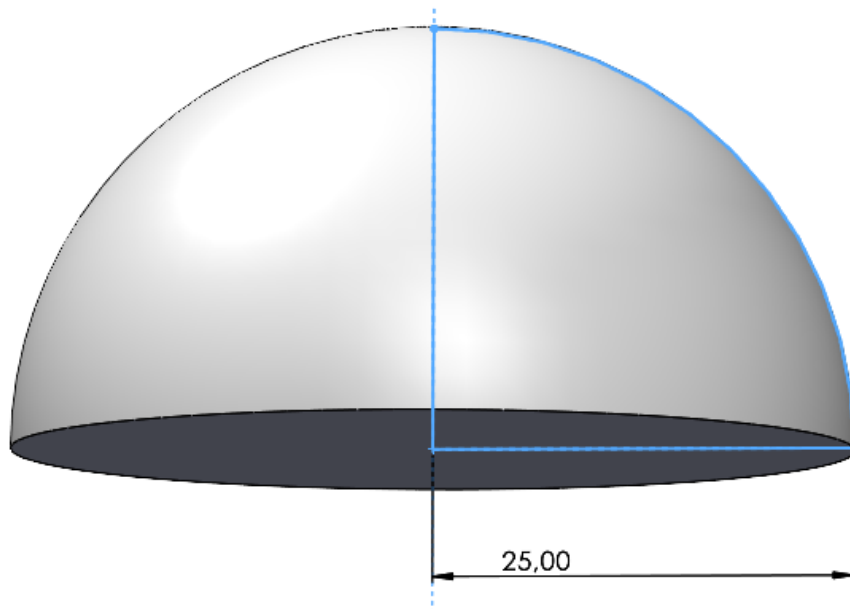
2.4 Add a reference plane—perpendicular to the front plane and tangent to the surface of the cylinder.



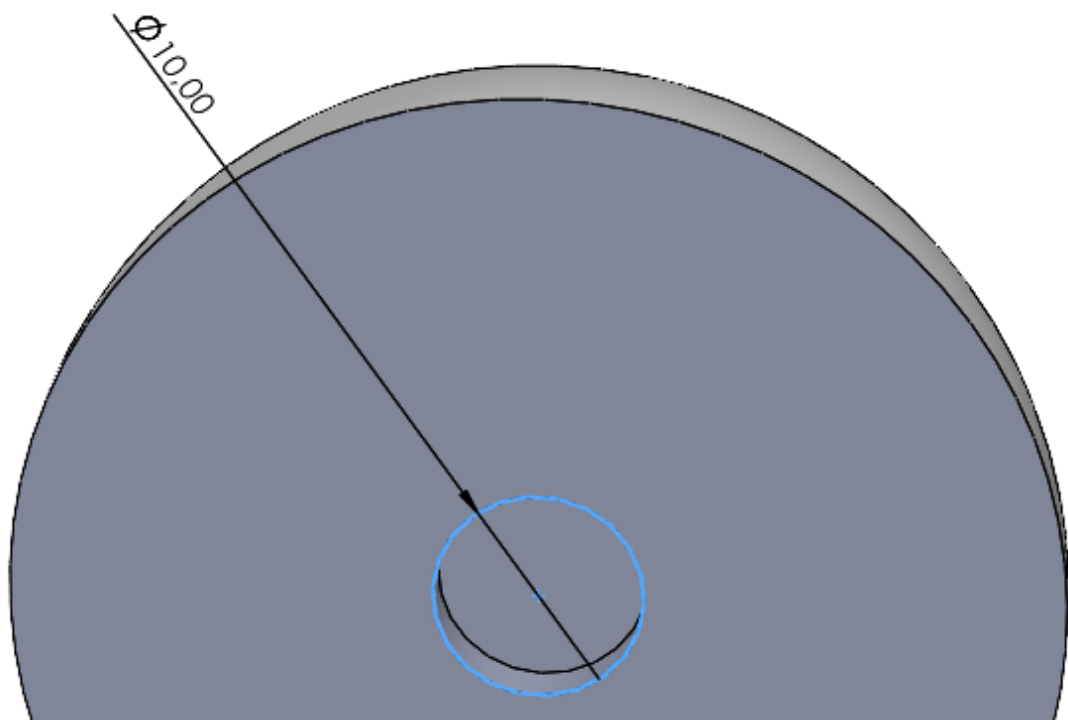
2.5 Create a hole for connecting the legs - symmetrically with the axis of the cylinder, place the center of the sketch of the circle and then remove the base. TIP: you do not remove the entire cylinder, but use the upper plane to mirror the element - the hole you created.



