COMPUTER GRAPHICS – CGR E012037

PROGRAMME

Mo 10:45 – 12:15, KN:A-309		
Lecture	**19. 2.**	**Introduction** **Curves** – definition, analytic expression. **Continuity** – parametric C^0, C^1 and C^2 and geometric G^0, G^1 and G^2 continuity. **Ferguson cubic curve** – definition, properties, Hermite polynomials derivation.
Tutorial	**26. 2.**	**Ferguson cubic curve** – examples: vector equation, drawing, C^0, C^1 and C^2continuity at common point of two Ferguson cubic curves.
Lecture	**4. 3.**	**Bézier curve** – definition, properties, Bernstein polynomials derivation, de Castejlau algorithm, C^0, C^1 and C^2continuity at common point of two Bézier curves of 2nd and 3rd degree.
Tutorial	**11. 3.**	**Bézier curve** – examples: vector equation, tangent vectors, drawing, de Castejlau algorithm, continuity. **Short assessment test – Curves I**
Lecture	**18. 3.**	**Coons cubic curve** – definition, properties, Coons polynomials derivation. **Coons cubic B-spline** – definition, continuity, knots and tangent vectors at knots construction. **Clamped curve** – definition, continuity, knots and tangent vectors at knots construction.
Tutorial	**25. 3.**	**Coons cubic B-spline** – examples: vector equation of individual segments, knots and tangent vectors at knots construction. **Clamped curve** – examples: vector equation of individual segments, knots and tangent vectors at knots construction. **Short assessment test – Curves II**
	1. 4.	**Easter, the lesson is cancelled**
Tutorial	**8. 4.**	**Interpolation cubic curve** – 4 definition points, Bézier segments, C^2 continuity, boundary conditions, set of equations for unknown control vertices, modelling in Rhinoceros, construction.
Lecture	**15. 4.**	**Surface** – definition, properties, parametric curves, tangent vectors of parametric curves, twist vector, boundaries, corners, tangent planes at corners. **Ruled surface** – definition, properties, boundary curves, corners, tangent planes at corners, drawing. **Surface of hyperbolic paraboloid** – definition, properties, boundary curves, corners, tangent planes at corners, drawing.
Tutorial	**22. 4.**	**Ruled surface** – examples: vector equation, boundary curves, corners, tangent planes at corners, drawing. **Surface of hyperbolic paraboloid** – examples: vector equation, boundary curves, corners, tangent planes at corners, drawing. **Short assessment test – Surfaces I**
Lecture	**29. 4.**	**Coons bilinear surface** – definition, properties, boundary curves, corners, tangent planes at corners, drawing. **Bézier surface** – definition, properties, boundary curves, corners, tangent planes at corners, drawing.
Tutorial	**6. 5.**	**Coons bilinear surface** – examples: vector equation, boundary curves, corners, tangent planes at corners, drawing. **Short assessment test – Surfaces II**
Lecture	**13. 5.**	**Bézier surface** – examples: vector equation, boundary curves, corners, tangent planes at corners, drawing, C^0, C^1 and C^2 continuity along the common boundary of two Bézier surfaces.
Tutorial	**20. 5.**	**Final assessment test – Curves and surfaces**