

Effect Of Edm Process Parameters On Surface Roughness

Micro Electro Discharge Machining (EDM) is a prominent technology for the fabrication of micro components in many fields. Nowadays, it is used like a conventional machine tool due to favorable characteristics. This book provides the fundamental knowledge of the principles of the process and its variants, the different process parameters, the role of machine components and systems, the challenges, and how to eliminate processing errors. It also includes real life applications of micro EDM in different areas with the most relevant examples.

The book includes the best articles presented by researchers, academicians and industrial experts at the International Conference on "Innovative Design and Development Practices in Aerospace and Automotive Engineering (I-DAD 2018)". The book discusses new concept in designs, and analysis and manufacturing technologies for improved performance through specific and/or multi-functional design aspects to optimise the system size, weight-to-strength ratio, fuel efficiency and operational capability. Other aspects of the conference address the ways and means of numerical analysis, simulation and additive manufacturing to accelerate the product development cycles.Describing innovative methods, the book provides valuable reference material for educational and research organizations, as well as industry, wanting to undertake challenging projects of design engineering and product development.

Machining of Metal Matrix Composites provides the fundamentals and recent advances in the study of machining of metal matrix composites (MMCs). Each chapter is written by an international expert in this important field of research. Machining of Metal Matrix Composites gives the reader information on machining of MMCs with a special emphasis on aluminium matrix composites. Chapter 1 provides the mechanics and modelling of chip formation for traditional machining processes. Chapter 2 is dedicated to surface integrity when machining MMCs. Chapter 3 describes the machinability aspects of MMCs. Chapter 4 contains information on traditional machining processes and Chapter 5 is dedicated to the grinding of MMCs. Chapter 6 describes the dry cutting of MMCs with SiC particulate reinforcement. Finally, Chapter 7 is dedicated to computational methods and optimization in the machining of MMCs. Machining of Metal Matrix Composites can serve as a useful reference for academics, manufacturing and materials researchers, manufacturing and mechanical engineers, and professionals involved with MMC applications. It can also be used to teach modern manufacturing engineering or as a textbook for advanced undergraduate and postgraduate engineering courses in machining, manufacturing or materials.

This book presents selected papers from the international conference on advanced manufacturing and materials sciences (ICAMMS 2018). The papers reflet recent advances in manufacturing sector focusing on process optimization and give emphasis to testing and evaluation of new materials with potential use in industrial applications.

Innovative Design, Analysis and Development Practices in Aerospace and Automotive Engineering (I-DAD 2018)

Non-Conventional Machining in Modern Manufacturing Systems

Recent Advances in Material Sciences

Advanced Materials Research X

Advances in Engineering Research and Application

Advances in Industrial and Production Engineering

This article presents a study on the investigation of the effects of the input parameters on the cutting speed in machining 9CrSi tool steel using wire cut electrical discharge machining (EDM). In this work, experiments were performed with factorial design with a total of 32 experimental runs. In addition, the input factors including the pulse on time, the pulse off time, the cutting voltage, the server voltage, the wire feed and the feed speed were carefully selected for the investigation. The effects of this factors on the cutting speed were learned by analysing variance. Moreover, a regression equation to determine the cutting speed was introduced.

This book presents a complete coverage of micromachining processes from their basic material removal phenomena to past and recent research carried by a number of researchers worldwide. Chapters on effective utilization of material resources, improved efficiency, reliability, durability, and cost effectiveness of the products are presented. This book provides the reader with new and recent developments in the field of micromachining and microfabrication of engineering materials.

This book presents the advances in abrasive based machining and finishing in broad sense. Specifically, the book covers the novel machining and finishing strategies implemented in various advanced machining processes for improving machining accuracy and overall quality of the product. This book presents the capability of advanced machining processes using abrasive grain. It also covers ways for enhancing the production rate as well as quality. It fulfills the gap between the production of any complicated components and successful machining with abrasive particles.

