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### RT2SY3 - SHANE MANN

Orbital Mechanics for Engineering Students, Second Edition, provides an introduction to the basic concepts of space mechanics. These include vector kinematics in three dimensions; Newton's laws of motion and gravitation; relative motion; the vector-based solution of the classical two-body problem; derivation of Kepler's equations; orbits in three dimensions; preliminary orbit determination; and orbital maneuvers. The book also covers relative motion and the two-impulse rendezvous problem; interplanetary mission design using patched conics; rigid-body dynamics used to characterize the attitude of a space vehicle; satellite attitude dynamics; and the characteristics and design of multi-stage launch vehicles. Each chapter begins with an outline of key concepts and concludes with problems that are based on the material covered. This text is written for undergraduates who are studying orbital mechanics for the first time and have completed courses in physics, dynamics, and mathematics, including differential equations and applied linear algebra. Graduate students, researchers, and experienced practitioners will also find useful review materials in the book. NEW: Reorganized and improved discussions of coordinate systems, new discussion on perturbations and quaternions NEW: Increased coverage of attitude dynamics, including new Matlab algorithms and examples in chapter 10 New examples and homework problems

A group of farmyard animals illustrate the action of force and motion.

Vol. 115 includes Diamond jubilee issue, 1867-1927.

One cold winter's night, in his stable, Kind Ox welcomes animals looking for warmth and shelter with the call, 'Come inside. There's always room for a little one here.' Then Tired Donkey arrives, led by Joseph and carrying Mary on his back. Kind Ox calls to Tired Donkey, 'Come inside. There's always room for a little one here'. And later that night, in the light of the stable, the animals welcome Jesus to the world. Martin Waddell's beautiful retelling of the nativity story is exquisitely illustrated by Jason Cockcroft.

New York Times Bestseller Rosie may seem quiet during the day, but at night she's a brilliant inventor of gizmos and gadgets who dreams of becoming a great engineer. When her great-great-aunt Rose (Rosie the Riveter) comes for a visit and mentions her one unfinished goal—to fly—Rosie sets to work building a contraption to make her aunt's dream come true. But when her contraption doesn't fly but rather hovers for a moment and then crashes, Rosie deems the invention a failure. On the contrary, Aunt Rose insists that Rosie's contraption was a raging success: you can only truly fail, she explains, if you quit. From the powerhouse author-illustrator team of Iggy Peck, Architect comes Rosie Revere, Engineer, another charming, witty picture book about believing in yourself and pursuing your passion. Ada Twist, Scientist, the companion picture book featuring the next kid from Iggy Peck's class, is available in September 2016.!--?xml:namespace prefix = o ns = "urn:schemas-microsoft-com:office:office" /-- Praise for Rosie Revere, Engineer"Comically detailed mixed-media illustrations that keep the mood light and emphasize Rosie's creativity at every turn."—Publishers Weekly "The detritus of Rosie's collections is fascinating, from broken dolls and stuffed animals to nails, tools, pencils, old lamps and possibly an erector set. And cheddar-cheese spray." —Kirkus Reviews "This celebration of creativity and perseverance is told through rhyming text, which gives momentum and steady pacing to a story, consistent with the celebration of its heroine, Rosie. She's an imaginative thinker who hides her light under a bushel (well, really, the bed) after being laughed at for one of her inventions." —Booklist Award 2013 Parents' Choice Award - GOLD 2014 Amelia Bloomer Project List ReadBoston's Best Read Aloud Book

The Framework focuses on using business drivers to guide cybersecurity activities and considering cybersecurity risks as part of the organization's risk management processes. The Framework consists of three parts: the Framework Core, the Implementation Tiers, and the Framework Profiles. The Framework Core is a set of cybersecurity activities, outcomes, and informative references that are common across sectors and critical infrastructure. Elements of the Core provide detailed guidance for developing individual organizational Profiles. Through use of Profiles, the Framework will help an organization to align and prioritize its cybersecurity activities with its business/mission requirements, risk tolerances, and resources. The Tiers provide a mechanism for organizations to view and understand the characteristics of their approach to managing cybersecurity risk, which will help in prioritizing and achieving cybersecurity objectives.

If I built a car, it'd be totally new! Here are a few of the things that I'd do. . . . Young Jack is giving an eye-opening tour of the car he'd like to build. There's a snack bar, a pool, and even a robot named Robert to act as chauffeur. With Jack's soaring imagination in the driver's seat, we're deep-sea diving one minute and flying high above traffic the next in this whimsical, tantalizing take on the car of the future. Illustrations packed with witty detail, bright colors, and chrome recall the fabulous fifties and an era of classic American automobiles. Infectious rhythm and clever invention make this wonderful read-aloud a launch pad for imaginative fun.

