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Implementing Virtual Design and Construction using BIM
BIM and Integrated Design
Handbook of Sustainability in Additive Manufacturing
International Handbook of Work and Health Psychology
Residential Design Using Autodesk Revit 2020
Mastering Autodesk Revit MEP 2014
Building Information Modeling
Mastering Autodesk Revit MEP 2015
The Aubin Academy Master Series: AutoCAD Architecture 2011

Computer Aided Design and Manufacturing

This open access book focuses on the development of methods, interoperable and integrated ICT tools, and survey techniques for optimal management of the building process. The construction sector is facing an increasing demand for major innovations in terms of digital dematerialization and technologies such as the Internet of Things, big data, advanced manufacturing, robotics, 3D printing, blockchain technologies and artificial intelligence. The demand for simplification and transparency in information management and for the rationalization and optimization of very fragmented and splintered processes is a key driver for digitization. The book describes the contribution of the ABC Department of the Polytechnic University of Milan (Politecnico di Milano) to R&D activities regarding methods and ICT tools for the interoperable management of the different phases of the building process, including design, construction, and management. Informative case studies complement the theoretical discussion. The book will be of interest to all stakeholders in the building process - owners, designers, constructors, and faculty managers - as well as the research sector.

The Engineer's Cost Handbook

Infrastructure Computer Vision delves into this field of computer science that works on enabling computers to see, identify, process images and provide appropriate output in the same way that human vision does. However, implementing these advanced information and sensing technologies is difficult for many engineers. This book provides civil engineers with the technical detail of this advanced technology and how to apply it to their individual projects. Explains how to best capture raw geometrical and visual data from infrastructure scenes and assess their quality Offers valuable insights on how to convert the raw data into actionable information and knowledge stored in Digital Twins Bridges the gap between the theoretical aspects and real-life applications of computer vision

Hard Rock Miner's Handbook

The AutoCAD Electrical 2021 Black Book, the 6th edition of AutoCAD Electrical Black book, has been updated as per the enhancements in the AutoCAD Electrical 2021. Following the same strategy as for the previous edition, the book follows a step by step methodology. It covers almost all the information required by a learner to master the AutoCAD Electrical. The book starts with basics of Electrical Designing, goes through all the Electrical controls related tools and discusses practical examples of electrical schematic and panel designing. Chapter on Reports makes you able to create and edit electrical component reports. We have also discusses the interoperability between Autodesk Inventor and AutoCAD Electrical which is need of industry these days. In this edition, two annexures are added to explain basic concepts of control panel designing. Some of the salient features of this book are: In-Depth explanation of concepts Every new topic of this book starts with the explanation of the basic concepts. In this way, the user becomes capable of relating the things with real world. Topics Covered Every chapter starts with a list of topics being covered in that chapter. In this way, the user can easy find the topic of his/her interest easily. Instruction through illustration The instructions to perform any action are provided by maximum number of illustrations so that the user can perform the actions discussed in the book easily and effectively. There are about 900 small and large illustrations that make the learning process effective. Tutorial point of view At the end of concept's explanation, the tutorial make the understanding of users firm and long lasting. Almost each chapter of the book has tutorials that are real world projects. Moreover most of the tools in this book are discussed in the form of tutorials. Project Free projects and exercises are provided to students for practicing. For Faculty If you are a faculty member, then you can ask for video tutorials on any of the topic, exercise, tutorial, or concept.

Handbook of Research on Integrating Industry 4.0 in Business and Manufacturing

Finally! The book electrical workers have been waiting for, an introduction to Autodesk Revit written just for you! Featuring exercises based on real work situations, Revit Architecture 2021 for Electrical Workers will help get you up to speed quickly on developing your own construction documents. The author developed and coordinated this book with a local chapter of

electrical workers to ensure it would meet the needs of electrical journeymen. This textbook shows you how to work with Revit documents provided by outside contractors and architects. Using this textbook, you will be able to learn enough skills in Revit to be fully functional in less than a week. The textbook can be used in a training class or by someone teaching themselves in their own home or office. If you can open a file and use a mouse, you can learn Revit. You don't need a college degree to use Revit software. There is no other Revit book out there that covers so much material specifically for electricians and electrical engineers. Knowing Autodesk Revit software is a valuable skill that will help you earn more money, increase your value as an employee, and collaborate better with other team members. This textbook was written by Elise Moss, an Autodesk Certified Instructor. Elise has experience training machinists, electricians, and equipment installers. She knows how to break down software content to make it easy to understand and learn quickly.

BIM-Based Collaborative Building Process Management

The best tutorial and reference to provide extensive coverage of Revit MEP This perfectly paced Autodesk Official Training Guide covers all the core concepts and functionality of Revit MEP, Autodesk's hot mechanical, engineering, and plumbing software. Hands-on, real-world tutorials reinforce the detailed discussions on a variety of Revit MEP topics, including interface, project setup and templates, worksharing, as well as such mechanical concerns as building loads and ductwork, such electrical concerns as lighting and communications outlets, and such plumbing concerns as fixtures and water systems. Serves as the only hands-on reference and tutorial to cover Autodesk Revit MEP in exhaustive detail Explores the interface and walks you through creating and using project templates Devotes extensive coverage to each aspect of Revit MEP: mechanical, electrical, and plumbing Includes chapters on solid modeling, creating symbols, using parameters, creating equipment, and more Shares tips, tricks, and real-world exercises that only professionals who use the software every day can provide To strengthen the learning experience, readers can download before-and-after tutorial files from the supporting web site so they can jump into any tutorial and immediately compare their work to that of the professionals.

