

# Access Free Yamuna Cable Stayed Bridge At Allahabad Naini India Pdf For Free

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**Structural Health Monitoring for Suspension Bridges**

The influence on the interplay of technical progress, imagination and functional variety in footbridges are different from those affecting large-scale bridges. This fact has resulted in an exhaustible variety of distinctive design, as is beautifully illustrated by the selection of footbridges shown in this book. Essays clearly explain the technical aspects and the aesthetic potential of different structure designs. Footbridges contains detailed presentations of 90 european bridges, with text, comprehensive and detail plans, and photographs taken especially for the volume. With projects by Arup, Jürg Conzett, Foster and Partners, Happold, Schlaich Bergermann and Partners, Wilkinson Eyre, Jiri Strasky and others. The examples are organized chronologically in thematically focused chapters: lightweight bridges, moving bridges, covered bridges, taut-ribbon suspension bridges, arch bridges, etc. For those whose curiosity is aroused by the insight given into this type of bridge building, a compilation of 120 more footbridges, listed by location, provide a starting point for further investigation. Ursula Baus is an independent architecture critic and the author of numerous books and technical articles. She teaches at Stuttgart University. Mike Schlaich is a professor of massive construction at the Technische Universität (Technical University) in Berlin and a partner of the firm Schlaich Bergermann and Partners. Wilfried Dechau is a photographer - he lives and works in Stuttgart and specializes in architecture, bridges, and portraits. Experts in the field provide a state-of-the-art treatment of multi-cable stay

systems, segmental concrete construction, composite concrete and steel construction, parallel strand stays, and alternate designs. New edition emphasizes US bridges. This book presents 108 canyon bridges that best represent the highest level of bridge construction in China and is divided into four chapters including suspension bridge, cable-stayed bridge, arch bridge and beam bridge. It introduces the definition of canyon bridge for the first time and gives an overview of each bridge's structural characteristics, design and construction techniques, as well as management and maintenance measures. Furthermore, this book provides elevation layout drawings and real view pictures. Chinese version of this book was awarded "Fan Lichu Book Prize" by Bridge and Structure Committee of China Civil Engineering Society in August 2020. It is the first book accounting of canyon bridges and appeals to a wide readership, from bridge designers and engineers to the general public who has interests to learn bridge construction in mountainous areas.

Research Paper (postgraduate) from the year 2014 in the subject Engineering - Civil Engineering, grade: unknown, University of Weimar, language: English, abstract: The vibration characteristic of a cable stayed bridges structure is the main axis of the study in this paper, many structural parameters are used to simulate and determine the effect of vibration on the structural performance by identifying the natural frequencies of the system and the mode shapes that can occur in the real structure. Modeling the stay cables with three famous styles of arrangements such as Harp, Semi Harp and Fan styles, and assigning roller, hinged and fixed boundary conditions on the deck support of the cable stayed bridge, in addition to using two design cases of the girders and pylons dimensions in the global structure for that purpose. Through the use of ABAQUS finite element analysis, the models were generated for each mentioned cases and the results of the frequency linear perturbation step of 10 mode shapes were determined through the simulation of the deformed shapes and the determined values of the natural frequencies of each mode for each case of interest. It was seen that the roller boundary condition was much prone to the early vibration and the stay cables of the direction near to the roller support were vibrated and stressed much more than the other direction compared with the hinged and fixed boundary conditions, and the mode shapes 7, 8, 9 and 10 were the most vibrated cases for all the boundary conditions without any distinction. The week design of the girders and the pylons has the great effect on the vibration of the stay cables, pylons and deck of the structure especially near the roller support direction due to the early vibration of the case of roller support, so the use of cross ties and damping between the stay cables and the girders are very important in the cases of significant vibrations which affect the performance of the cable stayed bridges.

