# DOWNLOAD PDF CONTEMPORARY SCULPTURE TECHNIQUES: WELDED METAL AND FIBERGLASS.

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You are in the main content Art Courses All ART courses are restricted to declared art, art history, graphic design and interior design majors during the fall and spring semesters. During May and summer sessions, ART courses are open to all students who meet the additional stated course prerequisites. Non-majors wishing to enroll in an ART course during fall and spring semesters may request the permission of the instructor. Two-Dimensional Design 0, 6. Application and appreciation of the principles and elements of design, with emphasis on line, form, color and texture as applied to two-dimensional space. Drawing I 0, 6. An introductory course composed of problems in landscape, perspective, figure and still-life in several media. Three-Dimensional Design 0, 6. A course exploring the basic problems in three-dimensional design. Drawing II 0, 6. A continuation of ART involving more complex problems with emphasis on composition and expressive possibilities of a variety of media including ink, pencil, conte, charcoal and experimental materials. Art in General Culture. Offered fall and spring. An exploratory course that aims to develop a non-technical, general cultural understanding of the space arts, such as architecture, painting, sculpture and industrial design. Emphasis is on the contemporary. A required course for studio art majors focused on the exploration and exchange of ideas related to embarking on a studio art career. Contemporary issues and responsibilities faced by emerging artists are emphasized. Explores the aesthetics, conceptualization and design of functional objects. Investigates tactility and the process of realizing form and the effective use of the wheel as a creative tool. Introduces historic and contemporary approaches, firing techniques and glaze application. Forming techniques will be explored for both vessel and sculptural work. Addresses construction concerns such as timing, structure and mass. Conceptual issues of hand-formation and ceramic sculpture discussed. Introduction to Fiber Processes 0, 9. Introduction to and practice in basic weaving and other fiber arts. Emphasis will be placed on floor loom weaving and surface design on the fabric. Metal and Jewelry 0, 9. An introduction to designing and executing jewelry and related objects through various fabrication and finishing techniques, and the exploration of metal as a medium of personal aesthetic expression. Introductory Painting 0, 9. Introduction to basic materials and techniques in oil or acrylic painting. This class extends previous practice with design and drawing through introductory experiences in painting. Black and White 0, 9. A creative approach to photography with emphasis on understanding materials and techniques. Students must provide a fully manual 35mm camera and a light meter which may be built into the camera or separate. An introduction to the history and techniques of screenprinting. Lectures, demonstrations and projects will involve photographic and nonphotographic stencils, related digital processes and color registration. Relief, Intaglio and Monotype 0, 9. An introduction to the history and techniques of relief, intaglio and monotype printing. Lectures, demonstrations and projects will involve oil based and water soluble inks, linocut, woodcut, wood engraving, collagraph, drypoint, engraving, line etching, aquatint, softground, color registration and related photographic processes. An introduction to the history and techniques of lithography printing. Lectures, demonstrations and projects will involve stone and plate lithography, color registration and related photographic processes. A broad range of studio practice will be explored as they examine the relationship of verbal, visual, and structural content in books. Students will complete group and individual projects. Problems in three-dimensional form using traditional and modern techniques. Processes of modeling in clay, mold making, casting, carving in wood and stone and welded metal sculpture are explored. Methods of Art Criticism. The practical analysis and interpretation of works of art through oral and written forms. Emphasis is on the practice of art criticism in public settings such as the school classroom, art museum and college art studio. Readings and discussions in the persistent philosophical problems of the arts centering on consideration of the work of art, the artist and the audience. Mold-making systems and processes for ceramic slip casting and press

