ABSTRACTS OF PH.D. THESES

Selected abstracts of Ph.D. theses submitted at Moscow State University of Railway Engineering

Alferov, I. V. Study of dynamic support reactions in beam, folded and truss systems. Abstract of P.D. (Eng.) thesis. Moscow, 2016, 24 p.

The mathematical models for the study of the horizontal support reaction are obtained. A flat-spatial design scheme is offered that allows to consider superstructure, movable load, massive elastic support within a single dynamic problem is offered. The numerical solutions for systems «movable load – span – solid support», «movable load – span – subgrade» with definition of dynamic values of the horizontal support reaction are made. The dynamic problem of braking of a vehicle moving along the superstructure is solved by reviewing the system, consisting of a vehicle and a superstructure.

Aung Zaw Tun. The automatic speed control system of an electric train of urban transport system of Yangon. Abstract of Ph.D. (Eng.) thesis. Moscow, 2016, 24 p.

The thesis proposed an adaptive system of automatic control of electric train speed, which takes into account the characteristics of a control object and the conditions of its movement. The choice of parameters, varying according to the characteristics of a train, allows to satisfy the requirements to ACS. To convert a value of speed, set by an upper level of automatic driving system into the input signal of ACS by speed of an electric train of urban transport system an operator is used, which is an integrated element with saturation.

Berhane Abraha Mongustu. Research and optimization of power supply system, taking into account the uncertainty of a part of initial information (based on the example of Gash Barka region of Eritrea). Abstract of Ph.D. (Eng.) thesis. Moscow, 2016, 24 p.

A topological model of new towns and villages of Gash Barka region is formed, rational parameters of the power supply system using a scheme of deep feeding high voltage, depending on the geometric dimensions of the district and surface load are defined. The analysis of the current state of power economy and electrification of agriculture of Eritrea and the region Gash Barka with the prospect of its development is conducted, the energy resources of the country are studied and on the basis of a comparison of generating facilities and power consumption zoning maps of Eritrea at the average annual number of hours of sunshine, the distribution of wind energy and other sources of energy, electricity standards and the estimated maximum power are offered

Bokachev, R. A. Estimation of economic efficiency of new forms of management of the cost of construction of transport infrastructure. Abstract of Ph.D. (Economics) thesis. Moscow, 2016, 24 p.

A leading role of material costs in the structure of capital investments in the construction of transport infrastructure facilities and the need to consider these costs as the most effective control lever of investment size in construction is determined. The most essential components of the estimated prices for materials ae revealed. The approaches to formation of weighted average estimated prices for material resources on the basis of multi-parameter model, allowing to reflect in the budget price a process for determining a supplier of materials, characteristic of the market economy, are offered. The factors of influence of material costs on the change in the investment and tax flows of a project are revealed. The methodical approach to evaluation of the implementation of new methods for determining the estimated material costs in terms of changing the final indicators of economic efficiency of investment programs is offered.

Kaletin, S. V. Ways to improve the dynamic properties of a bogie and durability of axle boxes of freight cars. Abstract of Ph.D. (Eng.) thesis. Moscow, 2016, 28 p.

A refined mathematical model of a freight car with bogies equipped with axle boxes or adapters with different load transfer schemes in the axle aperture of a side frame describing fluctuations in straight and curved track sections is developed, justified and recommended; a three-dimensional finite element model for estimating stress strain state of an adapter of a cassette-axle unit, taking into account influence of the wheelset design, is developed; a method of calculating durability of a bearing in relation to the cassette axle units is refined.

Struchalin, V. G. Ensuring fire safety of boilers of tank wagons for carriage of flammable and combustible liquids. Abstract of Ph.D. (Eng.) thesis. Moscow, 2016, 24 p.

The model of overlapping of explosive zones of gas-air mixture near an open hand-hole of boilers of tank wagons, as well as the algorithm for estimating the incendiary ability of friction sparks are developed. The dependence of minimum ignition energy of friction sparks of material of locking and sealing devices and construction materials on the diameter and velocity of the particles is found. Practical recommendations for ensuring fire safety of boilers of tank wagons are given.