

Curves and surfaces in Architecture

BASIC INFORMATIONS

LEAD LECTURER	Dr. habil. Bölcskei Attila PhD	
LECTURERS	Dr. habil. Bölcskei Attila PhD	
TOPIC	Chapters from the Greek tradition: divina proportione, cycloid, epi and hypocycloid, involute, cissoid, strophoid, conchoid, lemniscate, algebraic curves. Representation problems of space curves. Modelling of famous polyhedra. Modelling and representation of a helicoid and Archimedes' tubular helix. Covering: triangulated surfaces and translation surfaces in architecture D-forms, Moebius band and Klein bottle. Plucker conoid, ellipsoid, ruled surface with Kardan motion	
TASKS	5 homeworks + portfolio	3 credits
LECTURES (WEEKLY)	-	
WORKSHOPS (WEEKLY)	1x2 hours (90 min)	
EXAM /TESTS	0/0	

GOAL OF THE SEMESTER: The subjects enriches the knowledge on curves and surfaces with many modelling, construction, drawing and applications in architecture.

OUTLINE FOR THE SEMESTER

WEEK	WORKSHOP	DEADLINE
1	Definition of curves. Basic computations and constructions for planar curves.	
2	Curves of second order I.	
3	Curves of second order II.	First home work
4	Introduction of surfaces. Surfaces of second order I	
5	Surfaces of second order II	Second homework
6	Spirals and their applications.	
7	Planar curves of order 3 and 4.	Third homework
8	Cycloids, epi- and hypocycloids. The evolute.	
9	Curve constructions from given curves. Set of curves. Curves in 3D.	
10	Surfaces of revolution. Ruled and developable surfaces.	Fourth homework
11	Tangent surface, roofs, conoids.	
12	Other important surfaces with applications.	
13	Surface constructions from given data.	Fifth homework

TASK / EXAM

	DESCRIPTION	TO HAND IN	SCORE
FIRST CONSTRUCTION	Conic sections	3. week	6
SECOND CONSTRUCTION	Quadrics	5. week	6
THIRD CONSTRUCTION	Construction of curves of third or fourth order.	7. week	6
FOURTH CONSTRUCTION	Surface construction with given curves	10. week	6

FIFTH CONSTRUCTION	Model of a surface	13.week	6
PORTFOLIO (COLLECTION OF DRAWINGS OF THE SEMESTER)			30
TOTAL			60

EVALUATING

0-29 points	30-37 points	38-47 points	48-52 points	53-60 points
1 - FAILED	2 - SUFFICIENT	3 - SATISFACTORY	4 - GOOD	5 - EXCELENT