

OpenSCAD

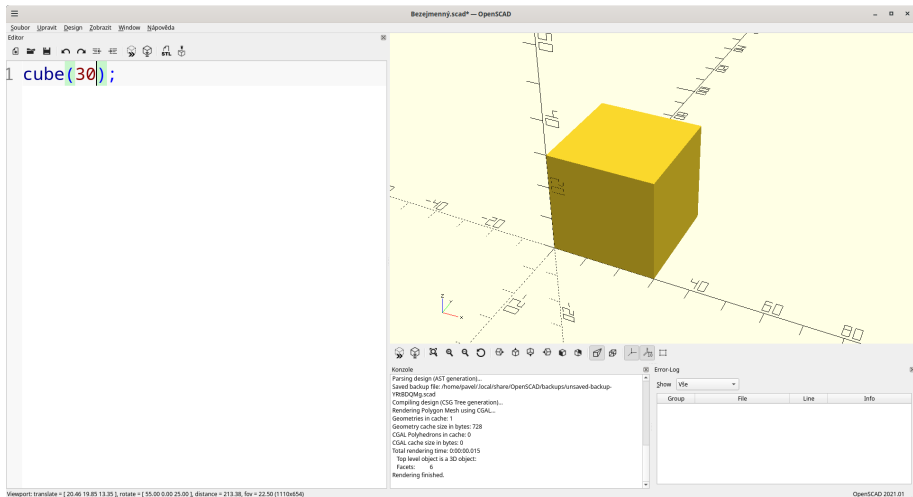
- <https://openscad.org>
- různé operační systémy
- zdrojový kód
- manuály
- knihovny
- příklady
- jednoduché ovládání
- videa s návody

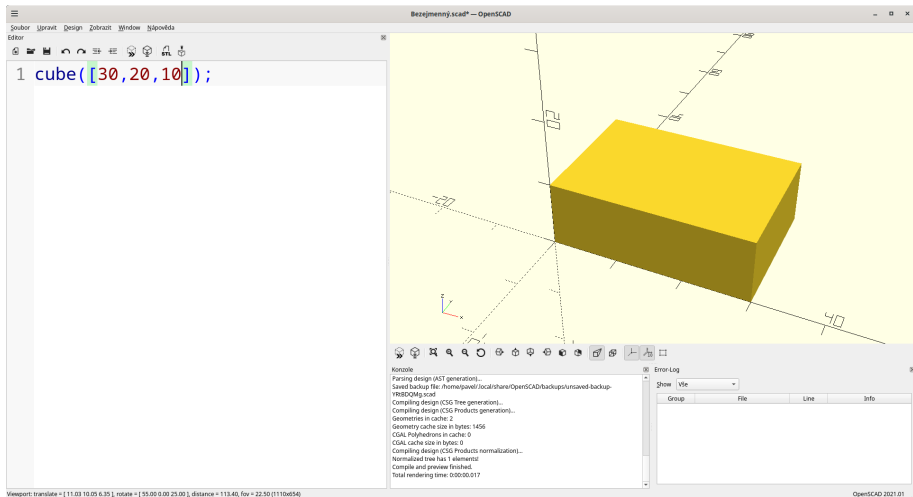
Ovládání

- F5 - rychlý náhled
- F6 - renderování
- F7 - export 3D modelu do formátu STL
- menu