- Bridge type, behaviour and appearance David Bennett, David Bennett Associates · History of bridge development · Bridge form · Behaviour - Loads and load distribution Mike Ryall, University of Surrey · Brief history of loading specifications · Current code specification · Load distribution concepts · Influence lines - Analysis Professor R Narayanan, Consulting Engineer · Simple beam analysis · Distribution co-efficients · Grillage method · Finite elements · Box girder analysis: steel and concrete · Dynamics - Design of reinforced concrete bridges Dr Paul Jackson, Gifford and Partners · Right slab · Skew slab · Beam and slab · Box - Design of prestressed concrete bridges Nigel Hewson, Hyder Consulting · Pretensioned beams · Beam and slab · Pseudo slab · Post tensioned concrete beams · Box girders - Design of steel bridges Gerry Parke and John Harding, University of Surrey · Plate girders · Box girders · Orthotropic plates · Trusses - Design of composite bridges David Collings, Robert Benaim and Associates · Steel beam and concrete · Steel box and concrete · Timber and concrete - Design of arch bridges Professor Clive Melbourne, University of Salford · Analysis · Masonry · Concrete · Steel · Timber - Seismic analysis of design Professor Elnashai, Imperial College of Science, Technology and Medicine · Modes of failure in previous earthquakes · Conceptual design issues · Brief review of seismic design codes - Cable stayed bridges - Daniel Farquhar, Mott Macdonald · Analysis · Design · Construction - Suspension bridges Vardaman Jones and John Howells, High Point Rendel · Analysis · Design · Construction - Moving bridges Charles Birnstiel, Consulting engineer · History · Types · Special problems - Substructures Peter Lindsell, Peter Lindsell and Associates · Abutments · Piers - Other structural elements Robert Broome et al, WS Atkins · Parapets · Bearings · Expansion joints - Protection Mike Mulheren, University of

Surrey · Drainage · Waterproofing · Protective coating/systems for concrete · Painting system for steel · Weathering steel · Scour protection · Impact protection - Management systems and strategies Perrie Vassie, Transport Research Laboratory · Inspection · Assessment · Testing · Rate of deterioration · Optimal maintenance programme · Prioritisation · Whole life costing · Risk analysis - Inspection, monitoring, and assessment Charles Abdunur, Laboratoire Central Des Ponts et Chaussées · Main causes of deterioration · Investigation methods · Structural evaluation tests · Stages of structural assessment · Preparing for recalculation - Repair and Strengthening John Darby, Consulting Engineer · Repair of concrete structures · Metal structures · Masonry structures · Replacement of structures Bridges are great symbols of mankind's conquest of space. They are a monument to his vision and determination, but these alone are not enough. An appreciation of the mathematical theories underlying bridge design is essential to resist the physical forces of nature and gravity. The object of this book is to explain firstly the nature of the problems associated with the building of bridges with steel as the basic material, and then the theories that are available to tackle them. The book covers: a technological history of the different types of iron and steel bridges the basic properties of steel loads on bridges from either natural or traffic-induced forces the process and aims of design based on limit state and statistical probability concepts buckling behaviour of various components and large-deflection behaviour of components with initial imperfections detailed guidance on the design of plate and box girder bridges together with some design examples The Second Edition includes a completely new chapter on the history and design of cable-stayed bridges, the various types of cable used for them and their method of construction, and it addresses many of the changes introduced in the latest version of the British Standard Design Code for steel bridges, BS 5400: Part 3:2000.

