



**JOURNAL OF
MECHANICAL ENGINEERING,
AUTOMATION AND CONTROL SYSTEMS**

JUNE 2022 | VOLUME 3 | ISSUE 1 | ISSN 2669-2600 | ISSN ONLINE 2669-1361

Editor in Chief

Algazy Zhauyt Almaty University of Power Engineering and Telecommunications,
(Kazakhstan) ali84jauit@mail.ru

Assistant Editor

Janat Musayev Kazakh Academy of Transport and Communications M. Tynyshpaev,
(Kazakhstan) mussayev75@yandex.kz

Editorial Board

Murat Zh. Adambayev Almaty University of Power Engineering and Telecommunications,
(Kazakhstan) adambaev_m@mail.ru

Saule E. Bekzhanova Kazakh Academy of Transport and Communications
named after M. Tynyshpayev, (Kazakhstan) s.bekzhanova@bk.ru

Toty Buzauova Karaganda State Technical University, (Kazakhstan) toty_77@mail.ru

Seckin Filiz Tekirdag Namik Kemal University, (Turkey) sfiliz@nku.edu.tr

Piotr Gierlak Rzeszow University of Technology, (Poland) pgierlak@prz.edu.pl

Mikhael Ya. Kuashnin Kazakh Academy of Transport and Communications
named after M. Tynyshpayev, (Kazakhstan) kvashnin_mj55@mail.ru

Narzankul M. Makhmetova Kazakh Academy of Transport and Communications
named after M. Tynyshpayev, (Kazakhstan) makhmetova_n1958@mail.ru

Vladimir G. Solonenko Kazakh Academy of Transport and Communications
named after M. Tynyshpayev, (Kazakhstan) v.solonenko@mail.ru

Yerbol S. Temirbekov Kazakh National University named after Al-Farabi, (Kazakhstan) temirbekove@mail.ru

Kazhybek T. Tergemes Almaty University of Power Engineering and Telecommunications,
(Kazakhstan) tergemes@mail.ru

JMEACS Journal of Mechanical Engineering, Automation and Control Systems

Aims and Scope

JMEACS publishes a wide range of original research and review articles. The journal Editorial Board welcomes manuscripts in both fundamental and applied research areas, and encourages submissions which contribute novel and innovative insights to the field of mechanical engineering. All submitted articles considered suitable for JMEACS are subjected to rigorous peer review to ensure the highest levels of quality. Original papers which provide an important contribution to the development of mechanical engineering and report on significant developments in the field are encouraged. The review process is carried out as quickly as possible to minimize any delays in the online publication of articles. JMEACS aims to advance the understanding of mechanical engineering by providing a platform for the publication of unique contributions in the field of mechanical engineering across a variety of topics, including.

The list of principal topics:

- Mechanical engineering
- Materials science
- Applied mechanics
- Controls and dynamics
- Machine design
- Design theory and methodology
- Dynamic traffic signal control
- Transportation and logistics
- Railway engineering
- Bridge engineering
- Tunnel engineering
- Urban rail construction
- Engineering machinery
- Mechatronics
- Rotor dynamics
- Industrial robotics
- Intelligent control systems
- Haptics and human-machine-interfaces
- Robotics, mechatronics and micro-machines
- Mechanisms, mechanical transmissions and machines
- Kinematics, dynamics, and control of mechanical systems
- Manufacturing engineering
- Intelligent transportation systems and traffic control
- Automation, CNC machines and robotics
- Dynamics of machines, vehicles and flying structures
- Intelligent systems
- Computational mechanics
- Electronics, information and control systems
- Robotics and robot applications
- Robotic and control systems
- Mechanics of materials
- Intelligent control systems
- Mechatronics and robotics

All published papers are peer reviewed and crosschecked by plagiarism detection tools.

More information is available online <https://www.extrica.com/journal/jmeacs>

The journal material is referred:

EBSCO: <https://www.ebsco.com>

Directory of Open Access Journals (DOAJ): <https://doaj.org>

Google Scholar: <https://scholar.google.com>

JGate: <https://jgateplus.com>

CORE: <https://core.ac.uk>

CNKI Scholar: <http://eng.scholar.cnki.net>

cnPLINKer (CNPIEC): <http://cnplinker.cnpeak.com>

CiteFactor: <https://www.citefactor.org>

WorldCat Discovery Services: <https://www.oclc.org/en/worldcat-discovery.html>

MyScienceWork: <https://www.mysciencework.com>

Crossref: <https://search.crossref.org>

Internet: <https://www.extrica.com>

E-mail: publish@extrica.com

Publisher: JVE International Ltd., Geliu ratas 15A, LT-50282, Kaunas, Lithuania

JMIE Journal of ACS Mechanical Engineering, Automation and Control Systems

JUNE 2022. VOLUME 3, ISSUE 1, PAGES (1-46), ISSN PRINT 2669-2600, ISSN ONLINE 2669-1361

Contents

EFFECT OF THE GEOMETRICAL PARAMETERS ON THE VEHICLE'S MOVING STABILITY XIAOBIN YE, VANLIEM NGUYEN, MINGRUI KE	1
NONLINEAR DYNAMIC ANALYSIS AND DEFECT DETECTION OF GEARS M. ER-RAOUDI, M. DIANY, H. AISSAOUI, M. MABROUKI	9
A COMPARATIVE ANALYSIS OF DIFFERENT APPROACHES USED FOR MODELLING AND SOLVING DIFFERENTIAL EQUATIONS IN SIMULINK/MATLAB PANKAJ MOHINDRU, POOJA MOHINDRU	23
THRESHOLD ANALYSIS METHOD FOR AIRCRAFT AVOIDING CONVECTIVE WEATHER SHUMIN XIAO, YINFENG LI, RANRAN SHANG, LU YANG, XIUJIE WEI	35



JVE INTERNATIONAL