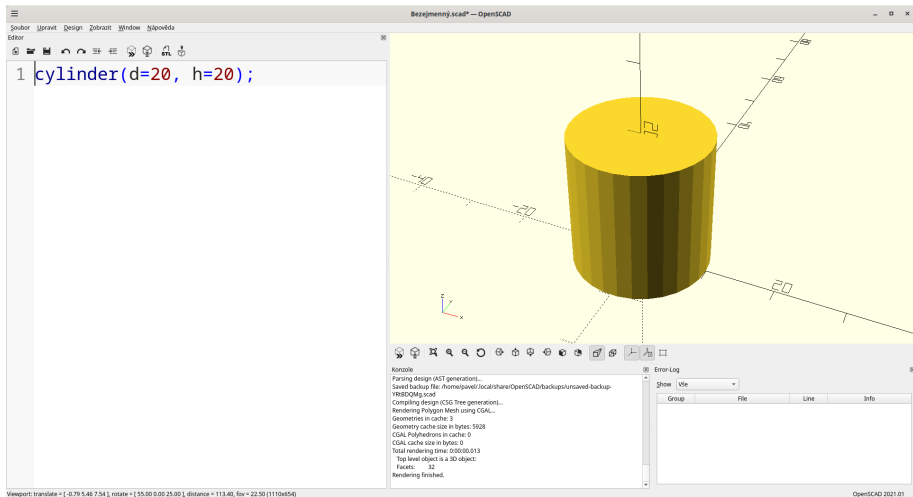
Příkazy

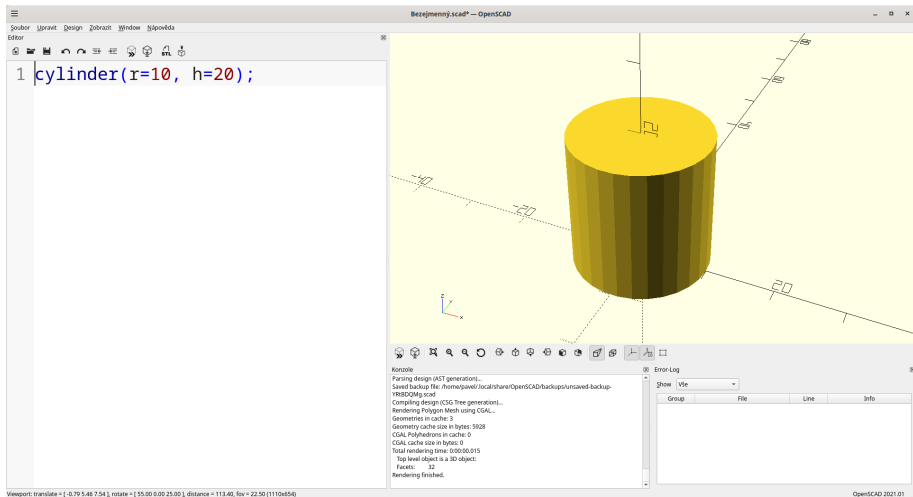
- `cube(30);`
- `cube([30,20,10]);`

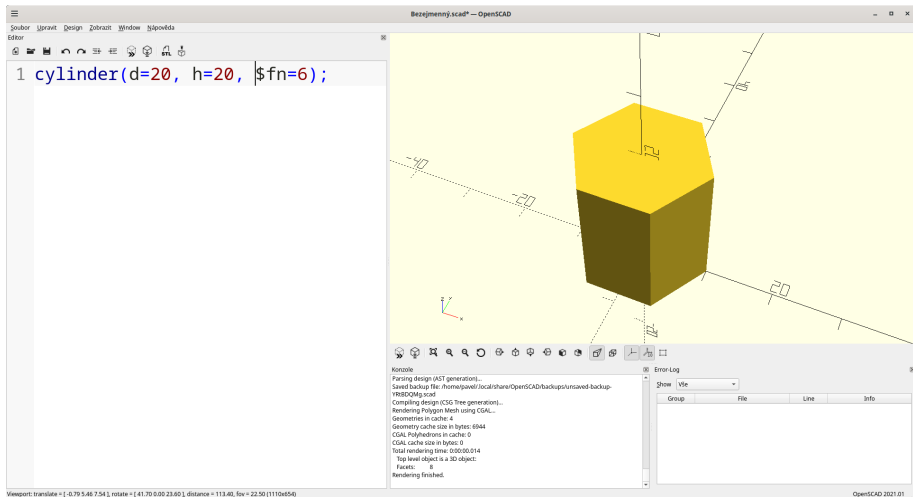




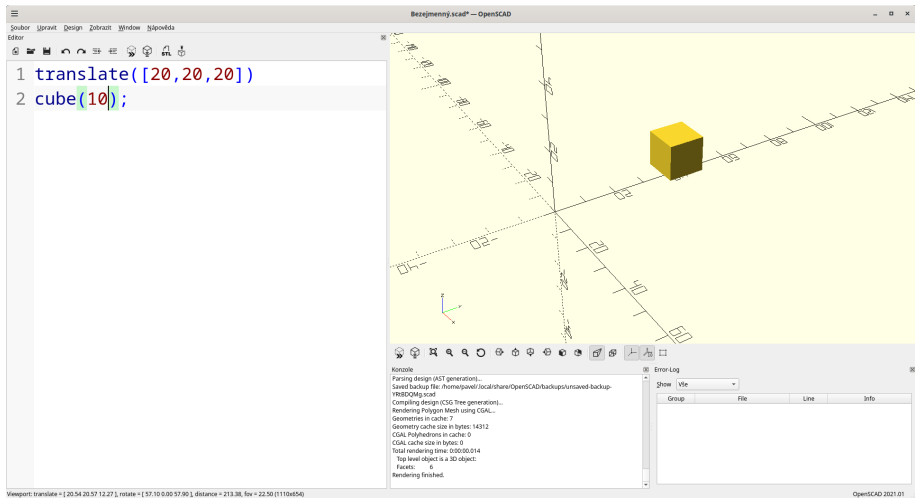
- `cylinder(d=20, h=20);`
- `cylinder(r=10, h=20);`
- `cylinder(d=20, h=20, $fn=6);`
- `cylinder(d1=30,d2=10, h=20);`