This book comprises the select proceedings of the 2nd International Conference on Future Learning Aspects of Mechanical Engineering (FLAME) 2020. In particular, this volume discusses different topics of industrial and production engineering such as sustainable manufacturing processes, logistics, Industry 4.0 practices, circular economy, lean six sigma, agile manufacturing, additive manufacturing, IoT and Big Data in manufacturing, 3D printing, simulation, manufacturing management and automation, surface roughness, multi-objective optimization and modelling for production processes, developments in casting, welding, machining, and machine tools. The contents of this book will be useful for researchers as well as industry professionals.

Advanced Machining Processes

Nontraditional and Hybrid Machining Processes

Advances in Abrasive Based Machining and Finishing Processes

Advanced Methods of Machining

Effect of Pulse Duration and Current on Machining Performance During Electrical Discharge Machining (EDM) of Allegheny Ludlum D2 Tools Steel (UNS T30402)

Recent Advances in Manufacturing Modelling and Optimization

All machining process are dependent on a number of inherent process parameters. It is of the utmost importance to find suitable combinations to all the process parameters so that the desired output response is optimized. While doing so may be nearly impossible or too expensive by carrying out experiments at all possible combinations, it may be done quickly and efficiently by using computational intelligence techniques. Due to the versatile nature of computational intelligence techniques, they can be used at different phases of the machining process design and optimization process. While powerful machine-learning methods like gene expression programming (GEP), artificial neural network (ANN), support vector regression (SVM), and more can be used at an early phase of the design and optimization process to act as predictive models for the actual experiments, other metaheuristics-based methods like cuckoo search, ant colony optimization, particle swarm optimization, and others can be used to optimize these predictive models to find the optimal process parameter combination. These machining and optimization processes are the future of manufacturing. Data-Driven Optimization of Manufacturing Processes contains the latest research on the application of state-of-the-art computational intelligence techniques from both predictive modeling and optimization viewpoint in both soft computing approaches and machining processes. The chapters provide solutions applicable to machining or manufacturing process problems and for optimizing the problems involved in other areas of mechanical, civil, and electrical engineering, making it a valuable reference tool. This book is addressed to engineers, scientists, practitioners, stakeholders, researchers, academicians, and students interested in the potential of recently developed powerful computational intelligence techniques towards improving the performance of machining processes.

This book provides an update on recent advances in various areas of modern engineering design, such as mechanical, materials, computer, and process engineering, which provide the foundation for the development of improved structures, materials, and processes. The modern design cycle is characterized by the interaction of different disciplines and a strong shift toward computer-based approaches involving only a small number of experiments for verification purposes. A major driver for this development is the increased demand for cost reduction, which is also connected to environmental demands. In the transportation industry (e.g. automotive or aerospace), where there is a demand for greater fuel efficiency, one solution is lighter structures and/or improved processes for energy conversion. Another emerging area is the interaction of classical engineering with the health and medical sector.

This book gathers selected research articles from the International Conference on Innovative Product Design and Intelligent Manufacturing System (ICIPDIMS 2019), held at the National Institute of Technology, Rourkela, India. The book discusses latest methods and advanced tools from different areas of design and manufacturing technology. The main topics covered include design methodologies, industry 4.0, smart manufacturing, and advances in robotics among others. The contents of this book are useful for academics as well as professionals working in industrial design, mechatronics, robotics, and automation.

This book presents the latest advances in manufacturing from both the experimental and simulation point of view. It covers most aspects of manufacturing engineering, i.e. theoretical, analytical, computational and experimental studies. Experimental studies on manufacturing processes require funds, time and expensive facilities, while numerical simulations and mathematical models can improve the efficiency of using the research results. It also provides high level of prediction accuracy and the basis for novel research directions.