BIM Handbook

The intent of this book is to provide the interior design student a well-rounded knowledge of Autodesk Revit tools and techniques. These skills can then be applied to enhance professional development in both academia and industry. Each book also includes access to nearly 100 video tutorials designed to further help you master Autodesk Revit. The overall premise of the book is to help you learn Revit while developing the interior of a two story law office. At the start of the book you are provided an architectural model with established columns, beams, exterior walls, minimal interior walls and roofs in which to work. This allows more emphasis to be placed on interior design rather than primary architectural elements. The chapters' chronology generally follows the typical design process. You will find this book helps you more accurately and

efficiently develop your design ideas and skills. The first chapter introduces you to Revit, Building Information Modeling (BIM) and the basics of opening, saving and creating a new project. The second provides a quick introduction to modeling basic elements in Revit including walls, doors, windows and more. This chapter is designed to show you how powerful Revit truly is and to get you excited for the rest of the book. The remainder of the book is spent developing the interior space of the law office with an established space program. You will learn how to view and navigate within the provided 3D architectural model, manage and create materials and develop spaces with walls, doors and windows. Once all the spaces are added to the model, several areas are explored and used as the basis to cover Revit commands and workflows. At the end of this tutorial, you will be able to model floor finishes, ceilings with soffits, casework, custom reception desk, restrooms, furniture and light fixtures. Additional features such as tags, schedules and photorealistic rendering will be covered.

Infrastructure Computer Vision

Utilize AutoCAD Civil 3D 2016 for a real-world workflow with these expert tricks and tips Mastering AutoCAD Civil 3D 2016 is a complete, detailed reference and tutorial for Autodesk's extremely popular and robust civil engineering software. With straightforward explanations, real-world examples, and practical tutorials, this invaluable guide walks you through everything you need to know to be productive. The focus is on real-world applications in professional environments, with all datasets available for download, and thorough coverage helps you prepare for the AutoCAD Civil 3D certification exam with over an hour's worth of video on crucial tips and techniques. You'll learn how to navigate the software and use essential tools, and how to put it all together in the context of a real-world project. In-depth discussion covers surveying, alignments, surface, grading, cross sections and more, and instructor support materials provide an ideal resource for training and education. This book will take you from beginner to pro, so you can get the most out of AutoCAD Civil 3D every step of the way. Understand key concepts and get acquainted with the interface Create, edit, and display all elements of a project Learn everything you need to know for the certification exam Download the datasets and start designing right away With expert insight, tips, and techniques, Mastering AutoCAD Civil 3D 2016 helps you become productive from the very beginning.

AutoCAD Electrical 2021 Black Book

Mastering Autodesk Revit MEP 2016

Offers coverage of each important step in engineering cost control process, from project justification to life-cycle costs. The

book describes cost control systems and shows how to apply the principles of value engineering. It explains estimating methodology and the estimation of engineering, engineering equipment, and construction and labour costs

Design Integration Using Autodesk Revit 2020

A revolutionary, collaborative approach to design and construction project delivery Integrated Project Delivery is the first book-length discussion of IPD, the emergent project delivery method that draws on each stakeholder's unique knowledge to address problems before they occur. Written by authors with over a decade of research and practical experience, this book provides a primer on IPD for architects, designers, and students interested in this revolutionary approach to design and construction. With a focus on IPD in everyday operation, coverage includes a detailed explanation and analysis of IPD guidelines, and case studies that show how real companies are applying these guidelines on real-world projects. End-of-chapter questions help readers quickly review what they've learned, and the online forum allows them to share their insights and ideas with others who either have or are in the process of implementing IPD themselves. Integrated Project Delivery brings together the owners, architect, engineers, and contractors early in the development stage to ensure that problems are caught early, and to address them in a collaborative way. This book describes the parameters of this new, more efficient approach, with expert insight on real-world implementation. Compare traditional procurement with IPD Understand IPD guidelines, and how they're implemented Examine case studies that illustrate everyday applications Communicate with other IPD adherents in the online forum The IPD approach revolutionizes not only the workflow, but the relationships between the stakeholders - the atmosphere turns collaborative, and the team works together toward a shared goal instead of viewing one another as obstructions to progress. Integrated Project Delivery provides a deep exploration of this approach, with practical guidance and expert insight.

