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This biography of Raymond Mays includes complete histories of ERA and BRM, including race summaries, a foreword by Mays himself. Personal letters addressed to the author from Alfred Owen, David Brown, Tony Rudd, Rivers Fletcher, Bob Gerard, Ken Richardson, Juan Fangio, and many others add intimacy to the story. Illustrated with over 100 of the author's colour paintings.

If you're still teaching the 2005 BTEC First standards, then this Student Book and accompanying Tutor's Resource File with CD-ROM provide all the support you and your students need. Keep a look out for revised editions of our BTEC First resources for the 2006 standards - coming soon! Takes a colourful, easy to use approach, to make it as attractive as possible to your students. The content is organised to match the BTEC specification, so it's easy for you and your students to find your way through the material. Practice activities match the assessment requirements of the course, so students will be thoroughly prepared by the time they are assessed. Contains specific guidance for students on preparing for the Integrated Vocational Assessment for Unit 1. Lots of interesting case studies show students how their theory relates

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to real life business.

This set includes Race Car Vehicle Dynamics, and Race Car Vehicle Dynamics - Problems, Answers and Experiments. Written for the engineer as well as the race car enthusiast, Race Car Vehicle Dynamics includes much information that is not available in any other vehicle dynamics text. Truly comprehensive in its coverage of the fundamental concepts of vehicle dynamics and their application in a racing environment, this book has become the definitive reference on this topic. Although the primary focus is on the race car, the engineering fundamentals detailed are also applicable to passenger car design and engineering. Authors Bill and Doug Milliken have developed many of the original vehicle dynamics theories and principles covered in this book, including the Moment Method, "g-g" Diagram, pair analysis, lap time simulation, and tyre data normalization. The book also includes contributions from other experts in the field. Chapters cover: *The Problem Imposed by Racing *Tire Behavior *Aerodynamic Fundamentals *Vehicle Axis Systems and more. Written for the engineer as well as the race car enthusiast and students, the companion workbook to the original classic book, Race Car Vehicle Dynamics, includes: *Detailed worked solutions to all of the problems *Problems for every chapter in Race Car Vehicle Dynamics, including many new problems *The Race Car Vehicle

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Dynamics Program Suite (for Windows) with accompanying exercises *Experiments to try with your own vehicle *Educational appendix with additional references and course outlines *Over 90 figures and graphs This workbook is widely used as a college textbook and has been an SAE International best seller since it's introduction in 1995.

The first book to summarize the secrets of the rapidly developing field of high-speed vehicle design. From F1 to Indy Car, Drag and Sedan racing, this book provides clear explanations for engineers who want to improve their design skills and enthusiasts who simply want to understand how their favorite race cars go fast. Explains how aerodynamics win races, why downforce is more important than streamlining and drag reduction, designing wings and venturis, plus wind tunnel designs and more. To make your car handle, design a suspension system, or just learn about chassis, you'll find what you need here. Basic suspension theory is thoroughly covered: roll center, roll axis, camber change, bump steer, anti-dive, ride rate, ride balance and more. How to choose, install and modify suspensions and suspension hardware for best handling: springs, sway bars, shock absorbers, bushings, tires and wheels. Regardless of the basic layout of your car—front engine/rear drive, front engine/front drive, or rear engine/rear drive—it is

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covered here. Aerodynamic hardware and body modifications for reduced drag, high-speed stability and increased cornering power: spoilers, air dams, wings and ground-effects devices. How to modify and set up brakes for maximum stopping power and handling. The most complete source of handling information available. "Suspension secrets" explained in plain, understandable language so you can be the expert.

This textbook covers handling and performance of both road and race cars. Mathematical models of vehicles are developed always paying attention to state the relevant assumptions and to provide explanations for each step. This innovative approach provides a deep, yet simple, analysis of the dynamics of vehicles. The reader will soon achieve a clear understanding of the subject, which will be of great help both in dealing with the challenges of designing and testing new vehicles and in tackling new research topics. The book deals with several relevant topics in vehicle dynamics that are not discussed elsewhere and this new edition includes thoroughly revised chapters, with new developments, and many worked exercises. Praise for the previous edition: Great book! It has changed drastically our approach on many topics. We are now using part of its theory on a daily basis to constantly improve ride and handling performances. --- Antonino Pizzuto, Head of Chassis Development

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Group at Hyundai Motor Europe Technical Center
Astonishingly good! Everything is described in a very compelling and complete way. Some parts use a different approach than other books. --- Andrea Quintarelli, Automotive Engineer

This book gives a unique insight into design and project work for a number of companies in the motor industry. It is aimed at both automobile enthusiasts and to encourage upcoming generations to consider a career in the creative field. Written in historical order, it traces the changes in the car design process over nearly 50 years.