What are "essential questions," and how do they differ from other kinds of questions? What's so great about them? Why should you design and use essential questions in your classroom? Essential questions (EQs) help target standards as you organize curriculum content into coherent units that yield focused and thoughtful learning. In the classroom, EQs are used to stimulate students' discussions and promote a deeper understanding of the content. Whether you are an Understanding by Design (UbD) devotee or are searching for ways to address standards—local or Common Core State Standards—in an engaging way, Jay McTighe and Grant Wiggins provide practical guidance on how to design, initiate, and embed inquiry-based teaching and learning in your classroom. Offering dozens of examples, the authors explore the usefulness of EQs in all K-12 content areas, including skill-based

areas such as math, PE, language instruction, and arts education. As an important element of their backward design approach to designing curriculum, instruction, and assessment, the authors \*Give a comprehensive explanation of why EQs are so important; \*Explore seven defining characteristics of EQs; \*Distinguish between topical and overarching questions and their uses; \*Outline the rationale for using EQs as the focal point in creating units of study; and \*Show how to create effective EQs, working from sources including standards, desired understandings, and student misconceptions. Using essential questions can be challenging—for both teachers and students—and this book provides guidance through practical and proven processes, as well as suggested "response strategies" to encourage student engagement. Finally, you will learn how to create a culture of inquiry so that all members of the educational community—students, teachers, and administrators—benefit from the increased rigor and deepened understanding that emerge when essential questions become a guiding force for learners of all ages.

In this instant New York Times bestseller, Angela Duckworth shows anyone striving to succeed that the secret to outstanding achievement is not talent, but a special blend of passion and persistence she calls "grit." "Inspiration for non-genius everywhere" (People). The daughter of a scientist who frequently noted her lack of "genius," Angela Duckworth is now a celebrated researcher and professor. It was her early eye-opening stints in teaching, business consulting, and neuroscience that led to her hypothesis about what really drives success: not genius, but a unique combination of passion and long-term perseverance. In Grit, she takes us into the field to visit cadets struggling through their first days at West Point, teachers working in some of the toughest schools, and young finalists in the National Spelling Bee. She also mines fascinating insights from history and shows what can be gleaned from modern experiments in peak performance. Finally, she shares what she's learned from interviewing dozens of high achievers—from JP Morgan CEO Jamie Dimon to New Yorker cartoon editor Bob Mankoff to Seattle Seahawks Coach Pete Carroll. "Duckworth's ideas about the cultivation of tenacity have clearly changed some lives for the better" (The New York Times Book Review). Among Grit's most valuable insights: any effort you make ultimately counts twice toward your goal; grit can be learned, regardless of IQ or circumstances; when it comes to child-rearing, neither a warm embrace nor high standards will work by themselves; how to trigger lifelong interest; the magic of the Hard Thing Rule; and so much more. Winningly personal, insightful, and even life-changing, Grit is a book about what goes through your head when you fall down, and how that—not talent or luck—makes all the difference. This is "a fascinating tour of the psychological research on success" (The Wall Street Journal).

Provides a simple introduction to the use of levers, pulleys, and wheels to move heavy objects.

Investigations of the activation, proliferation, and, in some cases, differentiation of mononuclear cells involved in the immune response are proceeding rapidly. These studies have resulted in the discovery of several factors that promote these cellular events, some of which have been characterized biochemically to various extents. Because of the considerable interest in understanding these cellular changes at the molecular level, we chose to produce the first thematic volume for Contemporary Topics in Molecular Immunology; the theme deals with certain regulatory factors that promote proliferation and differentiation. We have compiled contributions from numerous scientists well known for their work with several regulatory factors. In the following paragraphs, the reader will find an overview of the contents of this volume. Greene and Robb review data they have generated over the past 2-3 years with respect to characterization of hormone-specific Interleukin-2 (IL-2) receptors on the surface of activated T cells. Their chapter traces the development of a quantitative assay for assessment of IL-2 receptors based on the preparation and use of radiolabeled IL-2 prepared biosynthetically with the aid of IL-2-producing leukemic cells. The authors then describe an alternate approach, the preparation of a monoclonal antibody previously determined to be directed against a T-cell-activation antigen. This so-called anti-Tac antibody was later found to recognize a determinant on or near the IL-2 receptor.