The Aubin Academy

Pipe designers and drafters provide thousands of piping drawings used in the layout of industrial and other facilities. The layouts must comply with safety codes, government standards, client specifications, budget, and start-up date. Pipe Drafting and Design, Second Edition provides step-by-step instructions to walk pipe designers and drafters and students in Engineering Design Graphics and Engineering Technology through the creation of piping arrangement and isometric drawings using symbols for fittings, flanges, valves, and mechanical equipment. The book is appropriate primarily for pipe design in the petrochemical industry. More than 350 illustrations and photographs provide examples and visual instructions. A unique feature is the systematic arrangement of drawings that begins with the layout of the structural foundations of a facility and continues through to the development of a 3-D model. Advanced chapters discuss the customization of AutoCAD, AutoLISP and details on the use of third-party software to create 3-D models from which elevation, section and

isometric drawings are extracted including bills of material. Covers drafting and design fundamentals to detailed advice on the development of piping drawings using manual and AutoCAD techniques 3-D model images provide an uncommon opportunity to visualize an entire piping facility Each chapter includes exercises and questions designed for review and practice

Up and Running with Autodesk Advance Steel 2020

The book reports on the great improvements in the information and knowledge management due to the digitalization of the building sector. By summarizing several research projects addressing the implementation of BIM in different stages of the building process, and the definition of standards at Italian, European and international levels for managing information relying on the implementation of BIM-based processes, it showcases the efforts, especially within the Italian building sector, to build a standardized structure of information and develop tools for collecting, sharing and exchanging information between stakeholders involved in different stages of the building process, so as to enhance the storage, traceability, usability and re-usability of information management. Further, it presents an enhanced use of information that relies on the adoption of the standardized structure of information, and proposes dedicated applications for automating the process of information fruition. Lastly, it features a digital platform for different stakeholders in the building sector, such as manufacturers, producers and construction companies.

Integrating Project Delivery

Broad coverage of digital product creation, from design to manufacture and process optimization This book addresses the need to provide up-to-date coverage of current CAD/CAM usage and implementation. It covers, in one source, the entire design-to-manufacture process, reflecting the industry trend to further integrate CAD and CAM into a single, unified process. It also updates the computer aided design theory and methods in modern manufacturing systems and examines the most advanced computer-aided tools used in digital manufacturing. Computer Aided Design and Manufacturing consists of three parts. The first part on Computer Aided Design (CAD) offers the chapters on Geometric Modelling; Knowledge Based Engineering; Platforming Technology; Reverse Engineering; and Motion Simulation. The second part on Computer Aided Manufacturing (CAM) covers Group Technology and Cellular Manufacturing; Computer Aided Fixture Design; Computer Aided Manufacturing; Simulation of Manufacturing Processes; and Computer Aided Design of Tools, Dies and Molds (TDM). The final part includes the chapters on Digital Manufacturing; Additive Manufacturing; and Design for Sustainability. The book is also featured for being uniquely structured to classify and align engineering disciplines and computer aided technologies from the perspective of the design needs in whole product life cycles, utilizing a comprehensive Solidworks package (add-ins, toolbox, and library) to showcase the most critical functionalities of modern

computer aided tools, and presenting real-world design projects and case studies so that readers can gain CAD and CAM problem-solving skills upon the CAD/CAM theory. Computer Aided Design and Manufacturing is an ideal textbook for undergraduate and graduate students in mechanical engineering, manufacturing engineering, and industrial engineering. It can also be used as a technical reference for researchers and engineers in mechanical and manufacturing engineering or computer-aided technologies.

Residential Design Using AutoCAD 2015

Put Autodesk Revit Architecture 2016 to work for you with this real-world focused guide Autodesk Revit Architecture 2016 Essentials helps you get acquainted and quickly become productive with the leading Building Information Modeling software. With a real-world focus and a tutorial-based approach, this invaluable guide features concise, straightforward explanations and hands-on exercises that walk you through the entire design process. Each chapter opens with a quick discussion of concepts and learning goals, and then briskly moves into step-by-step instruction illustrated by compelling full-color screen shots. This new edition includes expanded information on rendering and visualization, and a new discussion surrounding effective work sharing, details and annotations, drawing sets, and professional workflows. The companion website features additional tutorials, plus downloadable data sets that allow you to jump in at any point and compare your work to the pros. Revit Architecture 2016 is a powerful, sophisticated BIM application designed to boost productivity with automated documentation for every design and update. This guide takes you through the entire design process, and shows you how to get the most out of Revit every step of the way. Design walls, floors, roofs, ceilings, stairs, ramps, railings, and more Work with families, groups, and phasing, and add color fills and rendering Create compelling drawing sets with details and annotations Learn the tips and tricks experts use to get the most out of Revit Autodesk Revit Architecture 2016 Essentials gets you up to speed quickly, so you can win more bids and expedite the project approval process.

