Build An Edm Electrical Discharge Machining Removing Metal By Spark Erosion

Electrical Discharge Machining (EDM) is commonly used to produce molds and dies, to drill small, burr-free holes and to make prototype quantities of contacts for the aerospace and electronics markets. Most of EDM machines are manufactured and equipped with built-in 'machining technology' for steels. Apart from steel, beryllium copper alloys are amongst essential material for mould and die making. Therefore, the present study elucidates the die-sinking EDM characteristics of beryllium copper alloys with graphite as an electrode. Experiments were conducted on EDM Die Sinking Charmilles Robofom 35P. The output responses investigated were Material Removal Rate (MRR) and Surface Roughness (Ra). Full factorial and Linear Regression analysis of Design of Experiment (DOE) module in Minitab was employed as a principal methodology to examine the effects of current, polarity, pulse duration and voltage over output responses. The significant and optimum machining parameters for each output responses was also identified and established. Experiment results indicate that the Material Removal Rate (MRR) was mainly affected by current, pulse duration, voltage and interaction between current*pulse duration. For the Surface Roughness (Ra), the significant factors were current, voltage and pulse duration. Confirmation tests were carried out and used to compare results obtained by theoretical predication with those experimentally. It was found that the error margin of factors influenced between the predicted and actual results is 5% for Material Removal Rate (MRR) and 4.2% for Surface Roughness (Ra).
Electric Discharge Machining (EDM) is very important and prominent machining process among all the newly developed non -traditional machining techniques. This process is extremely useful for "difficult to machine" conducting materials such as heat treated tool steels, composites, super alloys, heat resistant steels, ceramics, carbides, etc. In this technique i.e. in EDM, the material removal of the electrode is achieved through high frequency sparks between the tool and the work-piece immersed into the dielectric. The Material Removal Rate (MRR), Tool Wear Rate (TWR) and surface roughness are some of the important performance parameter of EDM process. The objective of EDM is to get high MRR as well as achieving reasonably good surface quality of machined component. The machining parameters that achieve the highest MRR strongly depend on the size of the machining surface i.e. Electrode used and work-piece surface. With upcoming worldwide important applications of Non-Conductive ceramics machining has become an important issue which needs to be investigated in much detail. The Alumina (Al2O3), Glass and other advanced engineering ceramics are rapidly emerging class of engineering materials possessing a wide range of remarkable properties i.e. high hardness, chemical stability, very low friction, unique electrical properties and these engineering ceramics posses high wear resistance which make them highly suitable for such engineering applications as jet engines and other aeronautical components, tools and dies and electronic sensors.
The continuous miniaturization of products and the growing complexity of their embedded multifunctionalities necessitates continuous research and development efforts regarding micro components and related micro manufacturing technologies. Highly miniaturized systems, manufactured using a wide variety of materials, have found application in key technological fields, such as healthcare devices, micro implants, mobility, communications, optics, and micro electromechanical systems. Innovations required for the high-precision manufacturing of micro components can specifically be achieved through optimizations using post-process (i.e., offline) and in-process (i.e., online) metrology of both process input and output parameters, as well as geometrical features of the produced micro parts. However, it is of critical importance to reduce the metrology and optimization efforts, since process and product quality control can represent a significant portion of the total production time in micro manufacturing. To solve this fundamental challenge, research efforts have been undertaken in order to define, investigate, implement, and validate the so-called “product/process manufacturing fingerprint” concept. The “product manufacturing fingerprint” concept refers to those unique dimensional outcomes (e.g., surface topography, form error, critical dimensions, etc.) on the produced component that, if kept under control and within specifications, ensure that the entire micro component complies to its specifications. The “process manufacturing fingerprint” is a specific process parameter or feature to be monitored and controlled, in order to maintain the manufacture of products within the specified tolerances. By integrating both product and process manufacturing fingerprint concepts, the metrology and optimization efforts are highly reduced. Therefore, the quality of the micro products increases, with an obvious improvement in production yield. Accordingly, this Special Issue seeks to showcase research papers, short communications, and review articles that focus on novel methodological developments and applications in micro- and sub-micro-scale manufacturing, process monitoring and control, as well as micro and sub-micro product quality assurance. Focus will be on micro manufacturing process chains and their micro product/process fingerprint, towards full process optimization and zero-defect micro manufacturing.
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.
These contributions to the 3rd IPAS'2006 seminar are grouped in 6 sections. Part 1 reviews new techniques for handling and feeding micro parts. Micro-robotics and robot applications for micro assembly are discussed in Part 2. An overview of different design and planning applications for microassembly is provided in Part 3. Part 4 covers reconfigurable and modular micro assembly systems and control applications. The economic aspects of microassembly including new business models are discussed in Part 5 while Part 6 presents specific technical solutions and microassembly applications.
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 shape configuration 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 EDM performance shows that the 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 higher value for EWR, WR and Ra was found at the triangular shaped electrode.
Essential reading on the latest advances in virtual prototyping and rapid manufacturing. Includes 110 peer reviewed papers covering: 1. Biomanufacturing, 2. CAD and 3D data acquisition technologies, 3. Materials, 4. Rapid tooling and manufacturing, 5. Advanced rapid prototyping technologies and nanofabrication, 6. Virtual environments and
The term rapid prototyping (RP) refers to a generic group of emerging technologies that enable very quick fabrication of engineering components primarily targeted for prototyping applications. With RP, very complex three dimensional parts or prototypes can be fabricated