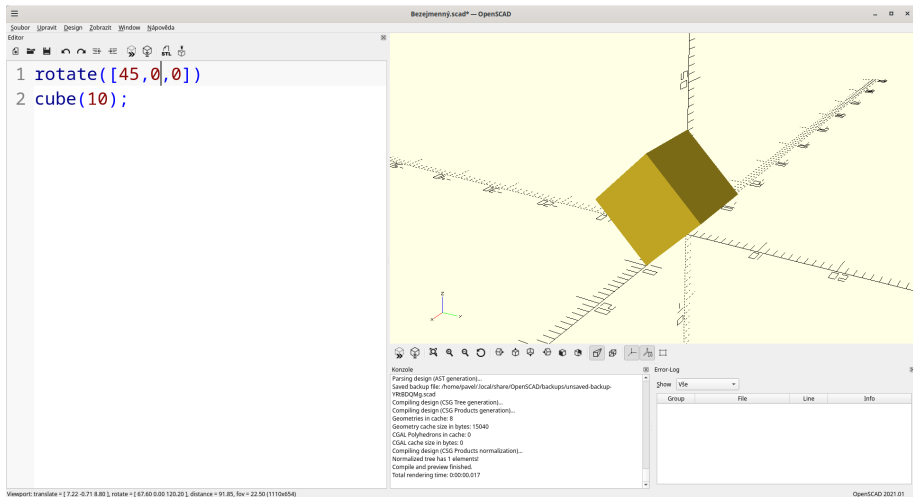




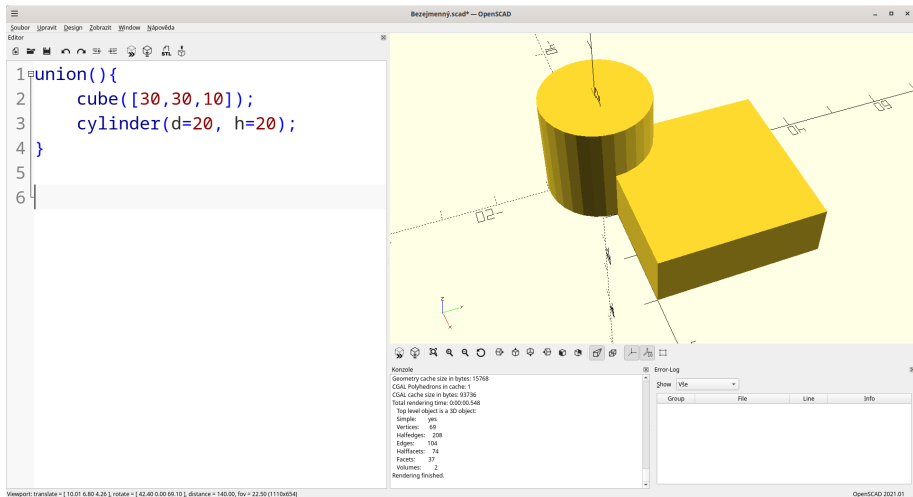


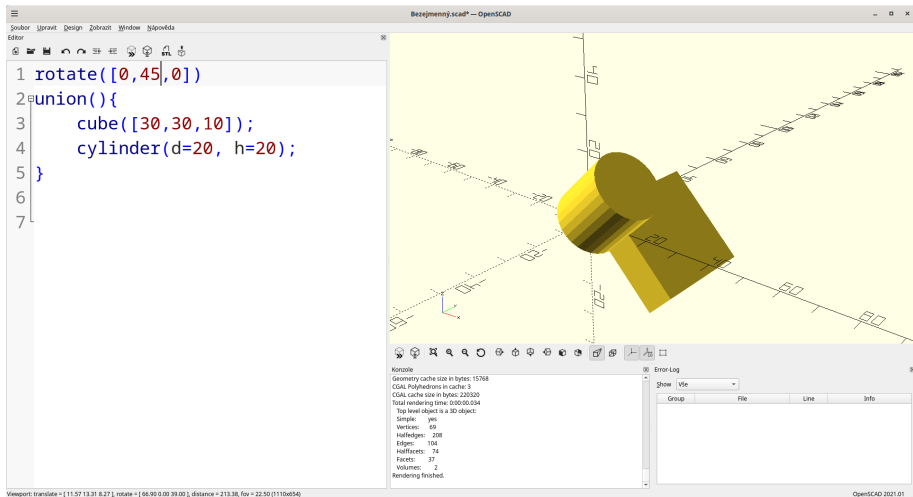
- `translate([20,20,20])`
- `rotate([45,0,0])`

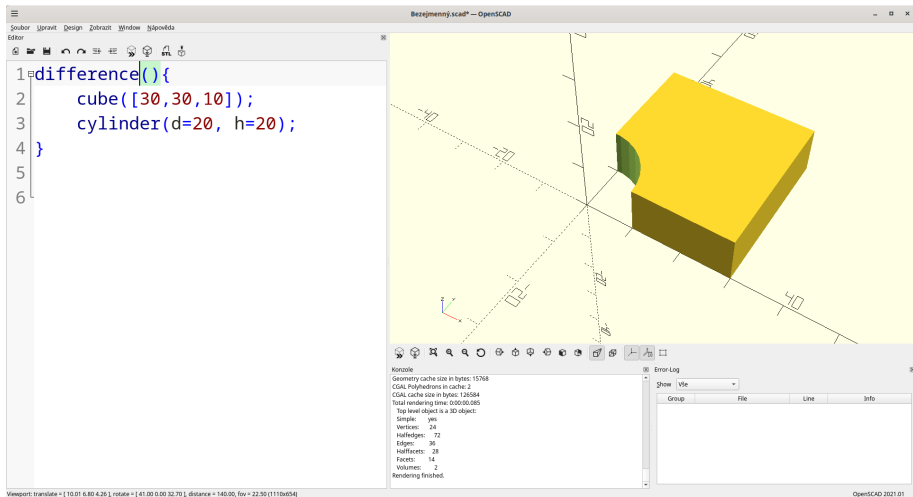


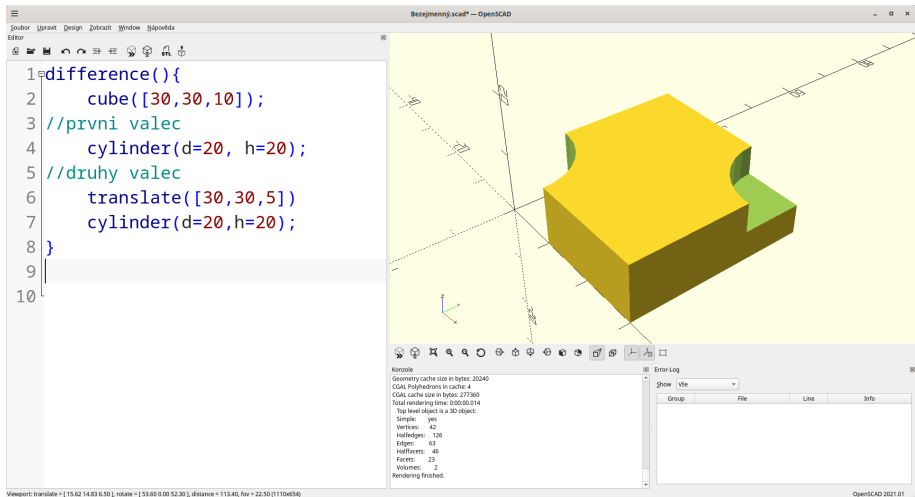


- `union()`...
- `difference()`...