Select Proceedings of ICAPIE 2019

Data-Driven Optimization of Manufacturing Processes

Optimization Using Evolutionary Algorithms and Metaheuristics

Recent Advances in Manufacturing Processes and Systems

Comprehensive Materials Finishing

Machining of Metal Matrix Composites

This book covers the International Conference on Engineering Research and Applications (ICERA 2021), which took place at Thai Nguyen University of Technology, Thai Nguyen, Vietnam on December 102, 2021, and provided an international forum to disseminate information on latest theories and practices in engineering research and applications. The conference focused on original research work in areas including mechanical engineering, materials and mechanics of materials, mechatronics and micromechatronics, automotive engineering, electrical and electronics engineering, information and communication technology. By disseminating the latest advances in the field, the Proceedings of ICERA 2021, Advances in Engineering Research and Application, helps academics and professionals alike to reshape their thinking on sustainable development.

Finish Manufacturing Processes are those final stage processing techniques which are deployed to bring a product to readiness for marketing and putting in service. Over recent decades a number of finish manufacturing processes have been newly developed by researchers and technologists. Many of these developments have been reported and illustrated in existing literature in a piecemeal manner or in relation only to specific applications. For the first time, Comprehensive Materials Finishing integrates a wide body of this knowledge and understanding into a single, comprehensive work. Containing a mixture of review articles, case studies and research findings resulting from R & D activities in industrial and academic domains, this reference work focuses on how some finish manufacturing processes are advantageous for a broad range of technologies. These include applicability, energy and technological costs as well as practicability of implementation. The work covers a wide range of materials such as ferrous, non-ferrous and polymeric materials. There are three main distinct types of finishing processes: Surface Treatment by which the properties of the material are modified without generally changing the physical dimensions of the surface; Finish Machining Processes by which a small layer of material is removed from the surface by various machining processes to render improved surface characteristics; and Surface Coating Processes by which the surface properties are improved by adding fine layer(s) of materials with superior surface characteristics. Each of these primary finishing processes is presented in its own volume for ease of use, making Comprehensive Materials Finishing an essential reference source for researchers and professionals at all career stages in academia and industry. Provides an interdisciplinary focus, allowing readers to become familiar with the broad range of uses for materials finishing Brings together all known research in materials finishing in a single reference for the first time Includes case studies that illustrate theory and show how it is applied in practice

This book provides the systematic knowledge of a novel process of servo scanning 3D micro-electro-discharge machining (SS-3D micro-EDM), covering principles, methods, technologies, and optimization for machining 3D microstructures of conductive materials. The content emphasizes the systematic knowledge as well as the frontier research progress of SS-3D micro-EDM, allowing it to be used as a reference handbook for planning the whole machining process of 3D microstructures, for designing machining systems or machine tools, and even for understanding the ideas of innovative processes. The processes and the machine tools of SS-3D micro-EDM have promising applications in multi-fields for machining micro-devices or microstructures made of melt and metal alloy materials. The included methods and technologies are verified by testing and machining experiments. Thus, this book presents many machining examples, including the experimental parameters, conditions, and systems. These help the readers understand the concepts, theories, and methods easily and provide practical operation guidance for engineering applications in industrial machining processes and machine tools.

This book offers a comprehensive collection of micro electrical discharge machining (EDM) processes, including hybrid processes. It discusses the theory behind each process and their applications in various technological as well as biomedical domains, and also presents a brief background to various micro EDM processes, current research challenges, and detailed case studies of micro-manufacturing miniaturized parts. The book serves as a valuable guide for students and researchers interested in micro EDM and other related processes.

Proceeding Book of International Conference

Advances in Manufacturing Technology XXX

Micro-electrical Discharge Machining Processes

Electrical Discharge Machining. Optimization of Chromium Powder Mixed EDM Parameters During Machining of H13 Tool Steel

Servo Scanning 3D Micro Electro Discharge Machining

Technologies and Applications

Selected peer-reviewed full text papers from the 10th International Conference on Advanced Materials Research (10th ICAMR-2020) Selected, peer-reviewed papers from the 10th International Conference on Advanced Materials Research (10th ICAMR-2020), January 17-20, 2020, Okinawa, Japan