Engineering education in K-12 classrooms is a small but growing phenomenon that may have implications for engineering and also for the other STEM subjects—science, technology, and mathematics. Specifically, engineering education may improve student learning and achievement in science and mathematics, increase awareness of engineering and the work of engineers, boost youth interest in pursuing engineering as a career, and increase the technological literacy of all students. The teaching of STEM subjects in U.S. schools must be improved in order to retain U.S. competitiveness in the global economy and to develop a workforce with the knowledge and skills to address technical and technological issues. Engineering in K-12 Education reviews the scope and impact of engineering education today and makes several recommendations to address curriculum, policy, and funding issues. The book also analyzes a number of K-12 engineering curricula in depth and discusses what is known from the cognitive sciences about how children learn engineering-related concepts and skills. Engineering in K-12 Education will serve as a reference for science, technology, engineering, and math educators, policy makers, employers, and others concerned about the development of the country's technical workforce. The book will also prove useful to educational researchers, cognitive scientists, advocates for greater public understanding of engineering, and those working to boost technological and scientific literacy.

A version of the OpenStax text

Intensely practical and down to earth, this timely new text covers the breadth of health emergency preparedness, resilience and response topics in the context of inter-disciplinary and whole society responses to a range of threats. It includes public, private and third sector roles in preparation for and in response to natural and man-made events, such as: major incident planning; infectious disease epidemics and pandemics; natural disasters;

terrorist threats; and business and service continuity management. The book builds upon the basics of risk assessment and writing an emergency plan, and then covers inter-agency working, command and control, communication, personal impact and business continuity as well as training, exercises and post-incident follow up. Detailing the full emergency preparedness and civil protection planning cycle, the book is illustrated throughout with real-life examples and case studies from global experts in the field for countries with both advanced and developing healthcare systems. This practical handbook covering the essential aspects of major incident and disaster management is ideal for undergraduate and master's students in emergency management and public health, as well as for practitioners in emergency preparedness and civil protection. It will be valuable to all health practitioners from ambulance, hospital, primary and community care, mental health and public health backgrounds.

The wonderful thing about mathematical art is that the most beautiful geometric patterns can be produced without needing to be able to draw, or be 'good at art'. Mathematical art is accessible to learners of all ages: its algorithmic nature means that it simply requires the ability to follow instructions carefully and to use a pencil and ruler accurately. It is engaging, enriching, thoroughly enjoyable and is a great leveller in the classroom. Learners who may not normally shine in mathematics lessons will take your breath away with their creativity. Those who struggle with their mathematics will experience the joy of success through their mathematical art-making. The six Artful Maths activities in this book are hands-on tasks that will develop important skills such as hand-eye co-ordination, manual dexterity and design thinking, which is a valuable form of problem-solving. Decisions need to be made about placement, size and colour, all of which entail thinking about measurements, proportions and symmetry. They can be undertaken alone or with a teacher to draw out the mathematics underlying the patterns and to practice key content in the school curriculum. For ages 9 to 16+.

Contents: Curves of Pursuit, Mazes and Labyrinths, Impossible Objects, Epicycloids, Perfect Proportions, Parabolic Curves. PRINCIPLES OF ENGINEERING will help your students better understand the engineering concepts, mathematics, and scientific principles that form the foundation of the Project Lead the Way (PLTW) Principles Of Engineering course. Important concepts and processes are explained throughout using full-color photographs and illustrations. Appropriate for high school students, the mathematics covered includes algebra and trigonometry. The strong pedagogical features to aid comprehension include: Case Studies, boxed articles such as Fun Facts and Points of Interest, Your Turn activities, suggestions for Off-Road Exploration, connections to STEM concepts, Career Profiles, Design Briefs, and example pages from Engineers' Notebooks. Each chapter concludes with questions designed to test your students' knowledge of information presented in the chapter, along with a hands-on challenge or exercise that compliments the content and lends itself to exploration in the classroom. Key vocabulary terms that align with those contained in the PLTW POE course are highlighted throughout the book and emphasized in margin definitions. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This textbook is designed for use in a two-course introduction to computer science.

Discusses the vital aspects of how to make a proper and permanent record of research work. Goes beyond the mechanical of simply filling in the notebook pages with details on the skills needed to create proper records of research, observations, and results. Helps to increase awareness of what is being done in the lab and to develop a flexible style of notekeeping that will serve a variety of research environments.

This is a discount Black and white version. Some images may be unclear, please see BCCampus website for the digital version. This book was born out of a 2014 meeting of earth science educators representing most of the universities and colleges in British Columbia, and nurtured by a widely shared frustration that many students are not thriving in courses because textbooks have become too expensive for them to buy. But the real inspiration comes from a fascination for the spectacular geology of western Canada and the many decades that the author spent exploring this region along with colleagues, students, family, and friends. My goal has been to provide an accessible and comprehensive guide to the important topics of geology, richly illustrated with examples from western Canada. Although this text is intended to complement a typical first-year course in physical geology, its contents could be applied to numerous other related courses.