molding. Conceptual issues of multiples, reproductions and material transformation discussed. Also suitable for students wanting to utilize molds with other materials in their artistic production. Surface Development 0, 9. Research and experimentation with ceramic materials and finishes, glaze formulation, and application for finishing ceramic artwork. Intermediate Fiber Processes 0, 9. Introduction to surface design techniques such as painting and printing on fabric. Further work may be in this area in which case no prerequisites apply or in weaving or other fiber techniques. ART or permission of the instructor. Intermediate Metal and Jewelry 0, 9. An intermediate course offering further exploration of metal as a medium of personal aesthetic expression as well as more advanced technical experience and experimentation. Figure Drawing 0, 9. An introductory course with problems stressing the fundamental skills, approaches and concepts involved in drawing the human figure. Intermediate experiences in materials and techniques in oil, acrylic and non-traditional painting media. This class extends previous experiences introduced in ART , with a focus on developing a more personal iconography and content. A variety of materials, techniques, surfaces, and philosophies of working are discussed in lecture, demonstration, and in both individual and group critique. Study of and practice in transparent and opaque watercolor techniques. An intensive exploration of digital photography with an introduction to digital camera techniques, combinations of traditional and digital photographic methods, image manipulation and modes of output. Experimental Black and White 0, 9. Intensive exploration of advanced black and white photography using alternative cameras, pinhole, a variety of film speeds and papers and sequential concepts. Large Format 0, 9. An exploration of medium format and view camera techniques, film exposure and advanced black and white printing. This studio course offers students an opportunity to engage in the process and product of letterpress printing through various techniques and conceptual approaches. Instruction focuses on text and image relationships by integrating metal and wood type, and other type-high surfaces. Emphasis will be placed on the acquisition of skills and vocabulary and the creative use of type and image. The course will address the history of letterpress and its contribution to contemporary art and design. Content development, book design, integration of various media, and the functionality of various bookmaking materials are explored. Also for GRPH credit: Intermediate Sculpture 0, 9. A study in casting techniques for sculpture using the lost wax process. Foundry operations, cold cast methods, ceramic shell and fiberglass are also explored. Independent Studies in Art. Independent activity at the intermediate level, such as research or studio practice, under faculty supervision. Offered only with the consent of the instructor. Study of selected topics in art at the intermediate level. May be repeated when course content changes. See MyMadison for current topics. Portfolio Development 0, 9. Self-directed, focused course of study with supervision of the instructor. A series of fiber projects selected by the student with the approval of the instructor. Advanced Metal and Jewelry 0, 9. A series of metal arts projects selected by the student with the approval of the instructor. An advanced drawing course stressing inventive and in-depth approaches to portraying the human figure. Advanced Painting 0, 9. Advanced problems in media selected by the student with the advice of the instructor. Advanced Watercolor 0, 9. Advanced problems in the use of watercolor and related water-based media. Alternative Processes 0, 9. Advanced study in photography focusing on alternative processes and experimental approaches including non-silver 19th century techniques, Polaroid and liquid emulsion among others. The Prehistory of Photography, Magic and Illusion.

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## Chapter 2 : Contemporary Sculpture Techniques - Welded Metal And Fiberglass | Oxfam GB | Oxfamâ€™s

*Get this from a library! Contemporary sculpture techniques: welded metal and fiberglass.. [John Baldwin].*

Highest Browse our wide-ranging selection of over 14, original metal sculptures by artists working in a variety of mediums. Suitable for both the interior home and outdoor spaces, sculptures anchor a space and are available in numerous textures and colors. Artists have sculpted with metal for millennia, and many examples of these ancient masterpieces have survived across the ages in Asia, the Americas, and Europe. This diversity is reflected in the wide selection of original metal sculptures for sale on Saatchi Art. Metal sculptures have been a staple art form in civilizations all over the world since ancient times. Ancient Egyptians used gold to create masks for the royal deceased, while the Byzantines and East Asian cultures used gold to create small religious works. Bronze sculptures also have a rich history. China and India are known for larger scale bronze religious statues, but the Greeks and Romans expanded the use of this medium to create life-sized figurative sculptures. During the Renaissance, Western Europe experienced a renewed interest in bronze sculpture and casting techniques. The rise of modernism and industry in the late s led to facilitated methods of production, allowing artists to produce more copies of their metal sculptures and experiment with different styles, including Impressionism and Cubism. Today, sculptors work with a variety of metals, ranging from bronze and steel to iron and copper alloys. The malleability of each metal determines which styles and forms with which these artists experiment. Sculptors who work with bronze usually use the lost-wax technique. This method requires the artist to create a model of their intended work out of a softer material such as clay. The artist molds wax on this model, adds another layer of clay, and heats the sculpture to melt the wax. The resulting cast is filled with molten bronze, cooled, and then chipped away until only the bronze work remains. Similar metalworking casting processes include sand casting and plaster mold casting, in which the models are made of sand and plaster, respectively. Artists who create larger pieces, such as outdoor metal sculptures, cast the work in separate pieces and weld each part together. Finishes can be applied to metal sculptures after they are polished to control textures and colors. Other bronze sculptors include Donatello, Phidias, Myron, and Polykleitos.