The objective of the symposium was to acquaint the engineering and construction professionals with the current state-of-the-art of this rapidly growing bridge concept in order to assess future thought, study, development, and practice. Although initial contemporary design and construction have predominately occurred in Europe, currently there are cable-stayed bridges completed, under construction, and in design in the United States. The Pasco-Kennewick Bridge was in the final phase of superstructure assembly, allowing the symposium participants to view first hand the erection of this unusual structure. The bridge, which has a main span of 981 feet, is the first large cable-stayed bridge project undertaken in the United States. The cable-stayed portion of the bridge (1,794 feet long) is a segmentally pre-stressed concrete girder 80 feet wide and only seven feet deep. It is freely suspended on cable utilizing a new cable system unused before in the United States. First Published in 1999: The Bridge Engineering Handbook is a unique, comprehensive, and state-of-the-art reference work and resource book covering the major areas of bridge engineering with the theme "bridge to the 21st century." The need for large-scale bridges is constantly growing due to the enormous infrastructure development around the world. Since the 1970s many of them have been cable-stayed bridges. In 1975 the largest span length was 404 m, in 1995 it increased to 856 m, and today it is 1104 m. Thus the economically efficient range of cable-stayed bridges is tending to move towards even larger spans, and cable-stayed bridges are increasingly the focus of interest worldwide. This book describes the fundamentals of design analysis, fabrication and construction, in which the author refers to 250 built examples to illustrate all aspects. International or national codes and technical regulations are referred to only as examples, such as bridges that were designed to German DIN, Eurocode, AASHTO, British Standards. The chapters on cables and erection are a major focus of this work as they represent the most important difference from other types of bridges. The examples were chosen from the bridges in which the author was personally involved, or where the consulting engineers, Leonhardt, Andrä and Partners (LAP), participated significantly. Other bridges are included for their special structural characteristics or their record span lengths. The most important design engineers are also presented. Note: The lecture videos which are attached to the print book on DVD are not part of the e-book. The present book provides a comprehensive survey

on the governing phenomena of cable vibration, both associated with direct action of wind and rain: buffeting, vortex-shedding, wake effects, rain-wind vibration; and resulting from the indirect excitation through anchorage oscillation: external and parametric excitation. Methodologies for assessment of the effects of those phenomena are presented and illustrated by practical examples. Control of cable vibrations is then discussed and state-of-art results on the design of passive control devices are presented. Bridge design and construction technologies have experienced remarkable developments in recent decades, and numerous long-span bridges have been built or are under construction all over the world. Cable-supported bridges, including cable-stayed bridges and suspension bridges, are the main type of these long-span bridges, and are widely used in highways crossing gorges, rivers, and gulfs, due to their superior structural mechanical properties and beautiful appearance. However, cable-supported bridges suffer from harsh environmental effects and complex loading conditions, such as heavier traffic loads, strong winds, corrosion effects, and other natural disasters. Therefore, the lifetime safety evaluation of these long-span bridges considering the rigorous service environments is an essential task. Features: Presents a comprehensive explanation of system reliability evaluation for all aspects of cable-supported bridges. Includes a comprehensive presentation of the application of system reliability theory in bridge design, safety control, and operational management. Addresses fatigue reliability, dynamic reliability and seismic reliability assessment of bridges. Presents a complete investigation and case study in each chapter, allowing readers to understand the applicability for real-world scenarios. Reliability and Safety of Cable-Supported Bridges provides a comprehensive application and guidelines for system reliability techniques in cable-supported bridges. Serving as a practical educational resource for both undergraduate and graduate level students, practicing engineers, and researchers, it also intends to provide an intuitive appreciation for probability theory, statistical methods, and reliability analysis methods. A multidisciplinary and accessible introduction to humanity's favorite structure: the bridge. Whether you are a student considering a career in civil engineering and transportation planning, a public official interested in the future of infrastructure, or a person who simply cares about bridges, this book offers an accessible and illustrated introduction to the most beloved feature of our built environment. Learn about engineering basics: the forces that bridges must resist to stay aloft and the principles by which engineers decide which types of bridges make sense at which sites. Find out how engineers protect bridges from their greatest threats—the earthquakes, floods, and other hazards that can cause catastrophic damage. Moving from engineering to planning, learn how we decide whether a bridge is worth building in the first place, learn about controversial features of cost-benefit analysis, and about the transportation models by which planners forecast bridge effects on traffic patterns. Investigate a sometimes intractable problem: why a project often creeps along for a decade or more to get from initial studies to the day the ribbon is cut, undergoing vast cost escalations. Also explore the environmental impact of bridges, and the meaning of a "sustainable bridge," and whether bridges could once again be built, like ancient Roman ones, to last a thousand years. "Authoritative, comprehensive, and fun to read, this book is for everyone interested in bridges, from the lay reader to the techie who likes to see how things work. It also will serve as an excellent companion to beginning design students in architecture and engineering, and it should be on the shelf of civil engineers, architects, and contractors, too." — Robert E. Paaswell, City College of New York "This work will help educated but nonspecialist decision makers to appreciate the complexity of bridge design, construction, and maintenance in making decisions that impact bridges." — Niraj Verma, Virginia Commonwealth University Presents information on how bridges are built, their history and various types, and gives specific examples of important bridges in North America. An exhaustive guide to the 80 percent of bridge planning and design that most engineers and planners learn only through years of experience, this book addresses all of the practical problems associated with the planning and design of steel and concrete bridge superstructures and substructures. Based on Professor M. S. Troitsky's more than four decades as a bridge design engineer and educator, it offers in-depth coverage of such crucial considerations as selecting the optimum location and layout, traffic flow, aesthetics, design, analysis,

