CONSTRUCTIVE GEOMETRY
EXAM REQUIREMENTS

A (E01A021)	B (E011021)
Kinematic geometry	
Motion given by trajectories and envelopes: construction of new position of moving figure; construction of trajectory of moving point including tangent lines, construction of envelope of moving (line, circle) including points of contact; construction of instantaneous centre of rotation; construction of fixed and moving centrodes; determination of inverse motion.	Motion given by trajectories and envelopes: construction of new position of moving figure; construction of trajectory of moving point including tangent lines, construction of envelope of moving (line, circle) including points of contact; construction of instantaneous centre of rotation; construction of fixed.
Cyclic motion: construction of trajectory of moving point including tangent lines, construction of envelope of moving (line, circle) including points of contact, determination of inverse cyclic motion.	Cyclic motion: construction of trajectory of moving point including tangent lines, construction of envelope of moving (line, circle) including points of contact.
Analytic geometry	
Point: coordinates in E_2, E_3; distance between two points.	Point: coordinates in E_2, E_3; distance between two points.
Vector: given by two points, coordinates in E_2, E_3; magnitude. Scalar product, vector product, mixed product and applications of these products.	Vector: given by two points, coordinates in E_2, E_3; magnitude. Scalar product, vector product, mixed product and applications of these products.
Straight line: parametric, slope, segment and general equation; relation between point and straight line; relation between two straight lines.	Straight line: parametric, slope, segment and general equation; relation between point and straight line; relation between two straight lines.
Plane: parametric, segment and general equation; relation between point and plane, between straight line and plane, between two planes.	Plane: parametric, segment and general equation; relation between point and plane, between straight line and plane, between two planes.
Conic sections: definition, formula, sketching, construction of an ellipse by means of osculation circles.	Conic sections: formula, sketching, construction of an ellipse by means of osculation circles.
Quadrics: formula, sketching in technical isometry.	Quadrics: formula, sketching in technical isometry.

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Technical isometry	
Determination of orthogonal axonometry, isometry and technical isometry; construction of a solid given by technical drawing in technical isometry.	Construction of a solid given by technical drawing in technical isometry.
Surfaces of revolution and their intersection	
Surfaces of revolution: definition; construction of tangent plane and normal line at the point on surface of revolution; construction of intersection between surface of revolution and projecting plane; principal meridian construction.	Surfaces of revolution: definition; construction of tangent plane and normal line at the point on surface of revolution; principal meridian construction.
Intersections of surfaces of revolution: pointwise construction of intersection between two surfaces of revolution with parallel and intersecting axes; condition and construction of degenerated intersection of two quadrics of revolution.	Intersections of surfaces of revolution: pointwise construction of intersection between two surfaces of revolution with parallel and intersecting axes; construction of degenerated intersection of two quadrics of revolution.
Developable surfaces	
Developable surfaces: properties and types of developable surfaces; construction of development of cylinder of revolution, cone of revolution; construction of development in case of degenerated intersection of two quadrics of revolution.	Developable surfaces: properties and types of developable surfaces; construction of development of cylinder of revolution, cone of revolution,
Helix, helicoidal surfaces	
Helix: definition and determination; construction of intersection of helix and axial plane or plane perpendicular to axis; construction of tangent line.	Helix: definition and determination; construction of intersection of helix and axial plane or plane perpendicular to axis; construction of tangent line.
Helicoidal surfaces: definition and determination; construction of principal meridian and normal section.	Helicoidal surfaces: definition and determination; construction of point of principal meridian and normal section.