

**ASSESSMENT TEST TOPICS**

Hermite, Bernstein and Coons polynomials are given as a part of the assignment

Drawing aids are necessary

<b>Ferguson cubic curve</b>	Vector equation of the curve and its tangent vector, calculation of coordinates of a curve point and tangent vector at the curve point, given and calculated data drawing, curve sketching, $C^0$ , $C^1$ and $C^2$ continuous connection of Ferguson cubic curves.
<b>Bézier curve</b>	Vector equation of the curve and its tangent vector, calculation of coordinates of a curve point and tangent vector at the curve point, control polygon drawing, de Casteljau algorithm for construction of a curve point and tangent vector at the curve point, tangent vectors at endpoints of the curve construction, curve sketching.
<b>Coons cubic curve</b>	Vector equation of the curve and its tangent vector, calculation of coordinates of a curve point and tangent vector at the curve point, control polygon drawing, curve endpoints construction, construction of tangent vectors at the curve endpoints, curve sketching.
<b>Coons cubic B-spline Clamped curve</b>	Vector equation of individual curve segments, control polygon drawing, knots construction, construction of tangent vectors at the curve endpoints, curve sketching, determination of the number of the curve segments, determination of the continuity of the curve.
<b>Curves interrelations</b>	Ferguson, Bézier and Coons cubic curves transformations, Bézier decomposition of Coons cubic B-spline and clamped curve.
<b>Continuity of two Bézier curves</b>	$C^0$ , $C^1$ and $C^2$ continuous connection of two Bézier curves – determining the coordinates of the control points of the connected Bézier curve by calculation and construction.
<b>Ruled surface, surface of hyperbolic paraboloid, Coons bilinear surface</b>	Vector equation of a surface, parametric curves, tangent vectors along the parametric curves, twist vectors, calculation of coordinates of a surface point, tangent vectors and twist vectors at the surface corners, boundary curves sketching, tangent planes at the surface corners construction.
<b>Bézier surface</b>	Vector equation of a surface, parametric curves, tangent vectors along the parametric curves, twist vectors, calculation of coordinates of a surface point, tangent vectors and twist vectors at the surface corners, control mesh construction, de Casteljau algorithm for construction of point on boundary curves, construction of tangent planes at the surface corners.
<b>Continuity between two Bézier surfaces</b>	$C^0$ , $C^1$ and $C^2$ continuous connection of two Bézier surfaces ( $m, n \leq 3$ ) – determining the coordinates of the control points of the connected Bézier surface by calculation and construction.
<b>Surfaces interrelations</b>	Interrelation between Bézier bicubic and Coons bilinear surface, clamped surface.