construction, maintenance and rehabilitation, and much more. Citing numerous examples and case studies of existing bridges and important projects underway around the world, and featuring more than 200 line drawings and photographs vividly illustrating all key issues covered, Planning and Design of Bridges provides complete coverage of: The history of bridge building from pre-Roman times to the present Choosing the optimum location and layout Methods of crossing rivers Steel superstructures Concrete superstructures and substructures Current design codes and regulations Contemporary design trends Comparative analyses of alternative designs and schemes CAD planning, design, and analysis And much more Covering all essential practical, aesthetic, and environmental concerns connected with bridge planning and design, this book will be a welcome addition to the professional libraries of bridge engineers, structural engineers, and architects. Describes different types of bridges around the world and throughout history and how they are built. The book examines all aspects of the design of cable stayed bridges. Starting with a brief history, it addresses general design criteria and current technology, as well as static and dynamic analysis. The numerous illustrations provide examples of existing structures and document their critical parameters, including examples of outstanding structures which have recently been completed. The chapter dealing with stay technology has been thoroughly updated to take into account the new, better quality products available from cable suppliers. The results of extensive experimental investigations concerning cable stayed bridges with slender decks, mentioned briefly in the first edition, are also presented here. This book introduces 53 bridges that the author designed during his period teaching at Dalian University of Technology (1984-2014). The bridges have unique features; some bridges are the first of their kind in China, while the others are the biggest in size. For example, Jinma Bridge is the longest single concrete, single-plane, cable-stayed bridge in the world and Xinghai Bridge is the first double-deck, steel truss suspension bridge being constructed in the Sea of China. Innovation and reasonable structure designs must meet the requirements of applicability, economy, safety, artistic appearance and endurance. Innovation and rational stress are the main concern when considering bridge functionality. Only innovation can make new bridges surpass previously designed bridges. Only rational stress can save materials and reach the requirements of economy, safety and endurance. Teachers, students and engineers engaged in bridge engineering will be inspired from the designing concepts and methods within this book. The author compiles thirty years of work and dedication in the field and shares his discoveries with the readers who are interested in bridge design and functionality. Master's Thesis from the year 2011 in the subject Engineering - Civil Engineering, grade: 10, language: English, abstract: In the present study, the failure of cable stayed bridge across Chambal River (Kota) will be discussed. The causes of its collapse and detail study of the cable stayed bridge cross Chambal River will be done. The static and dynamic modeling of cable stayed bridge is also done. At the end, the measure to repair and rehabilitation cable stayed is discussed. Cable stayed bridge has become one of the most frequently used bridge system throughout the world because of their aesthetic appeal, structural efficiency, enhanced stiffness compared with suspension bridge, ease of construction and small size of substructure. Over past 40 years, rapid developments have been made on modern cable stayed bridge. With main span length increasing, more shallow and slender stiffness girders used in modern cable stayed bridge, the safety of whole bridge under service loading and environmental dynamic loading such as impact, wind and earthquake loadings, presents increasingly important concern in design, construction and service In India the first cable stayed bridge was AKKAR BRIDGE, SIKKIM (1985) Constructed by Gammon India limited. The other cable stayed bridge are Vidhya sagar Setu (1992) Kolkata, Bandra - worli sea link (Mumbai), Cable stayed bridge across Chambal river (Kota) etc. Maintenance, Safety, Risk, Management and Life-Cycle Performance of Bridges contains lectures and papers presented at the Ninth International Conference on Bridge Maintenance, Safety and Management (IABMAS 2018), held in Melbourne, Australia, 9-13 July 2018. This volume consists of a book of extended abstracts and a USB card containing the full papers of 393 contributions presented at IABMAS 2018, including the T.Y. Lin Lecture, 10 Keynote Lectures, and 382 technical papers from 40 countries. The contributions presented at IABMAS 2018 deal with the state of the art as well as emerging