without the need of costly tooling and machining. This inevitably leads to much shorter design cycle time and lower cost of building a prototype. Its manifold benefits include significant productivity gains, cost saving, and shortened development time to introduce concept models. As such, RP technologies have attracted tremendous R&D interests from both academia and industry in the past decade. Many different processes and materials have been commercialized and used in industry primarily for the fabrication of physical prototypes. More recent interests in RP technologies are towards functional applications of the fabricated parts, such as in rapid tooling applications and replacements of damaged components. Many processes and materials have been commercialized but are yet to be able to fulfill the aforementioned functional requirements because of limited mechanical strengths of the fabricated parts.

Authored by veteran author John Baechtel, COMPETITION ENGINE BUILDING stands alone as a premier guide for enthusiasts and students of the racing engine. It will also find favor as a reference guide for experienced professionals for years to come.

This thesis deals with an experimental investigation and modelling of the electrical discharge machining (EDM) performance on titanium alloy Ti-5Al-2.5Sn. Despite enormous applications of lightweight and high-strength titanium alloy, a key problem in machining using conventional machining processes arises. The non-conventional technique, EDM, can machine difficult-to-cut materials effectively. However, in EDM, a complete and clear theory has not yet been established. The proper selection of EDM parameters for the best process performance is still a challenge. Thus, the purpose of the present work is to develop the mathematical models to predict performance characteristics (material removal rate, tool wear rate and surface roughness) along with the optimal parametric set-up of EDM on Ti-5Al-2.5Sn titanium alloy. The peak current, pulse-on time, pulse-off time, servo-voltage, polarity (positive and negative), and electrode material (copper, copper-tungsten and graphite) are considered as process variables. The experimental work was performed based on an experiment design (central composite design). The mathematical models, using the response surface method, and the artificial neural network (ANN) model, using the multilayer perception method, were developed. Analysis of variance (ANOVA) has been performed to verify the fit and adequacy of the developed mathematical models. A confirmation test was conducted to obtain the accuracy of the developed models. In addition, the surface topography of the workpiece was analysed by scanning electron microscopy (SEM). The results evidence that the developed mathematical model can predict the performance characteristics of EDM successfully. The average errors of the mathematical model in predicting material removal rate, surface roughness and tool wear rate were 4.34%, 4.17% and 4.50% respectively. While, the average errors were 2.61%, 2.77% and 3.05% for the ANN model. Thus, the ANN model is more precise than the mathematical model. The negative graphite electrode provides the highest material removal rate. However, it maximizes the tool wear rate, and causes the poorest surface finish. The positive copper-tungsten electrode becomes the best choice in respect of all performance characteristics. It was very difficult to achieve single settings of the process parameters for all the best performance characteristics. In addition, the multiple objectives were incompatible. The surface topography for negative polarity demonstrates larger craters, wider and deeper cracks and greater amounts of globules when compared to positive polarity. The obtained results lead to desirable process output, and cost-effective machining. Therefore, it becomes a precise tool, making the EDM process cost-effective and efficient in the die, mould, tool and other industries.