## Chapter 3 : James Madison University - Art

*Contemporary sculpture techniques: welded metal and fiberglass Contemporary sculpture techniques: welded metal and fiberglass Topics Sculpture, Modern, Sculpture.*

Creative multi-media ideas work very well with artistic welding skills. The Simple Scoop on Art Welding for Newbies If you are new to welding and the metal arts in general, you have probably tried to find instructional information on basic welding techniques for artists with a simple Google or Yahoo keyword search. If you have, you know that getting this basic information in a simple, easily-digestible format, is a really tough nut to crack. Sure enough, a web search on basic welding techniques will bring up thousands of pages of information for you to sink your teeth into, but the topic is usually delivered in such a complex and technical manner that it is virtually useless to the aspiring welder-artist. When I first decided to work with metal as a medium in my art projects after a long absence from high-school welding , it was to supplement work that I was already doing with concrete and wood. I remember searching through dozens of welding websites trying to learn which welding machine was the best choice for an artist interested in metal sculpture. You can find the link to my art projects on my profile page. I wanted to know what types of metal could be welded by the machine, and how much power would be required to weld steel such as half-inch rolled rebar. I was also curious about the types of welding machines available for sale on the market, and what the major differences were when comparing these machines. Obtaining the answers to these questions became quite a journey for me, as one question often led to three others before I could understand the technology in explanatory websites and books. Hopefully, this summary will save you from this effort and lay the basic groundwork of knowledge for you to learn more about welding. Once you understand these basics, you can continue to learn in any specialized area of welding that your artistic work demands. No artist that I know wants his artwork to fall apart two years after a customer has purchased it. A sloppy weld will tell a customer that you are incompetent, lazy, or both. This is not the vision a successful artist wants to project. A Welding Machine, in Plain Speak: All welding machines with the exception of torch welding work on an electrical-current system in which there are two power cords called leads. One lead is a negative ground, and the other lead is a positive. The negative grounding clamp is always attached to the metal surface or metal item that you will be welding. You then turn the machine on and move the positive lead torch gun, or electrode to the location that you want to weld. When the positive lead makes contact with or gets close to the metal that has been grounded, a welding spark will occur. The heat generated from this arc of electricity is what melts the metal and allows you to weld. There are three basic types of welding machines that are used by artists today. Each one has unique capabilities that offer special advantages or disadvantages for the metal artist. Learning which of these machines is the best fit for your workshop really depends on knowing what you plan to weld in the majority of your projects. The oldest and most common type of machine in use is the basic arc or stick welder. These machines use inexpensive welding rods that are held by a clamp handle at the end of the positive lead. This welder is the least expensive of the three to purchase, but it does require a moderate level of skill and experience in order to obtain a quality weld. I started with a stick welder while taking a trade course in high school, and I still use one today due to their simplicity and low-cost operation. Even if you are a complete newbie to welding, you should be able to spot weld metal together in just a few minutes of effort with an arc welder. An additional advantage of the stick welder machine is its ability to weld dirty and rust-covered metals. My stick welder will blast through rust, but an MIG described below will not weld well unless the surface in clean. Another common machine that is very popular is the MIG welder. An MIG welder basically operates like an arc welder, but the machine uses a spool of small diameter wire that is fed automatically through the welding gun instead of the stick welding rods used in the arc welder. Compressed gas such as Argon or an Argon mix will also be used during the MIG welding process to keep impurities in the atmosphere from damaging the weld. The MIG welder is known to be the easiest welder for beginners to learn and operate, and you can certainly get high-quality welds with an MIG