concepts and innovative applications related to the main aspects of bridge maintenance, safety, risk, management and life-cycle performance. Major topics include: new design methods, bridge codes, heavy vehicle and load models, bridge management systems, prediction of future traffic models, service life prediction, residual service life, sustainability and life-cycle assessments, maintenance strategies, bridge diagnostics, health monitoring, non-destructive testing, field testing, safety and serviceability, assessment and evaluation, damage identification, deterioration modelling, repair and retrofitting strategies, bridge reliability, fatigue and corrosion, extreme loads, advanced experimental simulations, and advanced computer simulations, among others. This volume provides both an up-to-date overview of the field of bridge engineering and significant contributions to the process of more rational decision-making on bridge maintenance, safety, risk, management and life-cycle performance of bridges for the purpose of enhancing the welfare of society. The Editors hope that these Proceedings will serve as a valuable reference to all concerned with bridge structure and infrastructure systems, including students, researchers and engineers from all areas of bridge engineering. The Quincy Memorial Bridge is a truss bridge over the Mississippi River in Quincy, Illinois. It brings eastbound U.S. Highway 24 into the city of Quincy from Missouri. It was built in 1930, initially as a toll bridge, and remains structurally sound. Building of the bridge began in 1928 by the Kelly-Atkinson Company. It was completed in 1930, with the first car crossing the bridge on May 19th of that year on an official inspection trip. In this book, finite elements simulations, interpretation of programming blocks, and explanations of seismic concepts for the Quincy Bridge under near-fault earthquakes and the destructive phenomenon of liquefaction have been done using Opensees software. This book presents extensive information on structural health monitoring for suspension bridges. During the past two decades, there have been significant advances in the sensing technologies employed in long-span bridge health monitoring. However, interpretation of the massive monitoring data is still lagging behind. This book establishes a series of measurement interpretation frameworks that focus on bridge site environmental conditions, and global and local responses of suspension bridges. Using the proposed frameworks, it subsequently offers new insights into the structural behaviors of long-span suspension bridges. As a valuable resource for researchers, scientists and engineers in the field of bridge structural health monitoring, it provides essential information, methods, and practical algorithms that can facilitate in-service bridge performance assessments. Engineering dynamics and vibrations has become an essential topic for ensuring structural integrity and operational functionality in different engineering areas. However, practical problems regarding dynamics and vibrations are in many cases handled without success despite large expenditures. This book covers a wide range of topics from the basics to advances in dynamics and vibrations; from relevant engineering challenges to the solutions; from engineering failures due to inappropriate accounting of dynamics to mitigation measures and utilization of dynamics. It lays emphasis on engineering applications utilizing state-of-the-art information. The need for large-scale bridges is constantly growing due to the enormous infrastructure development around the world. Since the 1970s many of them have been cable-stayed bridges. In 1975 the largest span length was 404 m, in 1995 it increased to 856 m, and today it is 1104 m. Thus the economically efficient range of cable-stayed bridges is tending to move towards even larger spans, and cable-stayed bridges are increasingly the focus of interest worldwide. This book describes the fundamentals of design analysis, fabrication and construction, in which the author refers to 250 built examples to illustrate all aspects. International or national codes and technical regulations are referred to only as examples, such as bridges that were designed to German DIN, Eurocode, AASHTO, British Standards. The chapters on cables and erection are a major focus of this work as they represent the most important difference from other types of bridges. The examples were chosen from the bridges in which the author was personally involved, or where the consulting engineers, Leonhardt, Andra and Partners (LAP), participated significantly. Other bridges are included for their special structural characteristics or their record span lengths. The most important design engineers are also presented. Note: The lecture videos which are attached to the print book on DVD are not part of the e-book. TRB's National Cooperative Highway Research Program (NCHRP)