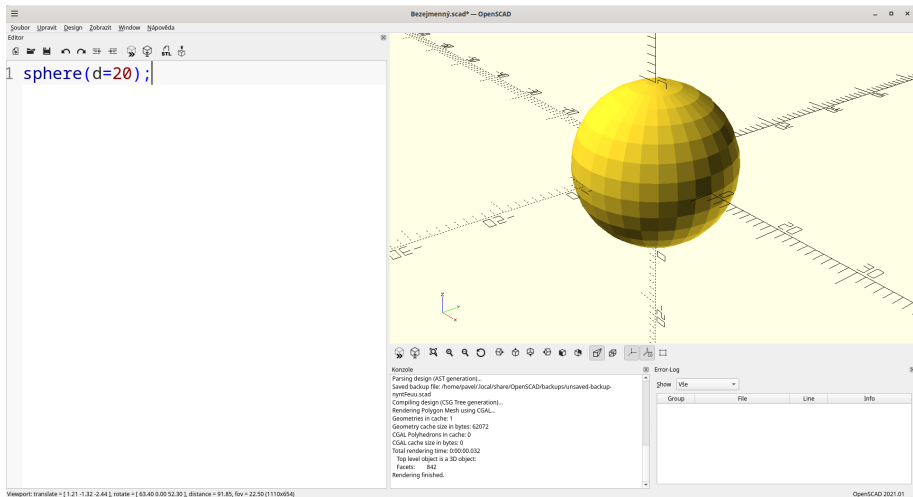




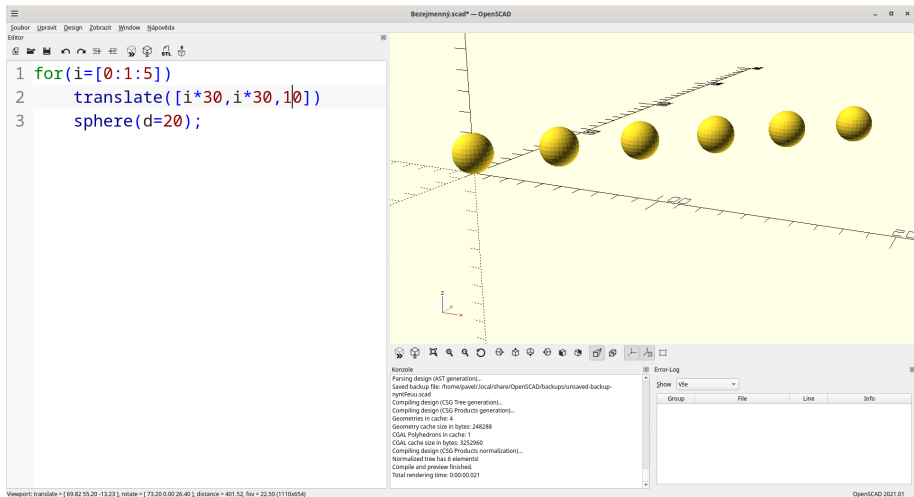




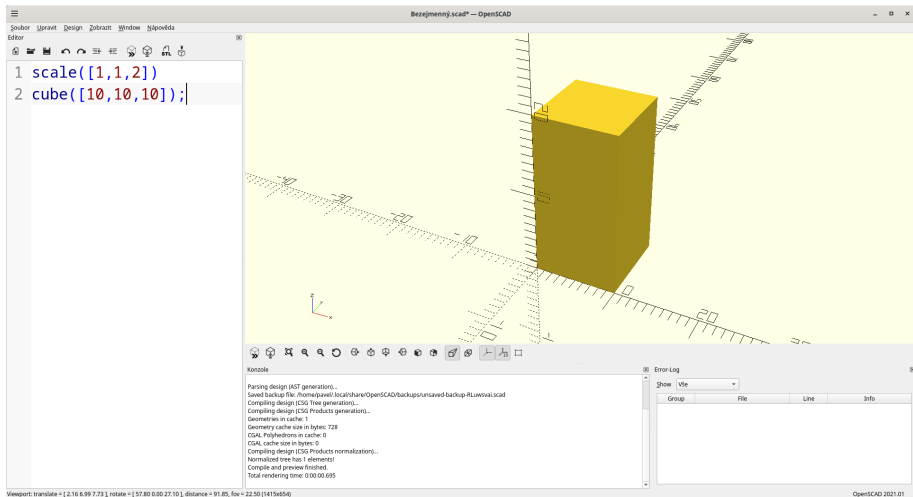
- `sphere(d=20);`

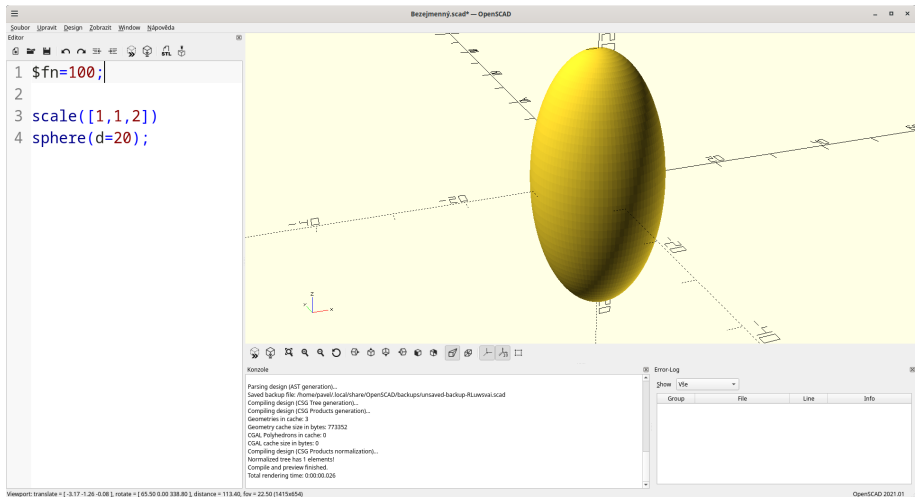


- `for(i=[0:1:5]) ...;`

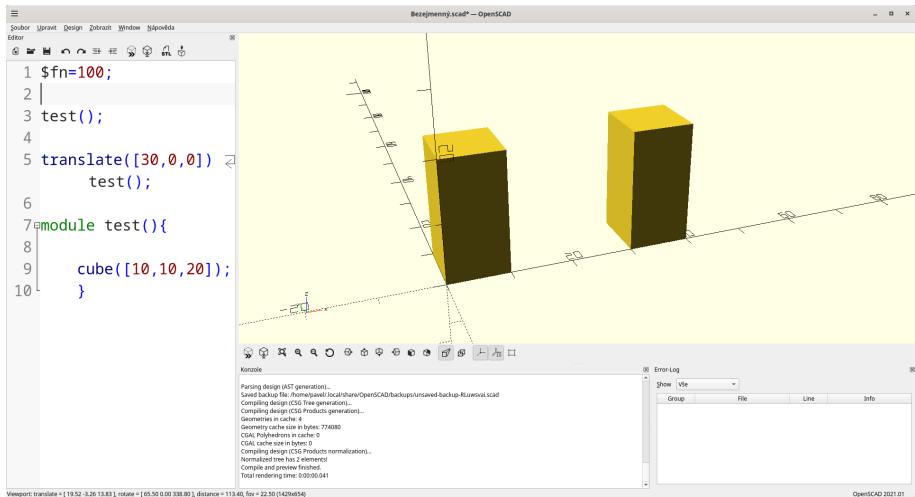


- `scale([x,y,z])`