Technical plasmas have a wide range of industrial applications. The Encyclopedia of Plasma Technology covers all aspects of plasma technology from the fundamentals to a range of applications across a large number of industries and disciplines. Topics covered include nanotechnology, solar cell technology, biomedical and clinical applications, electronic materials, sustainability, and clean technologies. The book bridges materials science, industrial chemistry, physics, and engineering, making it a must have for researchers in industry and academia, as well as those working on application-oriented plasma technologies. Also Available Online This Taylor & Francis encyclopedia is also available through online subscription, offering a variety of extra benefits for researchers, students, and librarians, including: Citation tracking and alerts Active reference linking Saved searches and marked lists HTML and PDF format options Contact Taylor and Francis for more information or to inquire about subscription options and print/online combination packages. US: (Tel) 1.888.318.2367; (E-mail) e-reference@taylorandfrancis.com International: (Tel) +44 (0) 20 7017 6062; (E-mail) online.sales@tandf.co.uk

This book reports on cutting-edge research and technologies in the field of advanced manufacturing and materials, with a special emphasis on unconventional machining process, rapid prototyping and biomaterials. Based on the International Conference on Manufacturing Engineering and Materials (ICMEM 2018), held in Nový Smokovec, Slovakia on 18–22 June 2018, it covers advances in various disciplines, which are expected to increase the industry ’ s competitiveness with regard to sustainable development and preservation of the environment and natural resources. Condition monitoring, industrial automation, and diverse fabrication processes such as welding, casting and molding, as well as tribology and bioengineering, are just a few of the topics discussed in the book ’ s wealth of authoritative contributions.

Today ’ s stringent design requirements and difficult-to-machine materials such as tough super alloys, ceramics, and composites, have made traditional machining processes costly and obsolete. As a result, manufacturers and machine design engineers are turning to advance machining processes. These machining processes utilizes electrical, chemical, and optimal sources of energy to bind, form and cut materials. El-Hofy rigorously explains how each of these advanced machining process work, their machining system components, process variables and industrial applications, making this book the perfect guide for anyone designing, researching or converting to a more advance machining process.

Principles and Applications

Experiments and Simulations in Advanced Manufacturing

Advances in Nonconventional Machining Processes

Select Proceedings of ICLIET 2018

Concepts and Applications

Bachelor Thesis from the year 2017 in the subject Engineering - General, Basics., course: Mechanical Engineering, language: English, abstract: Electric Discharge Machining is mainly used for very hard materials. Now a days we know that product and process technology is very advance, many types of new materials are being developed which have very high strength, high thermal and electrical conductivity which are difficult to machine by traditional machining methods. So Non-conventional machining methods are used to machine such type of materials, EDM is also one of the Non-conventional machining methods which is used to machine such advance hard and brittle materials to satisfy the present days product needs like aerospace, mould, dies and other applications. Mixing of powders into dielectric fluid is a one of the recent advancement in the EDM process to improve its process capabilities and is known as Powder Mixed Electric Discharge Machining (PMEDM) process. The objective of this work is mainly to study the effect of various input parameters like pulse-on-time, discharge current, tool material and grit size on the various output parameters like MRR, TWR, Surface Roughness, Hole Diameter Variation and Micro structure. In this study, these output parameters are studied by using the ANOVA through Minitab17 software. By using this software, study the Means and S/N ratios for all these parameters. Optimization of the whole process through Grey Relational Analysis for obtains the better output response simultaneously. Improvement in output responses by using grey relational analysis are 64.84% in TWR, 52% in HDV, 49.78% in MRR and 41.57% in SR. Micro structure has been also observed through SEM analysis.

This book presents selected peer reviewed papers from the International Conference on Advanced Production and Industrial Engineering (ICAPIE 2019). It covers a wide range of topics and latest research in mechanical systems engineering, materials engineering, micro-machining, renewable energy, industrial and production engineering, and additive manufacturing. Given the range of topics discussed, this book will be useful for students and researchers primarily working in mechanical and industrial engineering, and energy technologies.