Synthesis 353: Inspection and Maintenance of Bridge Stay Cable Systems identifies and explains various inspection and maintenance techniques for bridge stay cable systems. It discusses both short- and long-term approaches. The report information on methods for inspections and assessments, including nondestructive testing and evaluation procedures; repair and retrofit; methods for control of cable vibrations, including rainwind vibrations; stay cable fatigue and failure; effectiveness of various inspection and repair methods; limitations of available technologies; and trends and recommendations for future study. Fourteen years on from its last edition, Cable Supported Bridges: Concept and Design, Third Edition, has been significantly updated with new material and brand new imagery throughout. Since the appearance of the second edition, the focus on the dynamic response of cable supported bridges has increased, and this development is recognised with two new chapters, covering bridge aerodynamics and other dynamic topics such as pedestrian-induced vibrations and bridge monitoring. This book concentrates on the synthesis of cable supported bridges, suspension as well as cable stayed, covering both design and construction aspects. The emphasis is on the conceptual design phase where the main features of the bridge will be determined. Based on comparative analyses with relatively simple mathematical expressions, the different structural forms are quantified and preliminary optimization demonstrated. This provides a first estimate on dimensions of the main load carrying elements to give in an initial input for mathematical computer models used in the detailed design phase. Key features: Describes evolution and trends within the design and construction of cable supported bridges Describes the response of structures to dynamic actions that have attracted growing attention in recent years Highlights features of the different structural components and their interaction in the entire structural system Presents simple mathematical expressions to give a first estimate on dimensions of the load carrying elements to be used in an initial computer input This comprehensive coverage of the design and construction of cable supported bridges provides an invaluable, tried and tested resource for academics and engineers. Wind tunnel tests on a section model of the proposed cable-stayed bridge across the Ohio River at Huntington, WV were conducted to determine the aerodynamic stability of the suspended span. Three different model configurations were tested. Information about types of bridges and how they are built. This report discusses loadings and materials used in the design of cable-stayed bridges. From the enduring masonry of imperial Rome and delicate wooden structures of ancient Japan, to the great steel constructions of the present day, this illustrated study celebrates the development of bridge technology. 20,000 first printing. With the development in global economic and transportation engineering, the traffic loads on bridges have been growing steadily, which become potential safety hazards for existing bridges. In particular, long-span suspension bridges support heavy traffic volumes and simultaneous truck loads on the bridge deck, and thus the safety and serviceability of the bridge deserves investigation. In this book, a multiscale reliability method is presented for the safety assessment of long-span bridges. The multiscale failure condition of stiffness girders is the first-passage criteria for the large-scale model and the fatigue damage criteria for the small-scale model. It is the objective of this book to provide a more in-depth understanding of the vehicle-bridge interaction from the random vibration perspective. This book is suitable for adoption as a text book or a reference book in an advanced structural reliability analysis course. Furthermore, this book also provides a theoretical foundation for better understanding of the safety assessment, operation management, maintenance and reinforcement for long-span bridges and motivates further research and development for more advanced reliability and serviceability assessment techniques for long-span bridges.