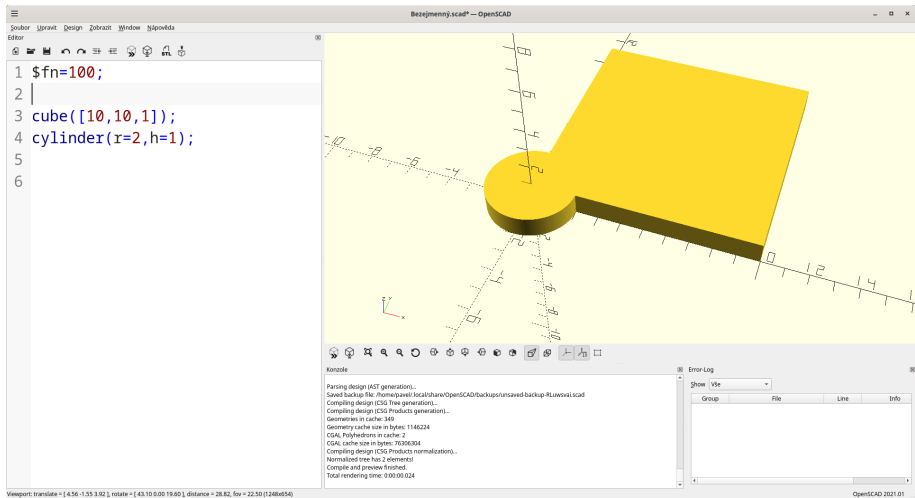


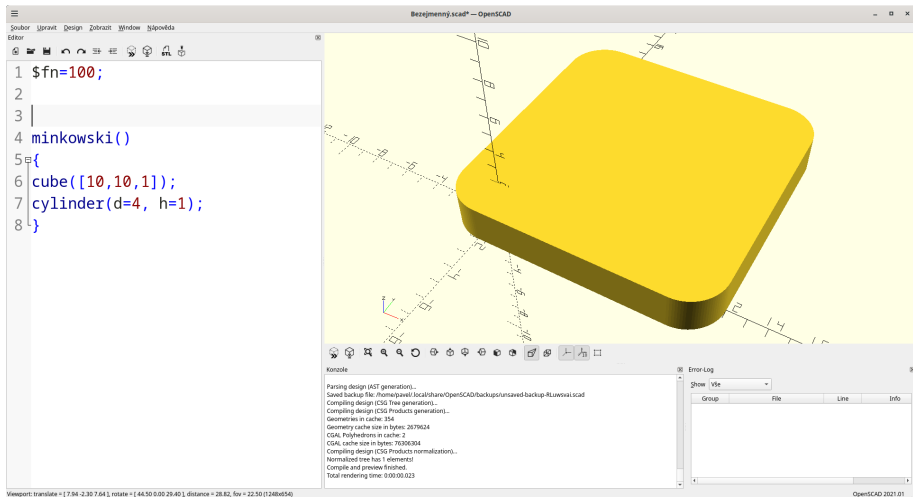


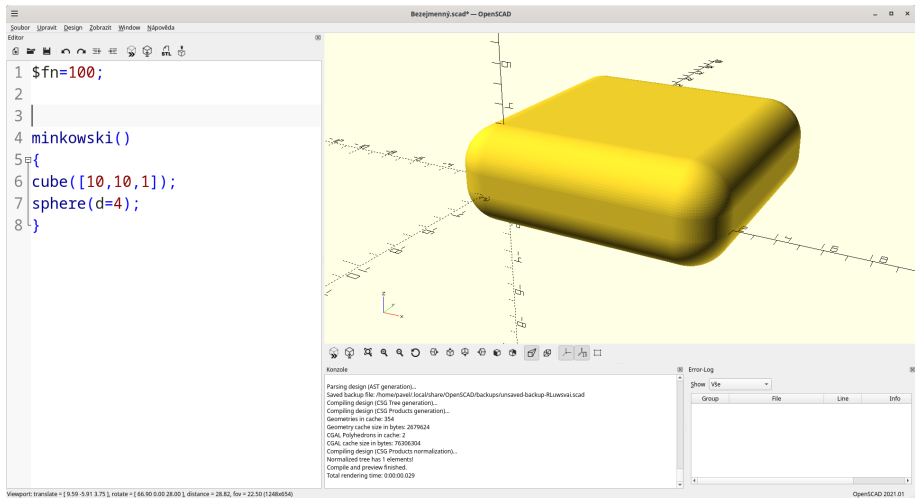
- `module test() {...}`



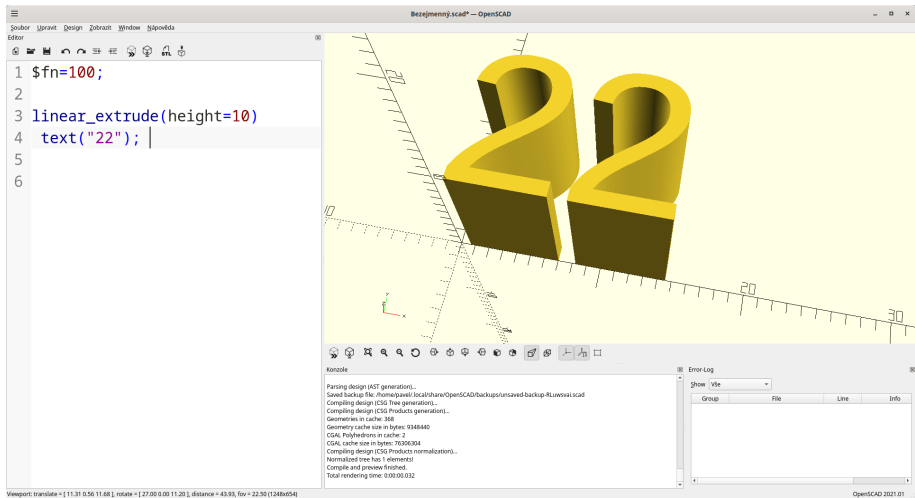
- `minkowski() { ... cylinder(d=4, h=1); }`
- `minkowski() { ... sphere(d=4); }`