Metaheuristic optimization is a higher-level procedure or heuristic designed to find, generate, or select a heuristic (partial search algorithm) that may provide a sufficiently good solution to an optimization problem, especially with incomplete or imperfect information or limited computation capacity. This is usually applied when two or more objectives are to be optimized simultaneously. This book is presented with two major objectives. Firstly, it features chapters by eminent researchers in the field providing the readers about the current status of the subject. Secondly, algorithm-based optimization or advanced optimization techniques, which are applied to mostly non-engineering problems, are applied to engineering problems. This book will also serve as an aid to both research and industry. Usage of these methodologies would enable the improvement in engineering and manufacturing technology and support an organization in this era of low product life cycle. Features: Covers the application of recent and new algorithms Focuses on the development aspects such as including surrogate modeling, parallelization, game theory, and hybridization Presents the advances of engineering applications for both single-objective and multi-objective optimization problems Offers recent developments from a variety of engineering fields

Discusses Optimization using Evolutionary Algorithms and Metaheuristics applications in engineering

In the present study, optimization of chromium powder mixed EDM parameters is studied during machining of H13 tool steel. Four input parameters of powder mixed EDM, namely peak current, pulse on time, duty cycle and powder concentration, are varied, each at three levels, to get the optimum responses. Material removal rate (MRR), Tool wear rate (TWR) and Surface Roughness (Ra) are considered as performance measures. Copper electrode of 16 mm is used as the tool. Response Surface Methodology is used to correlate input and output parameters. The variation of responses due to variation in input parameters has been studied and shown in the form of surface plots and contour plots.

Select Proceedings of FLAME 2020

Advanced Analysis of Nontraditional Machining

Structures, Materials and Processes

Non-traditional Micromachining Processes

Volume 1

Innovative Product Design and Intelligent Manufacturing Systems

Nontraditional machining utilizes thermal, chemical, electrical, mechanical and optimal sources of energy to bind, form and cut materials. Advanced Analysis of Nontraditional Machining explains in-depth how each of these advanced machining processes work, their machining system components, and process variables and industrial applications, thereby offering advanced knowledge and scientific information. This book cites research results of a few key nonconventional machining processes for the most concerned topics in industrial applications, such as laser machining, electrical discharge machining, electropolishing of die and mold, and wafer processing for integrated circuit manufacturing.

Continuous improvements in machining practices have created opportunities for businesses to develop more streamlined processes. This not only leads to higher success in day-to-day production, but also increases the overall success of businesses. Non-Conventional Machining in Modern Manufacturing Systems provides emerging research exploring the theoretical and practical aspects of technology in manufacturing. Featuring coverage on a broad range of topics such as optimization techniques, electrical discharge machining, and hot machining, this book is ideally designed for business managers, engineers, business professionals, researchers, and academicians seeking current research on non-conventional and technologically advanced machining processes.

This book presents select proceedings of 2nd International Conference on Recent Advances in Manufacturing (RAM 2021). The book provides insights into the current research trends and development in manufacturing processes. The topics covered include conventional and nonconventional manufacturing processes, micro and nano manufacturing processes, chemical and biochemical manufacturing, sustainable and energy-efficient manufacturing. The contributions presented here are intended to stimulate new research directions in the manufacturing domain. This book will be useful for the beginners, researchers and professionals working in the area of industrial and production engineering and allied fields.

In the modern era of manufacturing, unconventional machining methods are quite popular due to various advantages such as high accuracy, excellent surface finish, less tool wear, much quieter operations, among others. Moreover, new age and novel materials are sometimes hard to machine with traditional machining processes due to their high strength and brittleness. Advances in Nonconventional Machining Processes provides a comprehensive overview of the current developments in machining methods (including the use of machine learning and artificial intelligence) and their applications in industrial scale. Chapters have been contributed by many authors and provide detailed information about machining processes (ultrasonic machining, thermally enhanced machining and electronic discharge machining, to name a few). Additional chapters that provide information about novel materials and their fabrication as well as innovations in machining methods (including the use of machine learning and artificial intelligence) are also included in the book. Advances in Nonconventional Machining Processes is a reference work suitable for apprentices and academic scholars studying manufacturing. Industry professionals who wish to know about cutting-edge developments in machining techniques will also find this a useful handbook for their library.