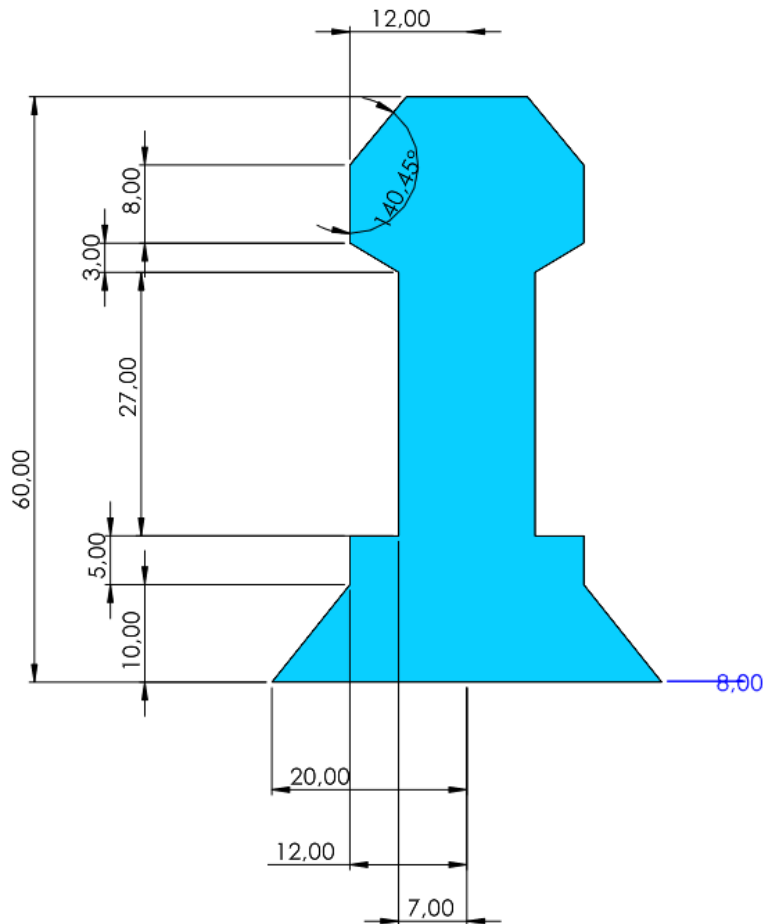
3.1 Head - Sketch a quarter circle and create a 3D hemisphere object by adding by rotations around the vertical face of the shape. TIP: Try drawing a sphere and cut half of it.



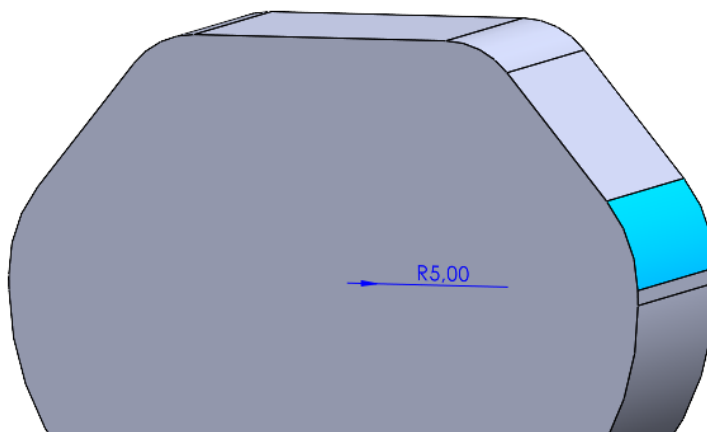
3.2 Hole to connect to the body - Draw a sketch of a concentric circle with a circle on the base of the hemisphere. Remove by sliding out.



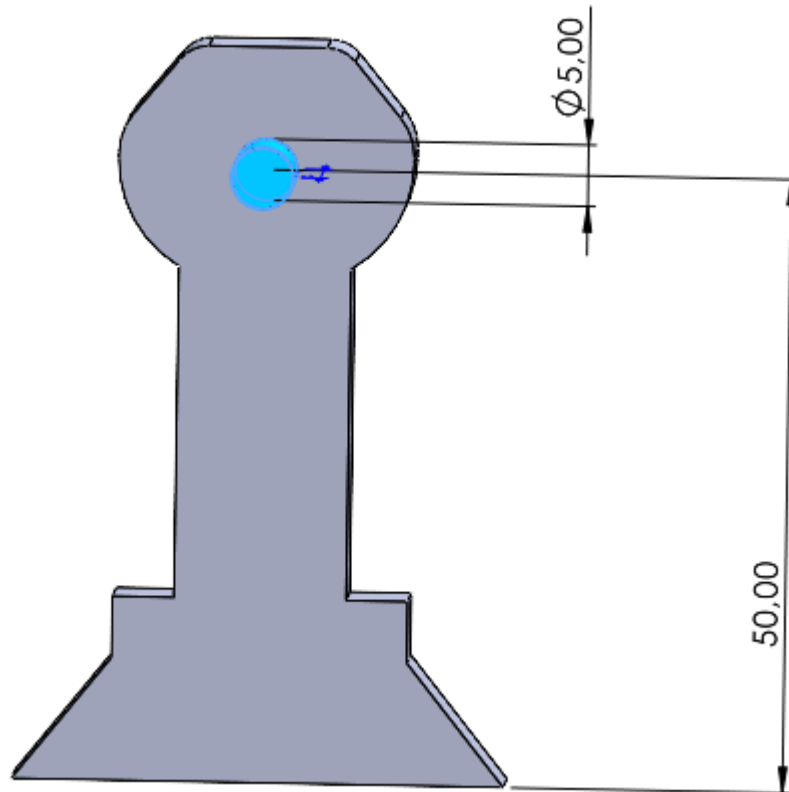
4.1 Create the leg - draw half of the leg, use the reference curve - axis to mirror the individual line segments to close the sketch. TIP: Try to fully specify the sketch using dimensions without defining angles. Create an object by adding by extruding.



4.2 Try the 3D element fillet tool.



4.3 Create a stem to connect to the cylinder body.



5.1 Open a new assembly and import all parts, import the leg twice. Using concentric knots, string the stems and holes (head and legs). Subsequently, limit the movement along the axis of the concentric bonds by choosing a fixed bond between the contact surfaces of the cylinder and the connecting parts.