This book focuses on the technology involved in using plastics, explaining the key areas of plastic materials, plastic product design, plastic processing, plastic end-use markets, and issues within the plastics industry, that are critical to working and communicating within the plastics industry.

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 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.

Wire electrical discharge machining (EDM) is a non-traditional subtractive manufacturing process. This process works by bringing a charged wire in close proximity to a conductive workpiece. When the wire is close enough to the workpiece, an electrical arc forms between the wire and the workpiece. The electrical arc melts away material from the workpiece, and the wire continues moving through the workpiece, leaving behind a slit slightly wider than the width of the wire. Wire EDM is a high-precision process that can meet very tight tolerances and is employed in several industries including the aerospace and automotive industries. Recently, wire EDM has been used in the additive manufacturing (AM) industry for metal part post-processing and removal from build plates. While wire EDM is increasingly being used in the AM industry, very little research has been conducted on the wire EDM of additively manufactured parts. This thesis discusses three studies performed on the wire EDM of additively manufactured stainless-steel 316L parts. The first study is a comparison of wrought and AM stainless-steel 316L with respect to the wire EDM process. This research tested and optimized different wire EDM process parameters for the machinability of wrought and AM 316L. The second study explored the interaction between the wire EDM process and AM stainless-steel 316L lattice support structures. Selected EDM parameters were measured while machining the support structures, and optimal support structure designs were identified for AM part removal from build-plate via wire EDM. The final study explored the interaction between the wire EDM process and stainless-steel AM parts containing pockets of trapped, un-melted powder. This study optimized wire EDM process parameters for machining trapped powder pockets and outlined a potential explanation for the high incidence of wire breakage that occurs when machining through pockets of trapped powder.

Electrical Discharge Machining (EDM) is one of the earliest and most widely used non-conventional machining processes. In recent years, the use of EDM has increased significantly in industries, mainly due to the extensive use of hard and difficult-to-cut

materials, i.e. hardened steels, carbides, titanium alloys, nickel super alloys and so on. The EDM process is being used extensively for many important applications in die and mold, aerospace, automotive, micro-electronic and biomedical industries. As a result, extensive research has been carried out on various aspects of EDM. Taking those facts into consideration, this book aims to provide a comprehensive overview of the various types, technologies and applications of EDM. The book starts with chapters on the two major types of EDM: die-sinking EDM and wire-EDM. Subsequently, several EDM-based hybrid machining processes, such as: ultrasonically aided EDM, powder-mixed EDM, and simultanous micro-EDM/ECM have been discussed in detail. This book includes chapters on the detail of EDM surface and modeling and simulation of the EDM process. This book also contains chapters on the novel and innovative applications of EDM as well as machining of newer materials, such as: shape memory alloy, reaction-bonded silicon carbide, metal metrix composites, silicon based semiconductors, and non-conducting polymers. It is a useful resource for students and researchers who are planning to start their research on the area of EDM and related processes. It can also serve as a reference for students, academics, researchers, engineers, and working professionals in non-traditional manufacturing processes related industries.