Light Metals: Advances in Research and Application: 2011 Edition

Select Proceedings of RAM 2021

Principles and Methods for Machining 3D Microstructures

Advances in Manufacturing Engineering and Materials

Proceedings of the International Conference on Engineering Research and Applications, ICERA 2021

Fundamentals and Applications

Effect of Electrical Discharge Machining Process Parameter on Surface Topograhly [sic]

This paper was developed the mathematical modelling of EDM process parameters to predict the surface roughness of Ti-6Al-4V. The process is used in situations where intricate complex shapes need to be machined in very hard materials such as titanium alloy. However, the process generates surfaces that have poor properties such as high surface roughness, slow machining removal rate and moderate electrode wear rate. These properties vary with different levels of the main process parameters such as peak current, servo voltage, pulse on-time and pulse off-time. The aim of this paper is to perform experimental work that has been done in order to explore the relationships between input and output parameters. Response surface design is used because the input and output parameter were suspect have curvature relationships. A mathematical model develops base on response surface method. The significant coefficients were obtained by performing Analysis of Variance (ANOVA) at 95% level of significance. Adequacy test was carried out to check the fitting of the models. It found that the peak current, servo voltage and pulse on time are significant in material removal rate and surface roughness. Peak current has the greater impact on surface roughness and material removal rate. Finally, a metallurgical microscope is carried to observe the surface topography.

The urgent need to keep pace with the accelerating globalization of manufacturing in the 21st century has produced rapid advancements in manufacturing technology, research and expertise. This book presents the proceedings of the 14th International Conference on Manufacturing Research (ICMR 2016), entitled Advances in Manufacturing Technology XXX. The conference also incorporated the 31st National Conference on Manufacturing Research, and was held at Loughborough University, Loughborough, UK, in September 2016. The ICMR conference is renowned as a friendly and inclusive environment which brings together a broad community of researchers who share the common goal of developing and managing the technologies and operations key to sustaining the success of manufacturing businesses. The proceedings is divided into 14 sections, including:

Manufacturing Processes; Additive Manufacturing; Manufacturing Materials; Advanced Manufacturing Technology; Product Design and Development, as well as many other aspects of manufacturing management and innovation. It contains 92 papers, which represents an acceptance rate of 75%. With its comprehensive overview of current developments, this book will be of interest to all those involved in manufacturing today.

Light Metals: Advances in Research and Application: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Light Metals. The editors have built Light Metals: Advances in Research and Application: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Light Metals in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Light Metals: Advances in Research and Application: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us.

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Effects of Process Parameters on Cutting Speed in Wire-Cut EDM of 9CrSi Tool Steel

Advanced Manufacturing and Materials Science

Effect of Electrical Discharge Machining Process Parameter on Surface Topograhly [sic]

Selected Extended Papers of ICAMMS 2018

Advances in Manufacturing and Industrial Engineering

Micro Electro Discharge Machining

Electrical discharge machining (EDM) is a process for shaping hard metals and forming deep complex-shaped holes by arc erosion in all kinds of electrical conductive materials. In the present day, there is a huge demand for the advanced materials with high strength, high hardness and temperature resistance in automobile, aeronautics, nuclear, mould and dies making industries. The purpose of this research is to study the effect of pulse duration and current on performance of EDM process of Allegheny Ludlum D2 Tool Steel (UNS T30402). The effect of varying the machining parameters on the machining responses such as material removal rate (MRR), electrode wear rate (EWR), wear ratio (WR) and surface roughness (Ra) have been investigated. In addition, this research also emphasizes on the study related to the effect of electrodes on the performance of EDM. The electrodes were made with circular and triangular shape with constant cross-sectional area of 100mm². It was found that the pulse duration and current give significant effect on MRR, EWR, WR and Ra. An increase in the pulse durations causes an increase in the MRR and Ra, but a decrease in the EWR and WR. Meanwhile, the effect of currents on MRR, EWR, WR and Ra. Increasing currents led to an increase in the MRR, EWR, WR and Ra. Finally, from all the results obtained, several analyses have been made to compare the machining performance results between circular shaped electrode and the triangular shaped electrode. It was found that the value of MRR for circular shaped electrode was higher than that of triangular shape electrode. Meanwhile, the highest material removal rate was found at the triangular shaped electrode.