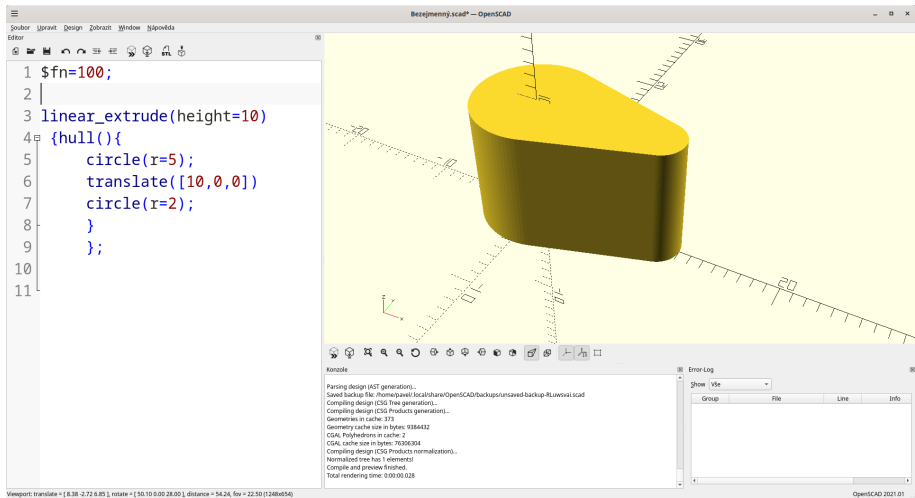


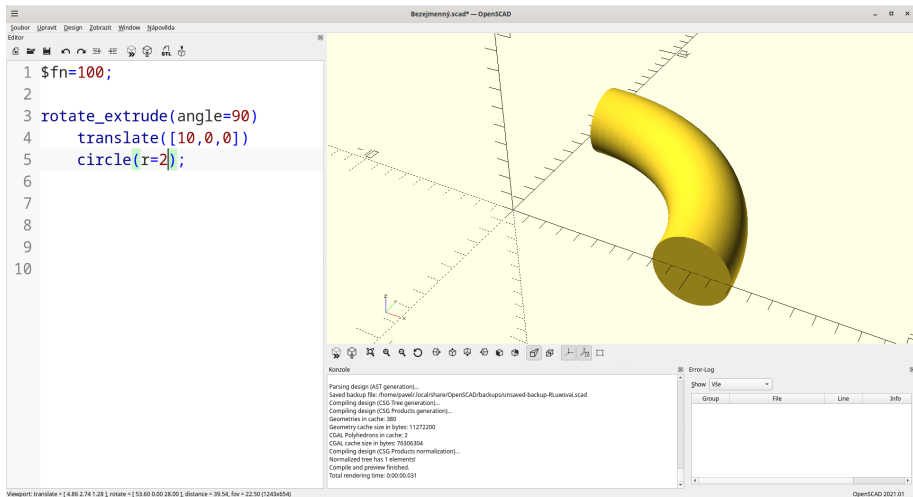




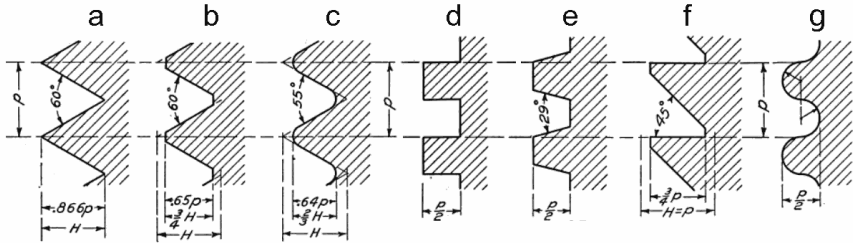
- `linear_extrude(height=10)() { ... }`



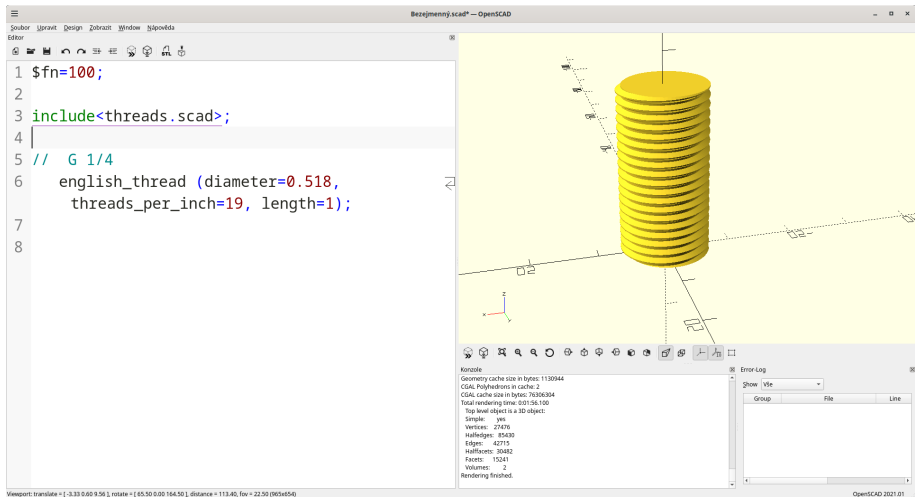




Závity

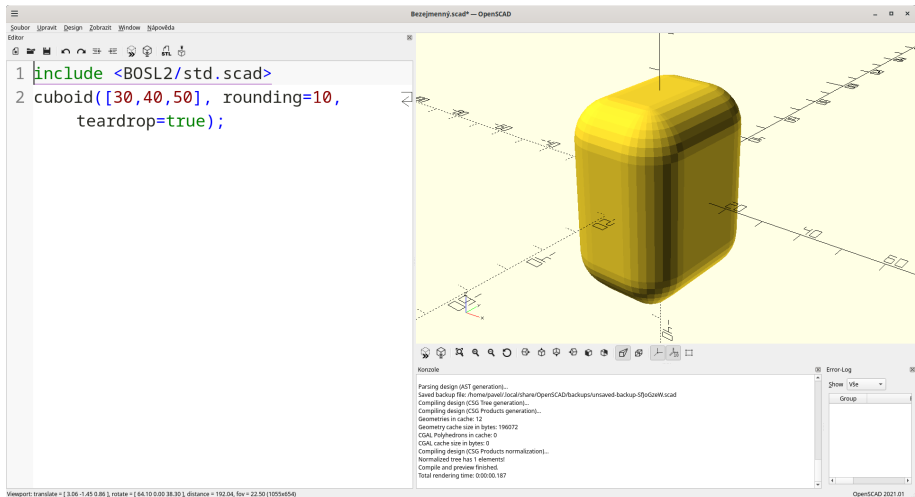


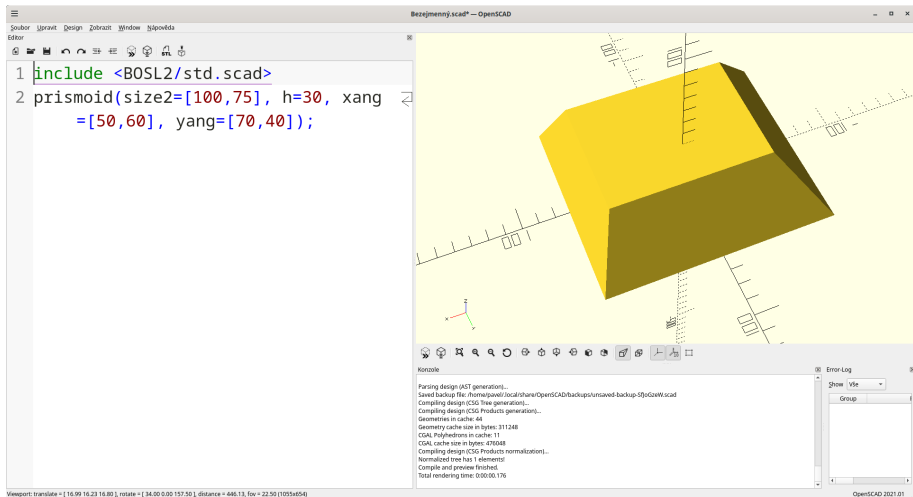
a) V-thread, b) American National thread, c) Whitworth, d) Square thread, e) Acme thread, f) Buttress thread, g) Knuckle thread; Edison thread
Wikimedia