This book provides a wealth of practical guidance on how to design parts to gain the maximum benefit from what additive manufacturing (AM) can offer. It begins by describing the main AM technologies and their respective advantages and disadvantages. It then examines strategic considerations in the context of designing for additive manufacturing (DfAM), such as designing to avoid anisotropy, designing to minimize print time, and post-processing, before discussing the economics of AM. The following chapters dive deeper into computational tools for design analysis and the optimization of AM parts, part consolidation, and tooling applications. They are followed by an in-depth chapter on designing for polymer AM and applicable design guidelines, and a chapter on designing for metal AM and its corresponding design guidelines. These chapters also address health and safety, certification and quality aspects. A dedicated chapter covers the multiple post-processing methods for AM, offering the reader practical guidance on how to get their parts from the AM machine into a shape that is ready to use. The book’s final chapter outlines future applications of AM. The main benefit of the book is its highly practical approach: it provides directly applicable, “hands-on” information and insights to help readers adopt AM in their industry

Unrivalled in its coverage and unique in its hands-on approach, this guide to the design and construction of scientific apparatus is essential reading for every scientist and student of engineering, and physical, chemical, and biological sciences. Covering the physical principles governing the operation of the mechanical, optical and electronic parts of an instrument, new sections on detectors, low-temperature measurements, high-pressure apparatus, and updated engineering specifications, as well as 400 figures and tables, have been added to this edition. Data on the properties of materials and components used by manufacturers are included. Mechanical, optical, and electronic construction techniques carried out in the lab, as well as those let out to specialized shops, are also described. Step-by-step instruction supported by many detailed figures, is given for laboratory skills such as soldering electrical components, glassblowing, brazing, and polishing.

Electric discharge machining (EDM) is a non-traditional machining processes that involved a transient spark discharges through the fluid due to the potential difference between the electrode and the work piece. The aim of this project is to determine the proper electrode material for machining tool steels work pieces using electrical discharge machining (EDM). Basically, improper choose of electrode material in EDM machine may result a few problems like the machine may cause of poor machining performance and it will decrease the accuracy of the products. This paper presents a fundamental study of characteristic of electrode discharge machine (EDM) that is electrode wear ratio (EWR) and material removal rate (MRR) by using different electrode materials in order to increase the understanding of EDM processes. To archive this project objective, an experiment will be doing properly. By following the method, some literature review is going to do first before preparing the experimental set-up. Then experiment will be runs and the data of the experiment are taken. This is to make sure the analysis can be done in order to find the best electrode material. There are three electrodes material should be compared that are copper, brass and aluminum. Regarding the literature review, the higher material removal rate in the EDM machine, the better is the machining performance while the lower electrodes wear ratio in the EDM machine is the better and accurate performance characteristic. Thus as the expected result for this experiment, the copper electrode material will be the best electrode among others electrode for EDM machining process.

This work brings together the latest applications of, and advances in, CAD/CAM/CAE, energy storage and energy development, mining machinery manufacturing, new energy equipment and manufacturing, cloud manufacturing and extreme manufacturing, bio-manufacturing, enterprise informationization, integrated manufacturing systems, quality monitoring and control of manufacturing processes, measurement control technologies and intelligent systems, embedded systems, etc. This broad overview of the latest advances also provides a reference source for researchers in this field.

The book features: carefully hand-drawn circuit illustrations hundreds of fully tested circuits tutorial on electronics basics tips on part substitutions, design modifications, and circuit operation All covering the following areas: Review of the Basics Digital Integrated Circuits MOS/CMOS Integrated Circuits TTL/LS Integrated Circuits Linear Integrated Circuits Index of Integrated Circuits Index of Circuit Applications