Pipe Drafting and Design

Start designing today with this hands-on beginner's guide to AutoCAD Civil 3D 2016 AutoCAD Civil 3D 2016 Essentials gets you quickly up to speed with the features and functions of this industry-leading civil engineering software. This full-color guide features approachable, hands-on exercises and additional task-based tutorials that help you quickly become productive as you master the fundamental aspects of AutoCAD Civil 3D design. Each chapter opens with a quick discussion of concepts and learning goals, and then briskly moves into tutorial mode with screen shots that illustrate each step of the process. The emphasis is on skills rather than tools, and the clear delineation between "why" and "how" makes this guide ideal for quick reference. The companion website provides starting and ending files for each exercise, so you can jump in at any point and compare your work with the pros. Centered around the real-world task of designing a residential subdivision,

these exercises get you up to speed with the program's functionality, while also providing the only Autodesk-endorsed preparation for the AutoCAD Civil 3D certification exam. Master the AutoCAD Civil 3D 2016 interface and basic tasks Model terrain using imported field survey data Analyze boundaries, pipe networks, surfaces, and terrain Estimate quantities and create construction documentation If you're ready to acquire this must-have skillset, AutoCAD Civil 3D 2016 Essentials will get you up to speed quickly and easily.

Interior Design Using Autodesk Revit 2020

Residential Design Using Autodesk Revit 2020 is designed for users completely new to Autodesk Revit. This text takes a project based approach to learning Autodesk Revit's architectural tools in which you develop a single family residence all the way to photorealistic renderings like the one on the cover. Each book also includes access to extensive video training designed to further help you master Autodesk Revit. The lessons begin with a basic introduction to Autodesk Revit 2020. The first four chapters are intended to get you familiar with the user interface and many of the common menus and tools. Throughout the rest of the book a residential building is created and most of Autodesk Revit's tools and features are covered in greater detail. Using step-by-step tutorial lessons, the residential project is followed through to create elevations, sections, floor plans, renderings, construction sets, etc. About the Videos Access to extensive video training is also included with your purchase of this book. These videos break down each topic into several short videos so that you can easily navigate to a specific aspect of a tool or feature in Autodesk Revit. This makes the videos both a powerful learning tool and convenient video reference. The videos make it easy to see the menu selections and will make learning Revit straightforward and simple. It's like having the author by your side showing you exactly how to use all the major tools in Autodesk Revit.

Fabrication CAMduct Fundamentals

"Ready or not, it's high time to make BIM a part of your practice, or at least your vocabulary, and this book has as much to offer beginners as it does seasoned users of building information modeling software." —Chicago Architect The first book devoted to the subject of how BIM affects individuals and organizations working within the ever-changing construction industry, BIM and Integrated Design discusses the implementation of building information modeling software as a cultural process with a focus on the technology's impact and transformative effect—both potentially disruptive and liberating—on the social, psychological, and practical aspects of the workplace. BIM and Integrated Design answers the questions that BIM poses to the firm that adopts it. Through thorough research and a series of case study interviews with industry leaders—and leaders in the making out from behind the monitor—BIM and Integrated Design helps you learn: Effective learning strategies for fully understanding BIM software and its use Key points about integrated design to help you promote the

process to owners and your team How BIM changes not only the technology, process, and delivery but also the leadership playing field How to become a more effective leader no matter where you find yourself in the organization or on the project team How the introduction of BIM into the workforce has significant education, recruitment, and training implications Covering all of the human issues brought about or exacerbated by the advent of BIM into the architecture workplace, profession, and industry, BIM and Integrated Design shows how to overcome real and perceived barriers to its use.

Digital Transformation of the Design, Construction and Management Processes of the Built Environment

Tutorial Guide to AutoCAD 2018 provides a step-by-step introduction to AutoCAD with commands presented in the context of each tutorial. In fifteen clear and comprehensive chapters, author Shawna Lockhart guides readers through all the important commands and techniques in AutoCAD 2018, from 2D drawing to solid modeling and finally finishing with rendering. In each lesson, the author provides step-by-step instructions with frequent illustrations showing exactly what appears on the AutoCAD screen. Later, individual steps are no longer provided, and readers are asked to apply what they've learned by completing sequences on their own. A carefully developed pedagogy reinforces this cumulative-learning approach and supports readers in becoming skilled AutoCAD users. Tutorial Guide to AutoCAD 2018 begins with three Getting Started chapters that include information to get readers of all levels prepared for the tutorials. The author includes tips that offer suggestions and warnings as you progress through the tutorials. Key Terms and Key Commands are listed at the end of each chapter to recap important topics and commands learned in each tutorial. Also, a glossary of terms and Commands Summary list the key commands used in the tutorials. Each chapter concludes with end of chapter problems providing challenges to a range of abilities in mechanical, electrical, and civil engineering as well as architectural problems.

AutoCAD Civil 3D 2016 Essentials

This textbook covers in detail the tools that are used to create a 3D structural model. Real-world industry examples are specially chosen for the structural steel detailing and BIM industry. The author has specifically covered a number of pain-points that the users face on a day-to-day basis in their work. The following are some of the salient features of this textbook: Complimentary access to videos of all tutorials in the book. Covers Imperial units based on English US installation and Metric units based on English Australia installation. 646 pages of in-depth coverage of the tools to create 3D structural model from scratch. Around 400 pages of tutorials on real-world Structural and Building models. Detailed discussion of the Basic and Extended Modeling tools such as Portal/Gable Frames, Purlins, Trusses, Cage Ladders, Straight Stairs, Spiral Stairs, Hand-railings, and so on. Detailed coverage of the Connection Vault to insert various types of connections. Detailed coverage of how to create and save custom connections. "What I do" tips describing some real-world challenges that

Advance Steel users face and the author's approach in those situations. Tips and Notes providing additional information about the topic in discussion. End of chapter skill evaluation to review the concepts learnt in the chapter. The following free teaching resources are available for faculty: PowerPoint slides of every chapter in the textbook. Answers to the Class Test Questions. Help for designing the course curriculum.

