Functions of few variables.

1. Sequence limit, function limit. Continuity. Theorems on continuity: f+g, fg, f/g, cf. Continuity of composite functions.

2. Partial derivative - definition, the geometrical and physical senses. Differentiability. Differentiation of the composite functions, the chain rule. Implicit function and its derivatives.

3. Directional derivative, gradient, differential. Level set: level curve and its tangent, level surface and its tangent plane.

4. The invariance of the form of the first-order differential. High order derivatives. Mixed partial derivatives and their equality regardless the differentiation order. High order differentials.

5. Local, global extremum. The Fermat theorem. Second differential and criterion of local maximum or minimum (2-dimensional case).

Multiple integrals

1. Double integral. Definition . Physical and geometrical sense. Reduction to repeated integral. Triple and multiple integrals.