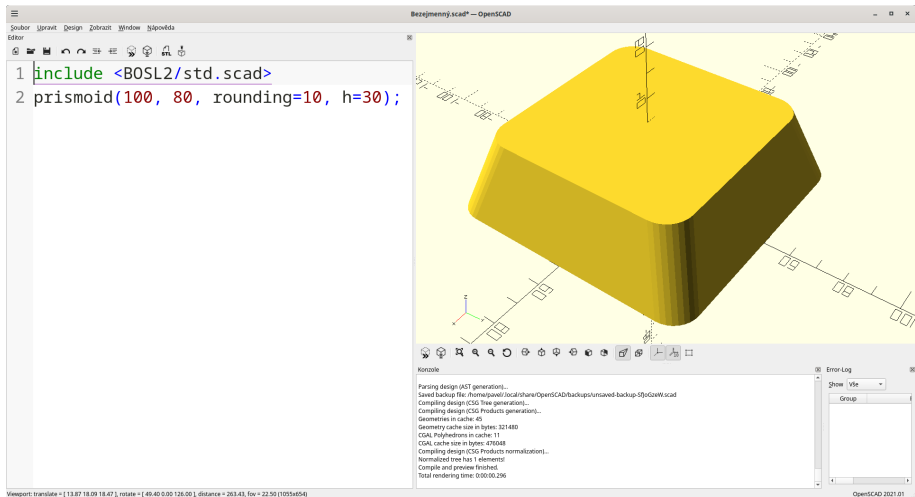


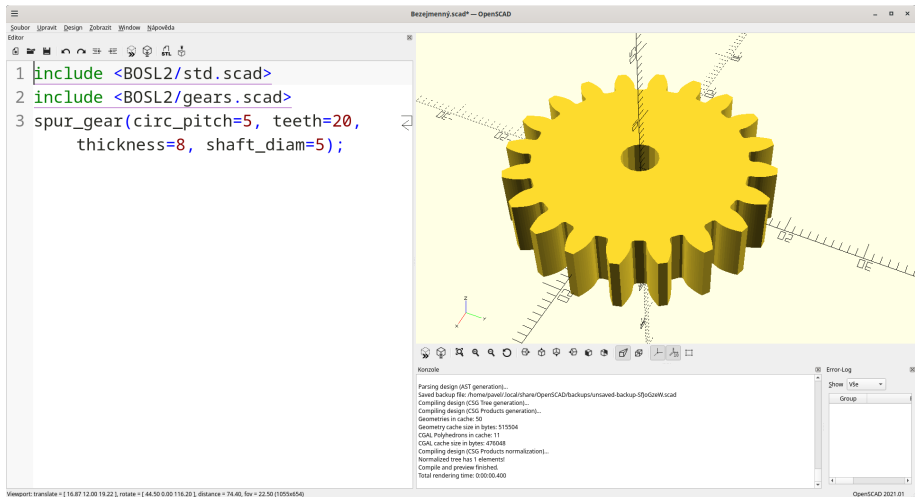
Knihovna - BOSL2

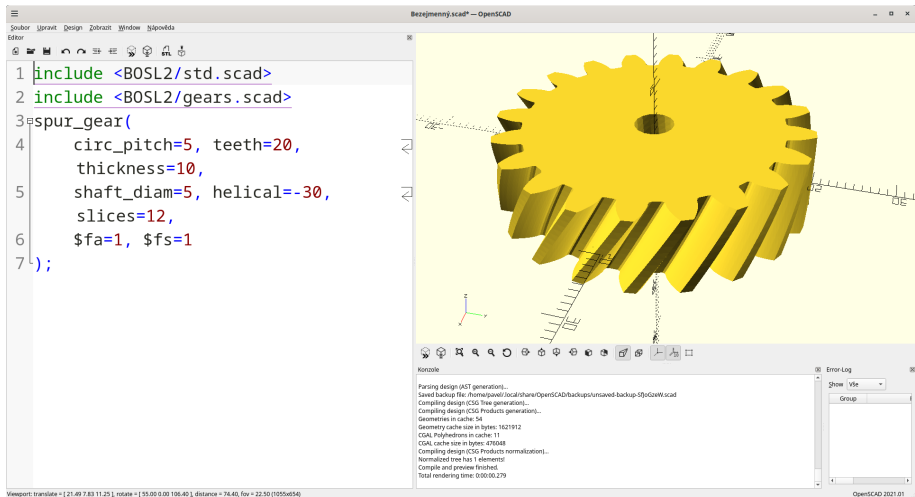
- 2D tvary
- 3D tvary
- ozubená kola
- závity
- ...