International Finance

The Ultimate Guide to Autodesk Revit Architecture 2015 Responding to reader and instructor feedback, the expert author team updated and refreshed the book's content to make it even more useful, complete, and approachable. Mastering Revit Architecture is organized by real-world workflows and features detailed explanations, interesting real-world examples, and practical tutorials to help readers understand Revit and BIM concepts so that they can quickly start accomplishing vital Revit tasks. Part I discusses key BIM and Revit concepts before giving readers a hands-on look at the Revit interface. Part II explores today's Revit workflows and introduces readers to templates, worksharing, and managing Revit projects. Part III dives into modeling and massing and offers detailed information on the crucial Family Editor as well as visualization techniques for various industries. Part IV covers documentation, including annotation and detailing, and explains how to work with complex walls, roofs and floors as well as curtain walls and advanced stair and railings. The companion website features before-and-after tutorial files (metric and Imperial sets), additional advanced content, and an hour of video on crucial techniques. Whether you are a beginner or an advanced Revit user, this book offers the detailed instruction you need to get the most out of this powerful software product.

Manual of Digital Earth

Design Integration Using Autodesk Revit 2020 is designed to provide you with a well-rounded knowledge of Autodesk Revit tools and techniques. All three disciplines of the Revit platform are introduced in this textbook. This approach gives you a broad overview of the Building Information Modeling (BIM) process. The topics cover the design integration of most of the building disciplines: Architectural, Interior Design, Structural, Mechanical, Plumbing and Electrical. Civil is not covered, but adding topography to your model is. Each book also includes access to nearly 100 video tutorials designed to further help you master Autodesk Revit. Throughout the book you develop a two story law office. The drawings start with the floor plans and develop all the way to photo-realistic renderings similar to the one on the cover of this book. Along the way the building's structure, ductwork, plumbing and electrical (power and lighting) are modeled. By the end, you will have a thorough knowledge of many of the Revit basics needed to be productive in a classroom or office environment. Even if you will only be working with one component of Revit in your chosen profession, this book will give you important knowledge on how the other disciplines will be doing their work and valuable insight into the overall process. The first four chapters cover

many of the Revit basics needed to successfully and efficiently work with the software. Once the fundamentals are covered, the remaining chapters walk you through a building project which is started from scratch so nothing is taken for granted by you or the author.

Mastering AutoCAD Civil 3D 2016

Residential Design Using AutoCAD 2015 is an introductory level tutorial which uses residential design exercises as the means to teach you AutoCAD 2015. Each book comes with a disc containing numerous video presentations in which the author shows and explains the many tools and techniques used in AutoCAD 2015. After completing this book you will have a well-rounded knowledge of Computer Aided Drafting that can be used in the industry and the satisfaction of having completed a set of residential drawings. This textbook starts with a basic introduction to AutoCAD 2015. The first three chapters are intended to get you familiar with the user interface and the most common menus and tools. Throughout the rest of the book you will design a residence through to its completion. Using step-by-step tutorial lessons, the residential project is followed through to create elevations, sections, details, etc. Throughout the project, new AutoCAD commands are covered at the appropriate time. Focus is placed on the most essential parts of a command rather than an exhaustive review of every sub-feature of a particular command. The Appendix contains a bonus section covering the fundamental principles of engineering graphics that relate to architecture. The disc that comes with this book contains extensive video instruction as well as bonus chapters that cover must know commands, sketching exercises, a roof study workbook and much more. About the Videos The videos contained on the included disc make it easy to see the menu selections and will make learning AutoCAD straightforward and simple. At the start of each chapter you are prompted to watch a video that previews the topics that will be covered in the proceeding chapter. This allows you to become familiar with the menu selections and techniques before you begin the tutorial. By watching these videos you will be more confident in what you are doing and have a better understanding of the desired outcome of each lesson.

Mastering Autodesk Revit Architecture 2015

This open access book offers a summary of the development of Digital Earth over the past twenty years. By reviewing the initial vision of Digital Earth, the evolution of that vision, the relevant key technologies, and the role of Digital Earth in helping people respond to global challenges, this publication reveals how and why Digital Earth is becoming vital for acquiring, processing, analysing and mining the rapidly growing volume of global data sets about the Earth. The main aspects of Digital Earth covered here include: Digital Earth platforms, remote sensing and navigation satellites, processing and visualizing geospatial information, geospatial information infrastructures, big data and cloud computing, transformation and zooming, artificial intelligence, Internet of Things, and social media. Moreover, the book covers in detail the multi-

layered/multi-faceted roles of Digital Earth in response to sustainable development goals, climate changes, and mitigating disasters, the applications of Digital Earth (such as digital city and digital heritage), the citizen science in support of Digital Earth, the economic value of Digital Earth, and so on. This book also reviews the regional and national development of Digital Earth around the world, and discusses the role and effect of education and ethics. Lastly, it concludes with a summary of the challenges and forecasts the future trends of Digital Earth. By sharing case studies and a broad range of general and scientific insights into the science and technology of Digital Earth, this book offers an essential introduction for an ever-growing international audience.