As the only comprehensive text focusing on metal shaping processes, which are still the most widely used processes in the manufacture of products and structures, Metal Shaping Processes carefully presents the fundamentals of metal shaping processes with their relevant applications. The treatment of the subject matter is adequately descriptive for those unfamiliar with the various processes and yet is sufficiently analytical for an introductory academic course in manufacturing. The text, as well as the numerous formulas and illustrations in each chapter, clearly show that shaping processes, as a part of manufacturing engineering, are a complex and interdisciplinary subject. The topics are organized and presented in such a manner that they motivate and challenge students to present technically and economically viable solutions to a wide variety of questions and problems, including product design. It is the perfect textbook for students in mechanical, industrial, and manufacturing engineering programs at both the Associate Degree and Bachelor Degree programs, as well a valuable reference for manufacturing engineers (those who design, execute and maintain the equipment and tools); process engineers (those who plan and engineer the manufacturing steps, equipment, and tooling

needed in production); manufacturing managers and supervisors; product design engineers; and maintenance and reliability managers and technicians. Each chapter begins with a brief highlighted outline of the topics to be described. Carefully presents the fundamentals of the particular metal-shaping process with its relevant applications within each chapter, so that the student and teacher can clearly assess the capabilities, limitation, and potentials of the process and its competitive aspects. Features sections on product design considerations, which present guidelines on design for manufacturing in many of the chapters. Offers practical, understandable explanations, even for complex processes. Includes text entries that are coded as in an outline, with these numerical designations carried over the 320 related illustrations for easy cross-referencing. Provides a dual (ISO and USA) unit system. Contains end-of-chapter Review Questions. Includes a chapter on sheet metalworking covering cutting processes; bending process; tubes and pipe bending; deep drawing processes; other sheet metal forming process (stretch forming, spinning, rubber forming, and superplatic forming and diffusion bonding). Provides a useful die classification with 15 illustrations and description; presses for sheet metalworking; and high energy-rate forming processes. A chapter on nontraditional manufacturing process discusses such important processes as mechanical energy processes (ultrasonic machining, water jet cutting); electrochemical machining processes (electrochemical machining, electrochemical grinding); thermal energy processes (electric discharge processes, laser beam machining, electron beam machining); and chemical processes (chemical milling).

Disposable Products Manufacturing Handbook (Plastic Cups, Cutlery, Paper Cups, Banana Leaf Plates, Facial Tissues, Wet Wipes, Toilet Paper Roll, Sanitary Napkins, Baby Diapers, Thermocol Products, PET Bottles) Everyday life products manufacturers worldwide produce a multitude of items that are intended for one use only. A disposable is a product designed for a single use after which it is recycled or is disposed as solid waste. The term often implies cheapness and short-term convenience rather than medium to long-term durability. The term is also sometimes used for products that may last several months distinguish from similar products that last indefinitely. The fast moving life and modernization simultaneously lead to the necessity of disposables in one’s life. One cannot wash utensils all the time, neither can afford to arrange fine and good cutlery of glass or steel in a party for the guest. At such times, people rush for the disposables available in the market with variety of colors and designs. For a manufacturer, to produce disposables is a good deal keeping in view the present demand and growth in the market. This handbook is a complete well to do package for a layman to understand the basic steps to be followed for setting up a plant for a particular disposable product. The book contains raw material details, product manufacturing process, machinery details, images with raw material and machinery suppliers. The Disposable Products Manufacturing Handbook is about producing Plastic Cups, Cutlery, Paper Cups, Banana Leaf Plates, Facial tissues, Wet Wipes, Toilet Paper Roll, Sanitary Napkins, Baby Diapers, Thermocol Products, PET Bottles that are used by masses in their day to day life. This well-established text provides a comprehensive coverage of the manufacturing processes adopted to manufacture various disposable products. It gives a holistic view of products produced, which has inputs from diverse fields. The book discusses the importance and objectives of processes and material used for the production of disposable products. Many examples have been provided to illustrate the concepts discussed.

This book gathers the best articles presented by researchers and industrial experts at the International Conference on “Innovative Design and Development Practices in Aerospace and Automotive Engineering (I-DAD 2018)”. The papers discuss new design concepts, analysis and manufacturing technologies, with an emphasis on achieving improved performance by downsizing; improving the weight-to-strength ratio, fuel efficiency, and operational capability at room and elevated temperatures; reducing wear and tear; and addressing NVH aspects, while balancing the challenges of Euro IV/Barat Stage IV emission norms and beyond, greenhouse effects, and recyclable materials. The innovative methods discussed here offer valuable reference material for educational and research organizations, as well as industry, encouraging them to pursue challenging projects of mutual interest.