A resource for public officials on the basic tenets of effective communications generally and on working with the news media specifically. Focuses on providing public officials with a brief orientation and perspective on the media and how they think and work, and on the public as the end-recipient of info.; concise presentations of techniques for responding to and cooperating with the media in conveying info. and delivering messages, before, during, and after a public health crisis; a practical guide to the tools of the trade of media relations and public communications; and strategies and tactics for addressing the probable opportunities and the possible challenges that are likely to arise as a consequence of such communication initiatives. III.

Vols. for 1964- have guides and journal lists.

The untold story of the root cause of America's education crisis--and the seemingly endless cycle of multigenerational poverty. It was only after years within the education reform movement that Natalie Wexler stumbled across a hidden explanation for our country's frustrating lack of progress when it comes to providing every child with a quality education. The problem wasn't one of the usual scapegoats: lazy teachers, shoddy facilities, lack of accountability. It was something no one was talking about: the elementary school curriculum's intense focus on decontextualized reading comprehension "skills" at the expense of actual knowledge. In the tradition of Dale Russakoff's *The Prize* and Dana Goldstein's *The Teacher Wars*, Wexler brings together history, research, and compelling characters to pull back the curtain on this fundamental flaw in our education system--one that fellow reformers, journalists, and policymakers have long overlooked, and of which the general public, including many parents, remains unaware. But *The Knowledge Gap* isn't just a story of what schools have gotten so wrong--it also follows innovative educators who are in the process of shedding their deeply ingrained habits, and describes the rewards that have come along: students who are not only excited to learn but are also acquiring the knowledge and vocabulary that will enable them to succeed. If we truly want to fix our education system and unlock the potential of our neediest children, we have no choice but to pay attention.

The first pumpkin Tim ever carved was fierce and funny, and he named it Jack. When Halloween was over and the pumpkin was beginning to rot, Tim set it out in the garden and throughout the weeks he watched it change. By spring, a plant began to grow! Will Hubbell's gentle story and beautifully detailed illustrations give an intimate look at the cycle of life.

It is only during the last decade that the functions of sinusoidal endothelial cells, Kupffer cells, hepatic stellate cells, pit cells and other intrahepatic lymphocytes have been better understood. The development of methods for isolation and co-culturing various types of liver cells has established that they communicate and cooperate via secretion of various intercellular mediators. This monograph summarizes multiple data that suggest the important role of cellular cross-talk for the functions of both normal and diseased liver. Special features of the book include concise presentation of the majority of detailed data in 19 tables. Original schemes allow for the clear illustration of complicated intercellular relationships. This is the first ever presentation of the newly emerging field of liver biology, which is important for hepatic function in health and disease and opens new avenues for therapeutic interventions.

Science is unique among the disciplines since it is inherently hands-on. However, the hands-on nature of science instruction also makes it uniquely challenging when teaching in virtual environments. How do we, as science teachers, deliver high-quality experiences in an online environment that leads to age/grade-level appropriate science content knowledge and literacy, but also collaborative experiences in the inquiry process and the nature of science? The expansion of online environments for education poses logistical and pedagogical challenges for early childhood and elementary science teachers and early learners. Despite digital media becoming more available and ubiquitous and increases in online spaces for teaching and learning (Killham et al., 2014; Wong et al., 2018), PreK-12 teachers consistently report feeling underprepared or overwhelmed by online learning environments (Molnar et al., 2021; Seaman et al., 2018). This is coupled with persistent challenges related to elementary teachers' lack of confidence and low science teaching self-efficacy (Brigido, Borrachero, Bermejo, & Mellado, 2013; Gunning & Mensah, 2011). *Teaching and Learning Online: Science for Elementary Grade Levels* comprises three distinct sections: Frameworks, Teacher's Journeys, and Lesson Plans. Each section explores the current trends and the unique challenges facing elementary teachers and students when teaching and learning science in online environments. All three sections include alignment with Next Generation Science Standards, tips and advice from the authors, online resources, and discussion questions to foster individual reflection as well as small group/classwide discussion. Teacher's Journeys and Lesson Plan sections use the 5E model (Bybee et al., 2006; Duran & Duran, 2004). Ideal for undergraduate teacher candidates, graduate students, teacher educators, classroom teachers, parents, and administrators, this book addresses why and how teachers use online environments to teach science content and work with elementary students through a research-based foundation.