HVAC Duct Construction Standards - Metal and Flexible 3rd Ed

In Industry 4.0, industrial productions are adjusted to complete smart automation, which means introducing self-automation methods, self-configuration, self-diagnosis of problems and removal, cognition, and intelligent decision making. This implementation of Industry 4.0 brings about a change in business paradigms and production models, and this will be reflected at all levels of the production process including supply chains and will involve all workers in the production process from managers to cyber-physical systems designers and customers as end-users. The Handbook of Research on Integrating Industry 4.0 in Business and Manufacturing is an essential reference source that explores the development and integration of Industry 4.0 by examining changes and innovations to manufacturing processes as well as its applications in different industrial areas. Featuring coverage on a wide range of topics such as cyber physical systems, integration criteria, and artificial intelligence, this book is ideally designed for mechanical engineers, electrical engineers, manufacturers, supply chain managers, logistics specialists, investors, managers, policymakers, production scientists, researchers, academicians, and students at the postgraduate level.

Revit Architecture 2021 for Electrical Workers

The AUBIN ACADEMY MASTER SERIES: AUTOCAD ARCHITECTURE 2011 explains the process of creating professional-quality building design projects using the newest release of AutoCAD Architecture Using a project-based approach, this text goes beyond a simple rundown of tools and commands to focus on the rationale and practicality of the software through life-tested, practical lessons that emphasize the why as well as the how in order to help students complete their projects successfully. Text and lessons combine to deliver a clear sense of the value of the tools introduced as well each tool's potential. The result is a fully up-to-date resource that shortens the learning curve and builds confidence and comfort in using the software as a tool to create architecture. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Expert CAD Management

Mastering Autodesk Revit MEP 2012

Mechanical Engineer's Data Handbook provides a comprehensive yet concise set of information relevant in the practice of mechanical engineering. The book is comprised of eight chapters that cover the main disciplines of mechanical engineering. The text first details the strengths of materials, and then proceeds to discussing applied mechanics. Next, the book talks about thermodynamics and fluid mechanics. The fifth chapter presents manufacturing technology, which includes cutting tools, metal forming processes, and soldering and brazing. The next two chapters deal with engineering materials and measurements, respectively. The last chapter of the text presents general data, such as units, symbols, and fasteners. The book will be most useful to students and practitioners of mechanical engineering.

Tutorial Guide to AutoCAD 2018

Now in its third edition, this authoritative handbook offers a comprehensive and up-to-date survey of work and health psychology. Updated edition of a highly successful handbook Focuses on the applied aspects of work and health psychology New chapters cover emerging themes in this rapidly growing field Prestigious team of editors and contributors

BIM and Construction Management

This book highlights the sustainability aspects of additive manufacturing (AM) in two separate volumes. It describes the details of this technology and its implications on the entire product life cycle sustainability, as well as embedded carbon and the further research needed to move this technology towards sustainable, mainstream production. Sustainability is not new for any area of industry, including additive manufacturing, and there are currently a number of ongoing research projects, both in industry and in academic institutions, that are investigating sustainability, embedded carbon and research activities which would need to be done in the future to move this technology towards sustainable mainstream production.

Autodesk Revit Architecture 2016 Essentials

Written by Applied Software, the leading experts of the Autodesk Fabrication software, this courseware covers the important concepts and most common commands for working with Autodesk Fabrication CAMduct. The course begins with basic features and topics and progresses to more complex tasks and processes. This fundamentals course does not include

every aspect of the software, but does provide the essential teaching required to properly use Fabrication CAMduct at a fundamental level. Fabrication CAMduct is one of a series of applications that, together, offer a unified design-to-fabrication workflow for MEP Contractors and Fabricators. This courseware is intended to be used in the standard three-day instructor-led class, but can be used by almost anyone to learn the fundamentals of Autodesk Fabrication CAMduct. The objective is to enable students to quickly generate nested sheet metal flat patterns from fabrication models and send CNC data to equipment on the shop floor.

Mechanical Engineer's Data Handbook

Implementing Virtual Design and Construction using BIM outlines the team structure, software and production ecosystem needed for an effective Virtual Design and Construction (VDC) process through current real world case studies of projects both in development and under construction. It provides the reader with a better understanding of the successful implementation of VDC and Building Information Modeling (BIM), and the benefits to the project team throughout the design and construction process. For readers already familiar with VDC, the book will provide invaluable examples of best practices and real world solutions. Richly illustrated in color with actual VDC documentation, visualizations, and statistics, the reader is shown the real processes undertaken and outputs generated when working on high profile building information models. Online animations, interviews with practitioners, and downloadable templates, forms and files make this an interactive and highly engaging way to learn a crucial set of skills. While keeping up with current industry practice is a minimum requirement, this book goes further by helping you prepare for the next level of virtual design and construction. This is essential reading for project managers, construction managers, architects, design managers, and anybody with a role in BIM or virtual construction.