This volume presents a selection of papers from the 2nd International Conference on Computational Methods in Manufacturing (ICCMM 2019). The papers cover the recent advances in computational methods for simulating various manufacturing processes like machining, laser welding, laser bending, strip rolling, surface characterization and measurement. Articles in this volume discuss both the development of new methods and the application and efficacy of existing computational methods in manufacturing sector. This volume will be of interest to researchers in both industry and academia working on computational methods in manufacturing.

The building materials covered by the Concise Encyclopedia of Building and Construction Materials are classified in three groups: structural materials, semistructural materials, and auxiliary materials.

"In writing this book, the author focused on EDM fundamentals. These are the items common to all EDM machines, such as the spark, how the spark is controlled, what causes overcut, and the importance of the dielectric fluid. With regard to the workplace, covered are the affect the spark has on the metallurgy and how the surface finish is produced and controlled. The book also describes the development of Electrical Discharge Machining (EDM), the EDM system and process, the EDM sparking systems, the power supply (generator), spark voltage, electrode servo systems, di-electric systems, ionization and electrode wear, chips, the EDM surface, DC arcing, different kinds of EDM, autormatic servo systems operation, and electromagnetic radiation. It is the author's intent that this text will serve as the primer on the EDM process, allowing the people using EDM to become more efficient and the machines more productive."--Back cover.

This book includes the volume 2 of the proceedings of the 2012 International Conference on Mechanical and Electronic Engineering(ICMEE2012), held at June 23-24,2012 in Hefei, China. The conference provided a rare opportunity to bring together worldwide researchers who are working in the fields. This volume 2 is focusing on Mechatronic Engineering and Technology, Electronic Engineering and Electronic Information Technology .

This book comprises select peer-reviewed proceedings from the International Conference on Innovations in Mechanical Engineering (ICIME 2019). The volume covers current research in almost all major areas of mechanical engineering, and is divided into six parts: (i) automobile and thermal engineering, (ii) design and optimization, (iii) production and industrial engineering, (iv) material science and metallurgy, (v)

nanoscience and nanotechnology, and (vi) renewable energy sources and CAD/CAM/CFD. The topics provide insights into different aspects of designing, modeling, manufacturing, optimizing, and processing with wide ranging applications. The contents of this book can be of interest to researchers and professionals alike.

Fundamentals of Additive Manufacturing for the Practitioner Discover how to shift from traditional to additive manufacturing processes with this core resource from industry leaders Fundamentals of Additive Manufacturing for the Practitioner delivers a vital examination of the methods and techniques needed to transition from traditional to additive manufacturing. The book explains how traditional manufacturing work roles change as various industries move into additive manufacturing and describes the flow of the typical production process in additive manufacturing. Detailed explorations of the processes, inputs, machine and build preparation, post-processing, and best practices are included, as well as real-world examples of the principles discussed within. Every chapter includes a problems and opportunities section that prompts readers to apply the book's techniques to their own work. Diagrams and tables are distributed liberally throughout the work to present concepts visually, and key options and decisions are highlighted to assist the reader in understanding how additive manufacturing changes traditional workflows. Readers will also benefit from the inclusion of A thorough introduction on how to move into additive manufacturing, including the identification of a manufacturing opportunity and its characteristics An exploration of how to determine if additive manufacturing is the right solution, with descriptions of the origins of additive manufacturing and the current state of the technology An examination of the materials used in additive manufacturing, including polymers, composites, metals, plasters, and biomaterials A discussion of choosing an additive manufacturing technology and process Perfect for mechanical engineers, manufacturing professionals, technicians, and designers new to additive manufacturing, Fundamentals of Additive Manufacturing for the Practitioner will also earn a place in the libraries of technical, vocational, and continuing education audiences seeking to improve their skills with additive manufacturing workflows.