The classic personal account of Watson and Crick's groundbreaking discovery of the structure of DNA, now with an introduction by Sylvia Nasar, author of *A Beautiful Mind*. By identifying the structure of DNA, the molecule of life, Francis Crick and James Watson revolutionized biochemistry and won themselves a Nobel Prize. At the time, Watson was only twenty-four, a young scientist hungry to make his mark. His uncompromisingly honest account of the heady days of their thrilling sprint against other world-class researchers to solve one of science's greatest mysteries gives a dazzlingly clear picture of a world of brilliant scientists with great gifts, very human ambitions, and bitter rivalries. With humility unspoiled by false modesty, Watson relates his and Crick's desperate efforts to beat Linus Pauling to the Holy Grail of life sciences, the identification of the basic building block of life. Never has a scientist been so truthful in capturing in words the flavor of his work.

This book was first published in 1991. It considers the concepts and theories relating to mostly aqueous systems of activity coefficients.

Engineering education is emerging as an important component of US K-12 education. Across the country, students in classrooms and after- and out-of-school programs are participating in hands-on, problem-focused learning activities using the engineering design process. These experiences can be engaging; support learning in other areas, such as science and mathematics; and provide a window into the important role of engineering in society. As the landscape of K-12 engineering education continues to grow and evolve, educators, administrators, and policy makers should consider the capacity of the US education system to meet current and anticipated needs for K-12 teachers of engineering. *Building Capacity for Teaching Engineering in K-12 Education* reviews existing curricula and programs as well as related research to understand current and anticipated future needs for engineering-literate K-12 educators in the United States and determine how these needs might be addressed. Key topics in this report include the preparation of K-12 engineering educators, professional pathways for K-12 engineering educators, and the role of higher education in preparing engineering educators. This report proposes steps that stakeholders - including professional development providers, postsecondary preservice education programs, postsecondary engineering and engineering technology programs, formal and informal educator credentialing organizations, and the education and learning sciences research communities - might take to increase the number, skill level, and confidence of K-12 teachers of engineering in the United States.

*Creativity, Technology, and Learning* provides a comprehensive introduction to theories and research on creativity in education and, in particular, to the role of digital-learning technologies in enabling creativity across classroom learning environments. Topical coverage includes play, constructionism, multimodal learning and project-/problem-based learning. Creativity is uniquely positioned throughout the book as an integral component of the educational process and also as a foundational aspect of self-actualization, thriving communities, and humane societies. Through in-depth, empirically based discussions of the philosophical, curricular and pedagogical elements of creativity, Sullivan demonstrates how creativity can be fostered across the curriculum through the use of digital-learning technologies in design, personal expression and problem-solving activities.

Offers ways for educators and policy makers to get students to fall in love with, succeed in, and further pursue studies in STEM subjects.

A little girl and her canine assistant set out to make the most magnificent thing. But after much hard work, the end result is not what the girl had in mind. Frustrated, she quits. Her assistant suggests a long walk, and as they walk, it slowly becomes clear what the girl needs to do to succeed. A charming story that will give kids the most magnificent thing: perspective!

The position of technology education in the school curriculum is a topic of continuous discussions. This book offers a number of research-based contributions to that discussion. A number of aspects have been identified that are related to the way technology education can be embedded in the curriculum: The historical development of the subject, its disciplinary character, its relation to other parts of the curriculum, and in particular with science and language education, the relation between the formal school curriculum and informal learning, forms of progression over the grades, and its contribution to citizenship, forms of literacy and ethics. The final chapter deals with specific issues for developing countries. The book can support decision

making on the curriculum and the development of technology education as a part of that by providing theoretical and empirical insights on this topic. A hilarious, irreverent book about doing your own thing Meet Iggy Peck—creative, independent, and not afraid to express himself! In the spirit of David Shannon's No, David and Rosemary Wells's Noisy Nora, Iggy Peck will delight readers looking for irreverent, inspired fun. Iggy has one passion: building. His parents are proud of his fabulous creations, though they're sometimes surprised by his materials—who could forget the tower he built of

dirty diapers? When his second-grade teacher declares her dislike of architecture, Iggy faces a challenge. He loves building too much to give it up! With Andrea Beaty's irresistible rhyming text and David Roberts's puckish illustrations, this book will charm creative kids everywhere, and amuse their sometimes bewildered parents. Also from the powerhouse author-illustrator team of Iggy Peck, Architect, is Rosie Revere, Engineer, a charming, witty picture book about believing in yourself and pursuing your passion. Ada Twist, Scientist, the companion picture book featuring the next kid from Iggy Peck's class, is available in September 2016.