Implementing Virtual Design and Construction using BIM

International Finance presents the corporate uses of international financial markets to upper undergraduate and graduate students of business finance and financial economics. Combining practical knowledge, up-to-date theories, and real-world applications, this textbook explores issues of valuation, funding, and risk management. International Finance shows how theoretical applications can be brought into managerial practice. The text includes an extensive introduction followed by three main sections: currency markets; exchange risk, exposure, and risk management; and long-term international funding and direct investment. Each section begins with a short case study, and each of the sections' chapters concludes with a CFO summary, examining how a hypothetical chief financial officer might apply topics to a managerial setting. The book also contains end-of-chapter questions to help students grasp the material presented. Focusing on international markets and multinational corporate finance, International Finance is the go-to resource for students seeking a complete

understanding of the field. Rigorous focus on international financial markets and corporate finance concepts An up-to-date and practice-oriented approach Strong real-world examples and applications Comprehensive look at valuation, funding, and risk management Introductory case studies and "CFO summaries," and end-of-chapter quiz questions Solutions to the quiz questions are available online

BIM and Integrated Design

A sleeker, more comprehensive approach to construction projects BIM and Construction Management, Second Edition is a complete integration guide, featuring practical advice, project tested methods and workflows, and tutorials for implementing Building Information Modeling and technology in construction. Updated to align with the latest software editions from Autodesk, Trimble and Bentley, this book provides a common sense approach to leveraging BIM to provide significant value throughout a project's life cycle. This book outlines a results-focused approach which shows you how to incorporate BIM and other technologies into all phases of construction management, such as: Project planning: Set up the BIM project to succeed right from the start by using the right contracts, the right processes and the right technology Marketing: How to exceed customer expectations and market your brand of BIM to win. Pre-construction: Take a practical approach to engineer out risks in your project by using the model early to virtually build and analyze your project, prior to physical construction. Construction: Leverage the model throughout construction to build safer and with better quality. Field work: Learn how mobile technologies have disrupted the way we work in the field to optimize efficiencies and access information faster. Closeout: Deliver a better product to your customer that goes beyond the physical structure and better prepares them for future operations. Additionally, the book provides a look at technology trends in construction and a thoughtful perspective into potential use cases going forward. BIM and Construction Management, Second Edition builds on what has changed in the construction landscape and highlights a new way of delivering BIM-enabled projects. Aligning to industry trends such as Lean, integrated delivery methods, mobile platforms and cloud-based collaboration this book illustrates how using BIM and technology efficiently can create value.

Handbook of Sustainability in Additive Manufacturing

Get up and running on Autodesk Revit MEP 2016 with this detailed, hands-on guide Mastering Autodesk Revit MEP 2016 provides perfectly paced coverage of all core concepts and functionality, with tips, tricks, and hands-on exercises that help you optimize productivity. With a focus on real-world uses and workflows, this detailed reference explains Revit MEP tools and functionality in the context of professional design and provides the practical insight that can only come from years of experience. Coverage includes project setup, work sharing, building loads, ductwork, electrical and plumbing, and much more, with clear explanation every step of the way. The companion website features downloadable tutorials that reinforce

the material presented, allowing you to jump in at any point and compare your work to the pros. This is your guide to master the capabilities of this essential productivity-enhancing tool. Generate schedules that show quantities, materials, design dependencies, and more Evaluate building loads, and design logical air, water, and fire protection systems Create comprehensive electrical and plumbing plans tailored to the project Model your design with custom parameters, symbols, fixtures, devices, and more If you're ready to get on board this emerging design, collaboration, and documentation paradigm, Mastering Autodesk Revit MEP 2016 is the one-stop resource you need.

International Handbook of Work and Health Psychology

Building Information Modeling (BIM) refers to the consistent and continuous use of digital information throughout the entire lifecycle of a built facility, including its design, construction and operation. In order to exploit BIM methods to their full potential, a fundamental grasp of their key principles and applications is essential. Accordingly, this book combines discussions of theoretical foundations with reports from the industry on currently applied best practices. The book's content is divided into six parts: Part I discusses the technological basics of BIM and addresses computational methods for the geometric and semantic modeling of buildings, as well as methods for process modeling. Next, Part II covers the important aspect of the interoperability of BIM software products and describes in detail the standardized data format Industry Foundation Classes. It presents the different classification systems, discusses the data format CityGML for describing 3D city models and COBie for handing over data to clients, and also provides an overview of BIM programming tools and interfaces. Part III is dedicated to the philosophy, organization and technical implementation of BIM-based collaboration, and discusses the impact on legal issues including construction contracts. In turn, Part IV covers a wide range of BIM use cases in the different lifecycle phases of a built facility, including the use of BIM for design coordination, structural analysis, energy analysis, code compliance checking, quantity take-off, prefabrication, progress monitoring and operation. In Part V, a number of design and construction companies report on the current state of BIM adoption in connection with actual BIM projects, and discuss the approach pursued for the shift toward BIM, including the hurdles taken. Lastly, Part VI summarizes the book's content and provides an outlook on future developments. The book was written both for professionals using or programming such tools, and for students in Architecture and Construction Engineering programs.