This book presents select proceedings of the International Conference on Future Learning Aspects of Mechanical Engineering (FLAME 2020). This book, in particular, focuses on characterizing materials using novel techniques. It covers a variety of advanced materials, viz. composites, coatings, nanomaterials, materials for fuel cells, biomaterials among others. The book also discusses advanced characterization techniques such as X-ray photoelectron, UV spectroscopy, scanning electron, atomic power, transmission electron and laser confocal scanning fluorescence microscopy, and gel electrophoresis chromatography. This book gives the readers an insight into advanced material processes and characterizations with special emphasis on nanotechnology.

This book comprises select proceedings of the International Conference on Latest Innovations in Materials Engineering and Technology (ICLIET 2018). The book focuses on diverse engineering materials, their design and applications. The materials in discussion include those related to coatings, polymers, composites, tribology, acoustic insulators, lubricants, and cryogenics. The book also highlights the use of advanced materials, bio engineering materials, as well as new energy materials for solar cells and photovoltaic cells. This book will serve as an useful reference for students, researchers, and professionals working in the field of materials science and engineering.

Provides production and mechanical engineers with the techniques of machining that have been developed to deal with new materials such as polymers, hard metals and ceramics, difficult to treat by conventional methods because of either hardness of components or the high accuracies of machining required. Annotation copyright Book News, Inc. Portland.

Proceedings of the 14th International Conference on Manufacturing Research, Incorporating the 31st National Conference on Manufacturing Research, September 6 – 8, 2016, Loughborough University, UK

Green Materials and Advanced Manufacturing Technology

Optimization of Process Parameters of Powder Mixed Electric Discharge machining for D2 Steel

Proceedings of the International Conference on Manufacturing Engineering and Materials (ICMEM 2018), 18–22 June, 2018, Novy Smokovec, Slovakia

Engineering Design Applications III

Investigation of the Effect of Process Parameters on the Formation of Recast Layer in Wire-EDM of Inconel 718

This book discusses comprehensively the advanced manufacturing processes, including illustrative examples of the processes, mathematical modeling, and the need to optimize associated parameter problems. In addition, it describes in detail the cohort intelligence methodology and its variants along with illustrations, to help readers gain a better understanding of the framework. The theoretical and statistical rigor is validated by comparing the solutions with evolutionary algorithms, simulation annealing, response surface methodology, the firefly algorithm, and experimental work. Lastly, the book critically reviews several socio-inspired optimization methods.

This book includes recent theoretical and practical advancements in green composite materials and advanced manufacturing technology. It provides important original and theoretical experimental results which use nonroutine technologies often unfamiliar to some readers and covers novel applications of more familiar experimental techniques and analyses of composite problems. Green Materials and Advanced Manufacturing Technology: Concepts and Applications provides insight and a better understanding into the development of green composite materials and advanced manufacturing technology used in various manufacturing sectors. It highlights recent trends in the fields of green composites, metal matrix composites, ceramic matrix composites, surface modification using laser cladding, types of dust collectors in waste management and recycling in industries, machinability studies of metals and composites using surface grinding, drilling, electrical discharge machining, joining of metals using friction stir welding, shielded metal arc welding, and linear friction welding. This book is written for engineering students, postgraduate students, research scholars, faculty members, and industry professionals who are engaged in green composite materials and development of advanced manufacturing technology.

Applications in Engineering

Socio-Inspired Optimization Methods for Advanced Manufacturing Processes

Select Proceedings of ICIPDIMS 2019

Encyclopedia of Plasma Technology - Two Volume Set

ISOM 2013 Proceedings (GIAP Journals, India)

Advances in Engineering Materials