In most forms of racing, cornering speed is the key to winning. On the street, precise and predictable handling is the key to high performance driving. However, the art and science of engineering a chassis can be difficult to comprehend, let alone apply. Chassis Engineering explains the complex principles of suspension geometry and chassis design in terms the novice can easily understand and apply to any project. Hundreds of photos and illustrations illustrate what it takes to design, build, and tune the ultimate chassis for maximum cornering power on and off the track.

Modifying the Aerodynamics of Your Road Car is a unique handbook that assumes no starting knowledge of vehicle aerodynamics. It begins with simple ideas and finishes with sophisticated and effective aerodynamic modifications that work. Three

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major chapters cover on-road testing techniques that give you all the information you need to decide what modifications you should make - and, after you've made them, how well they work. Low-cost techniques allow you to visualize the patterns of airflow over your car so that you can actually see the problem areas that need improvement. Uniquely, you're also shown how to measure aerodynamic pressures, so you can determine which body surfaces are creating lift, drag and downforce. Want to work out where a wing should be placed? On-road testing to find that out is covered as well. The book also shows you how to measure downforce to see if that wing is actually working! If you wish to reduce drag, more than ten different areas are covered. Reducing frontal area, lowering cooling system drag, optimizing vehicle ride height and rake, reducing the strength of the wake, achieving clean airflow separation and optimizing wheel designs are all covered using the latest research findings. And if you're a performance driver, there's a major chapter devoted to reducing lift and improving stability. This chapter includes the design and development of undertrays and diffusers, wings and spoilers. The example car developed measurable downforce when fitted with an undertray and rear diffuser, something that transformed its on-road handling. The author has been writing about the aerodynamics of road cars for more than 25 years.

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He is also an experienced and proficient car modifier who has performed numerous aerodynamic modifications and upgrades to his own cars. The book's technical consultant, RH Barnard, is an acknowledged world leading automotive aerodynamicist. If you want a practical, hands-on guide that demystifies and explains car aerodynamics, and shows you how to make effective aerodynamic modifications to your car, this book is for you.

"Describes the science behind race cars, including aerodynamics, velocity and fuel types"--Provided by publisher.

'Adrian has a unique gift for understanding drivers and racing cars. He is ultra competitive but never forgets to have fun. An immensely likeable man.'

Damon Hill

Available again! This highly illustrated book presents the history of one of America's greatest automobiles, the Chrysler 300. Every model's specifications and role in Chrysler history is examined in detail. Includes sales and production records.

Reprinted after a long absence! For the London to Sydney Marathon, team instructions included the recommendation that a firearm be carried by the crew of each car ... "A small pistol which can conveniently be located under cover in the car is what we have in mind" ...

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The complete history of Mazda's rotary engine-powered vehicles, from Cosmo 110S to RX-8. Charting the challenges, sporting triumphs, and critical reactions to a new wave of sports sedans, wagons, sports cars ... and trucks!

Popular Science gives our readers the information and tools to improve their technology and their world. The core belief that Popular Science and our readers share: The future is going to be better, and science and technology are the driving forces that will help make it better.

An introduction to ground vehicle aerodynamics, that will be of particular interest to automotive engineering students, vehicle body engineers/designers/profilers, passenger car engineers/ designers/rendering specialists, wind tunnel testing engineers, computational aerodynamicists, and race car designers. It treats, in particular, drag reduction methods and provides a significant insight into the computational approach to the aerodynamic design of ground vehicles.

A physicist explores the science of speed racing and the #1 spectator sport in America in the perfect gift for both NASCAR and science fans. Every NASCAR fan—at one time or another—asks the same question: Why isn't my favorite driver winning? This is your chance to discover how much more there is to NASCAR than "Go fast, turn left and don't crash." If you've ever wondered why racecars don't have

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mufflers, how “bump drafting” works, or what in the world “Let’s go up a pound on the right rear and add half a round of wedge” means, *The Physics of NASCAR* is for you. In this fast-paced investigation into the adrenaline-pumping world of NASCAR, a physicist with a passion uncovers what happens when the rubber hits the road and 800-horsepower vehicles compete at 190 miles per hour only inches from one another. Diandra Leslie-Pelecky tells her story in terms anyone who drives a car—and maybe occasionally looks under the hood--can understand. How do drivers walk away from serious crashes? How can two cars travel faster together than either car can on its own? How do you dress for a 1800°F gasoline fire? In simple yet detailed, high-octane prose, this is the ultimate thrill ride for armchair speed demons, auto science buffs, and NASCAR fans at every level of interest. Readers, start your engines.