Residential Design Using Autodesk Revit 2020

The Aubin Academy Master Series: Revit® MEP is the ideal book to help readers successfully use Revit MEP. It is a concise manual focused squarely on the rationale and practicality of the Revit MEP Building Information Model (BIM) process. The book emphasizes the process of creating projects in MEP rather than a series of independent commands and tools. The goal of each lesson is to help the reader complete their projects successfully. Tools are introduced together in a focused process

with a strong emphasis on “why” as well as “how.” The text and exercises seek to give the reader a clear sense of the value of the tools, and a clear indication of each tool's potential. The Aubin Academy Master Series: Revit MEP is a resource designed to shorten your learning curve, raise your comfort level, and, most importantly, give you real-life tested practical advice on the usage of the software to create mechanical, electrical, and plumbing designs, and calculations. Empowered with the information within this book, you will have insight into how to use Revit MEP to create coordinated BIM project models and documentation. Revised and updated to the latest release of the software Includes practical project focused how-to exercises where readers learn by “doing”. Focused on MEP Production so readers can learn to create a coordinated BIM model and documentation set. Written by authors with over 75 years of combined real-World architectural and MEP industry experience. Provides “Power User/BIM Manager” tips throughout. Includes free online download of complete dataset of project files to follow along in the exercises.

Mastering Autodesk Revit MEP 2014

The ultimate reference and tutorial to harness the power of Revit MEP This Autodesk Official Press book will help you develop your expertise with Revit MEP's core concepts and functionality. Based on the authors' years of real-world experience, this comprehensive reference and tutorial has been updated to cover all of the new features of Revit MEP, and includes best practices, techniques, tips, tricks, and real-world exercises to help you hone your skills. Shows how to use the interface effectively, explains how to create and use project templates, and details ways you can improve efficiency with worksharing and collaboration Addresses generating schedules that show quantities, materials, design dependencies, and more Looks at creating logical air, water, and fire protection systems; evaluating building loads; and placing air and water distribution equipment Covers lighting, power receptacles and equipment, communication outlets and systems, and circuiting and panels Zeroes in on creating water systems, plumbing fixtures and their connectors, water piping, and more Featuring real-world scenarios and hands-on tutorials, this Autodesk Official Press book features downloadable before-and-after tutorial files so that you can compare your finished work to that of the professionals. It's the perfect resource for becoming a Revit MEP expert.

Building Information Modeling

Get the strategies you need for successful CAD management in this one-of-a-kind resource. You'll learn basics such as how to assign tasks, set budgets, and formulate ROI-and gradually delve into more complex issues such as managing intellectual property, selling ideas to management and end users, and configuring for specific engineering environments. This indispensable resource is packed with savvy insights, practical techniques, and real-world advice to broaden your technical, business, and management skills.

Mastering Autodesk Revit MEP 2015

The definitive guide to Autodesk Revit MEP The expert author team for this Autodesk Official Press book has employed their years of experience to develop this exhaustive reference and tutorial, which is perfectly paced to cover all the core concepts and functionality of Revit MEP including: Navigating the interface Project setup and templates Worksharing Mechanical concerns such as building loads and ductwork Electrical concerns such as lighting and communications outlets Plumbing concerns such as fixtures and water systems This revision covers all of Revit MEP's new features and includes more advanced electrical and plumbing information. In addition, the book features real-world sidebars and hands-on tutorials that reinforce the detailed discussions, along with downloadable before-and-after tutorial files to help you complete the hands-on projects. This Autodesk Official Press book is the perfect resource for becoming a Revit MEP expert.

The Aubin Academy Master Series: AutoCAD Architecture 2011

"The BIM Handbook is an extensively researched and meticulously written book, showing evidence of years of work rather than something that has been quickly put together in the course of a few months. It brings together most of the current information about BIM, its history, as well as its potential future in one convenient place, and can serve as a handy reference book on BIM for anyone who is involved in the design, construction, and operation of buildings and needs to know about the technologies that support it. The need for such a book is indisputable, and it is terrific that Chuck Eastman and his team were able to step up to the plate and make it happen. Thanks to their efforts, anyone in the AEC industry looking for a deeper understanding of BIM now knows exactly where to look for it." —AECbytes book review, August 28, 2008 (www.aecbytes.com/review/2008/BIMHandbook.html) DISCOVER BIM: A BETTER WAY TO BUILD BETTER BUILDINGS Building Information Modeling (BIM) offers a novel approach to design, construction, and facility management in which a digital representation of the building process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. The BIM Handbook, Second Edition provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. Updates to this edition include: Completely updated material covering the current practice and technology in this fast-moving field Expanded coverage of lean construction and its use of BIM, with special focus on Integrated Project Delivery throughout the book New insight on the ways BIM facilitates sustainable building New information on interoperability schemas and collaboration tools Six new case studies Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Second Edition guides readers to successful implementations, helping them to avoid needless frustration and costs and take full advantage of this paradigm-shifting approach to construct better buildings that consume fewer materials and require less time, labor, and capital

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