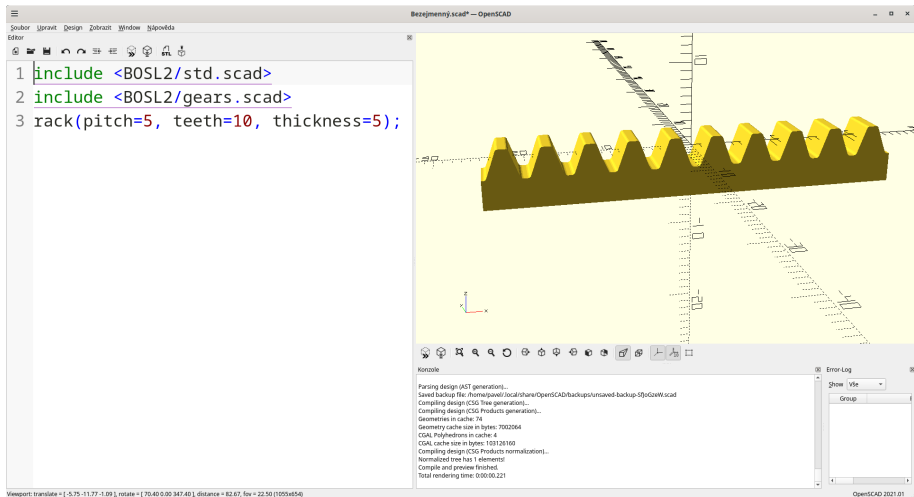


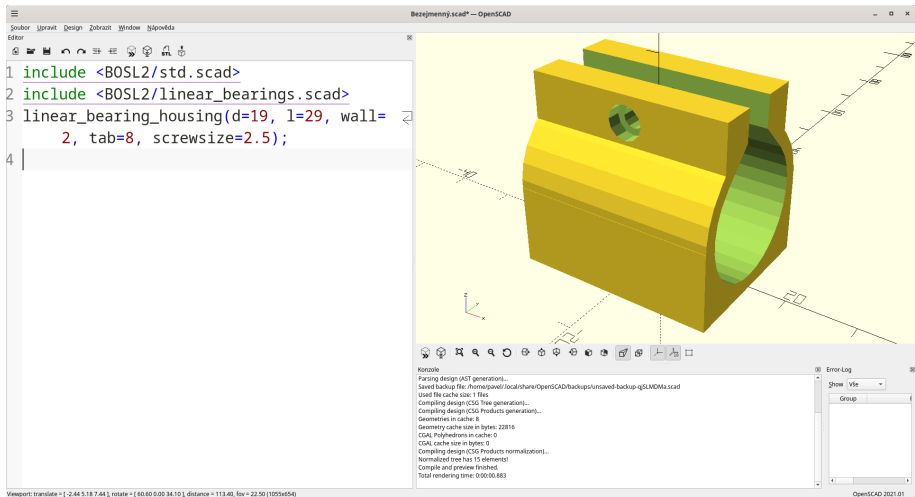


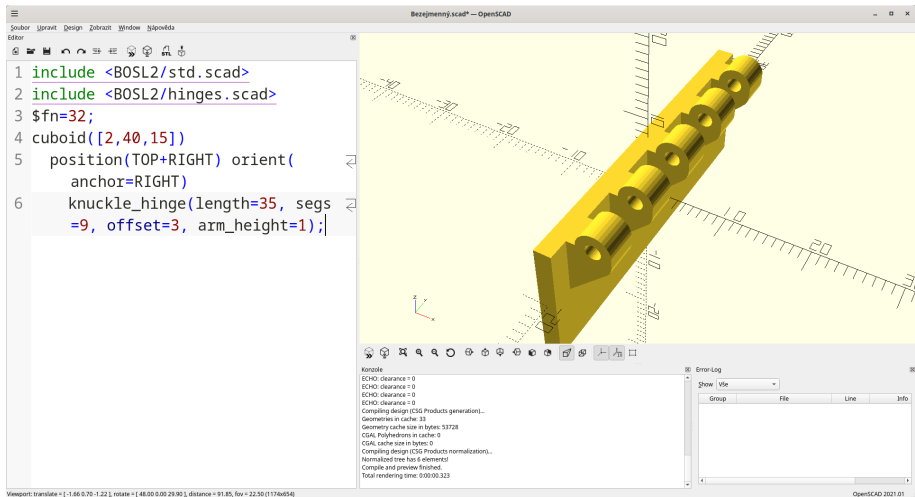


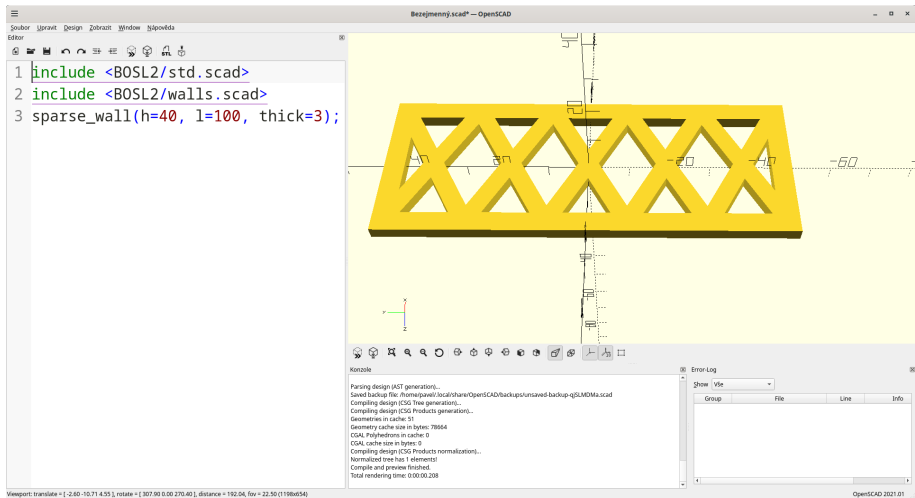


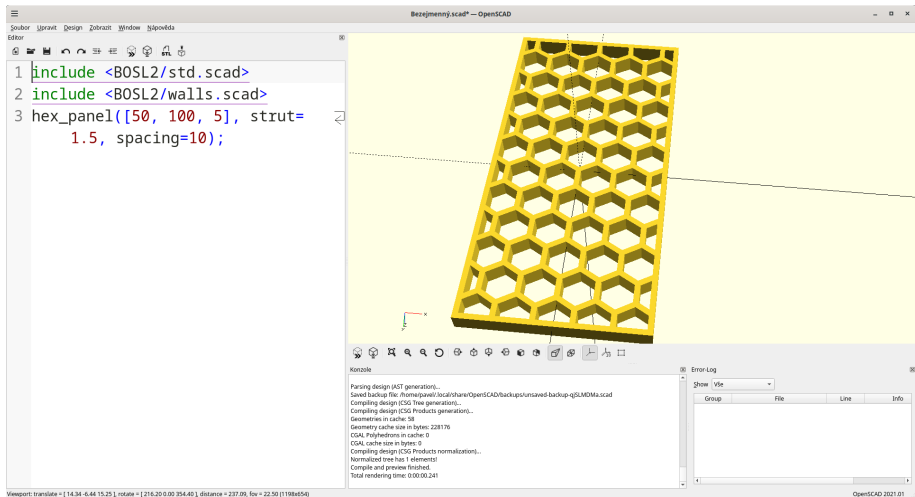












F3410 3D tisk v praxi

- podzimní semestr
- libovolný obor
- žádné předpoklady
- seznámení s 3D tiskem
- využití 3D tisku
- tvorba jednoduchých 3D modelů – OpenSCAD, FreeCAD, Blender
- zápočet - vlastní 3D model

F6101 Arduino v laboratoři

- letní semestr
- libovolný obor
- žádné předpoklady
- seznámení studentů s moduly Arduino – základní vlastnosti, programování, vstupní a výstupní zařízení a přídatné moduly.
- zápočet - účast