In 1960, Colin Chapman sought to identify the most straightforward and uncomplicated way of building a Formula 1 car. The result was his first rear-engined design, the trendsetting Lotus 18. This book charts the 18’s competition history, from its inception, up to 1966 – via sensational victories over Ferrari at Monaco and the Nürburgring.

Aerodynamics has never been more central to the development of cars, commercial vehicles, motorbikes, trains and human powered vehicles,

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driven by the need for efficiency: reducing carbon dioxide emissions, reducing fuel consumption, increasing range and alleviating problems associated with traffic congestion. Reducing vehicle weight makes it more challenging to ensure that they are stable and handle well over a wide range of environmental conditions. Lighter structures are also more vulnerable to aerodynamically induced vibration. Alongside this, customers demand an environment that is quiet, comfortable and maintains their vision of the world around them in all weathers. These aims must be met by designing vehicles that engage customers emotionally, promoting the brand values of manufacturers and operators. This can only be done by collaboration between designers and aerodynamicists. Examine the latest developments in vehicle aerodynamic development Explore opportunities to network and share experiences around different areas Focus on future challenges and the engineering knowledge and technology required to resolve them Discuss other areas of development including handling and stability, tyre aerodynamics and modelling, aeroacoustics and fluid structure interaction This book constitutes the refereed post-conference proceedings of the 5th Russian Supercomputing Days, RuSCDays 2019, held in Moscow, Russia, in September 2019. The 60 revised full papers presented were carefully reviewed and selected from

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127 submissions. The papers are organized in the following topical sections: parallel algorithms; supercomputer simulation; HPC, BigData, AI: architectures, technologies, tools; and distributed and cloud computing.

In the full design of a Race Car, there are many important aspects to study and analyze. There is no book in the World that analyzes the design process of a Race Car, step by step, from conception to circuit testing. This book offers this knowledge: to be able to design a competition vehicle, knowing and analyzing all its phases. Ideal for Students in FSAE, Formula Student, Vehicle Companies, Universities Engineering Students, Engineering Professors, Racing Engineering Formation, etc....In the full design of a Race Car, there are many important aspects to study and analyze. There is no book in the World that analyzes the design process of a Race Car, step by step, from conception to circuit testing: Suspension, Tires, Mass transfer, Max speed, Power Train, Post Rig and Aero Post Rig Analysis, Lap Time, Acceleration, Braking, Aerodynamic design, Refrigeration, Dynamic and Static behaviour, Optimization, etc....This book offers this knowledge: to be able to design a competition vehicle, knowing and analyzing all its phases

Aerodynamics of Road Vehicles details the aerodynamics of passenger cars, commercial vehicles, sports cars, and race cars; their external

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flow field; as well as their internal flow field. The book, after giving an introduction to automobile aerodynamics and some fundamentals of fluid mechanics, covers topics such as the performance and aerodynamics of different kinds of vehicles, as well as test techniques for their aerodynamics. The book also covers other concepts related to automobiles such as cooling systems and ventilations for vehicles. The text is recommended for mechanical engineers and physicists in the automobile industry who would like to understand more about aerodynamics of motor vehicles and its importance on the field of road safety and automobile production.

"Is titanium for you? Can better brakes reduce lap times significantly? How do you choose the rights nuts and bolts? Which is more important, cornering or straight-line speed? Why did it break again? Engineer to Win not only answers these and many other questions, it gives you the reasons why."--Back cover

From historical background to state of the art techniques, and with chapters covering airdams, splitters, spoilers, wings, underbodies and myriad miscellaneous devices, *Competition Car Aerodynamics 3rd Edition* also features in-depth case studies from across the motorsport spectrum to help develop a comprehensive understanding of the subject.

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Based on the principles of engineering science, physics and mathematics, but assuming only an elementary understanding of these, *Race Car Design* masterfully explains the theory and practice of the subject. Bringing together key topics, including the chassis frame, tyres, suspension, steering and brakes, this is the first text to cover all the essential elements of race car design in one student-friendly textbook. *Race Car Design*: - Features a wealth of illustrations, including a full-colour plate section - Demonstrates the important role of computer tools - Uses dozens of clear examples and calculations to illustrate both theory and practical applications - Is written by an experienced author, known for his engaging and accessible style This book is an ideal accompaniment for motorsport engineering students and is the best possible resource for those involved in Formula Student/FSAE. It is also a valuable guide for practising car designers and enthusiasts.

The main aspects of downforce-inducing and uplift-reducing devices are explained in a thorough yet readable fashion, making this a valuable resource for competition drivers, amateur and professional constructors, and armchair enthusiasts alike. Data from major manufacturers, interviews with experts, and reports from race teams are collected here to explain the evolution of airdams, splitters, spoilers, and wings, from the earliest days of racing to the present. Other points of interest include: -- The theory of downforce lift and drag for road vehicles -- The use of wind tunnels and computational dynamics -- Regulations and restrictions -- Case studies from Formula 1, IndyCar, Formula 3000,

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Formula 3, sprint cars, sports cars, dragsters, and motorcycles

Art of the Formula 1 Race Car brings a selection of these spectacular machines into the studio to expose not just the engineering brilliance of these cars, but also their inherent beauty.

In 2006, a small unavailing university auto racing team began building a racecar that would challenge the best engineering schools in the world. With fewer people and resources than any of the top competitors, the only way they were going to win was to push the limit, go for broke, and hope for more than a little luck. By the time they got to the racetrack, they knew: In the fog of fierce competition, whether you win or lose, you learn the hardest lessons about engineering, teamwork, friendship, and yourself.

Featuring more than five hundred questions from past Regents exams with worked out solutions and detailed illustrations, this book is integrated with APlusPhysics.com website, which includes online questions and answer forums, videos, animations, and supplemental problems to help you master Regents Physics Essentials.

Understanding the aerodynamics of a racing car may seem difficult. Calculations, drawings and simulations: Engineer's stuff. Actually, with the right examples and very simple schemes to follow, through a more practical approach, it is possible to understand how formula cars work even without a technical knowledge. Anyone can learn the rules to use to create great cars and a simple and intuitive explanation is enough to get started. This

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book has been written for this reason: abandoning for a moment the physical and mathematical equations to assume a more discursive method, using easy examples that are replicable in everyday life. the text wants to explain the physical basics of the fastest cars in the world even to those who try to study it for the first time. Once learned the main physical theories, it will be even more engaging to follow this wonderful sport. You only have to start, to understand that it is possible.

The automobile is an icon of modern technology because it includes most aspects of modern engineering, and it offers an exciting approach to engineering education. Of course there are many existing books on introductory fluid/aero dynamics but the majority of these are too long, focussed on aerospace and don't adequately cover the basics. Therefore, there is room and a need for a concise, introductory textbook in this area. Automotive Aerodynamics fulfils this need and is an introductory textbook intended as a first course in the complex field of aero/fluid mechanics for engineering students. It introduces basic concepts and fluid properties, and covers fluid dynamic equations.

Examples of automotive aerodynamics are included and the principles of computational fluid dynamics are introduced. This text also includes topics such as aeroacoustics and heat transfer which are important to engineering students and are closely related to the main topic of aero/fluid mechanics. This textbook contains complex mathematics, which not only serve as the foundation for future studies but also provide a road map for the present text. As the chapters evolve, focus is

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placed on more applicable examples, which can be solved in class using elementary algebra. The approach taken is designed to make the mathematics more approachable and easier to understand. Key features: Concise textbook which provides an introduction to fluid mechanics and aerodynamics, with automotive applications Written by a leading author in the field who has experience working with motor sports teams in industry Explains basic concepts and equations before progressing to cover more advanced topics Covers internal and external flows for automotive applications Covers emerging areas of aeroacoustics and heat transfer Automotive Aerodynamics is a must-have textbook for undergraduate and graduate students in automotive and mechanical engineering, and is also a concise reference for engineers in industry.

Race Car Aerodynamics Designing for Speed Robert Bentley, Incorporated

A comprehensive guide on how to tune, test, and win in any form of racing. Includes technical information on all areas of race car engineering, including suspension and chassis, springs, brakes, aerodynamics, engine systems, safety, driving, testing, computers in racing, and a special section on race cars of the future.

This book provides an introduction to all aspects of designing, manufacturing, and racing solar cars. Understanding the 'big picture' will help members of solar race car teams make design and manufacturing trade-offs to stay on schedule and allow time to test and practice racing the car. Based on the author's experiences designing and building five solar cars over the last ten years, this book focuses on the important aspects of designing a competitive solar car, including

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developing a racing strategy, efficient solar car driving, project management, and designing the specific subsystems of the car. Chapters Cover: Design Methodology Aerodynamics of Solar Cars Composite Materials Car Balance and Spring Rates Tires and Rolling Resistance Rear Suspension, Drive, and Chassis Structure Battery System Electrical Systems. Popular Mechanics inspires, instructs and influences readers to help them master the modern world. Whether it's practical DIY home-improvement tips, gadgets and digital technology, information on the newest cars or the latest breakthroughs in science -- PM is the ultimate guide to our high-tech lifestyle. Aerodynamics is a science in itself, and is one of the most important factors in modern competition car design. This fully updated second edition covers all aspects of aerodynamics, including both downforce and drag. This complex subject is explained in down-to-earth terms, with the aid of numerous illustrations, including color CFD (Computational Fluid Dynamics) diagrams to demonstrate how aerodynamic devices work, as well as wind-tunnel studies.

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