setup. Many auto body professionals prefer the MIG welder for repairing and fabricating small-diameter automobile sheet metal. For this reason, the MIG welder is also a good choice for serious metal artists. Experienced welders know that thin diameter metal can often be over-powered and burned by regular arc stick welding machines. Without over-complicating the issue, there is a sub-classification of an MIG welder that is referred to as a flux-core wire welder technically, not a real MIG welder. This flux-core wire welder is basically the same machine as an MIG, but it does not require the use of compressed gas and it is less expensive when making the initial machine purchase. The flux-core wire welder is an inexpensive way to learn about MIG welding technique. But know beforehand that the performance of the flux-core machines will not be as versatile as a true MIG machine. There will be splatter issues from the flux wire similar to an electrode used in an arc welder. Also, a flux-core machine will not weld some metals such as aluminum that are possible to weld with a more expensive MIG machine and an adaptor called a Spool Gun. Lastly, there is the TIG welder. TIG welding is similar to welding with an acetylene and oxygen torch, but no torch is necessary. The TIG positive lead is a small gun that generates the welding arc when it gets close to the ground metal. A shielding gas typically Argon is used along with a unique type of TIG welding rod held separately from the gun that requires no flux a flux coating is necessary on basic arc welding rods. The TIG welder is used to make high-quality welds that are very strong. Many but not all TIG machines can be used to join non-ferrous metals such as aluminum. The TIG is also the best application to use when working with very thin materials. Additionally, all TIG machines can also be used as general arc welders with only minor adjustments necessary to the setup. TIG applications can be very useful for artists working in steel, aluminum, or other non-ferrous metals, but the process is the most difficult to learn and is known to be the slowest of the three procedures. TIG is also the most expensive of the three options, offering superior quality and control in return for the investment. The weld that is achieved with a TIG machine is very similar to a weld that one would achieve using a basic acetylene torch and non-flux welding rod, but the heat is more easily controlled with a TIG machine. Check out the links below to find instructions on how you can make this welding table in your home shop from rebar and scrap bed frame metal. Common Set Up Issues: The welding machines will work on small gauge metal, but if you are planning on welding metal of a substantial thickness, you will need a volt machine. If you purchase a volt machine, make sure your household power supply can provide at least volts and 50 amps of power. A typical dryer-type power outlet is only designed for 30 amps, and it will need upgrading to handle welding amperage. Also keep in mind that many welding machines are sold without a power plug, and you must install these yourself. This is a simple procedure for most handymen or women. Finally, make sure that you have ALL of the safety equipment required before you strike your first arc. This would include a welding helmet, welding gloves, leather boots, long-sleeve shirt, fire-resistant apron, and a fire extinguisher. The new-style helmet with the auto-darkening lens is very helpful for new welders, and I do recommend them. This can be a challenge and very frustrating for someone new to welding. So there you have it. If you want to weld ferrous metal like iron of course , carbon steel, and stainless steel, an ARC welder or an MIG welder is the way to go. Try to find a friend or a fellow artist that uses one or both of these machines, and ask him if he would take thirty minutes to an hour to show you the basics of each. Learning to recognize a good weld from a bad one will also take a little coaching from someone with experience. That is not productive, not cool, and a waste of a perfectly good welding machine. I hope this quick survey of welding has provided you with the basic information that you, the artist, needs to begin learning more on the topic. There are numerous video tutorials available on Youtube and other video-based websites that will assist you in learning this new skill. If you are like me, you will soon discover that welding is one of the most valuable tools you can have in your artistic toolbox. Experiment with your new skill safely, and see what new ideas you can develop with the power to join metal. Welding your own steel gate can be a snap once you learn the basics. If you just want to get away from it all and enjoy some first-class welding training in a beautiful foreign island. Take a look at the inexpensive training opportunities available for aspiring welders and metals artists in the Philippine Islands. It is simply an informative account of a training school that I attended in

Manila, and it is a viable option for a vacation with a purpose. Read some great information on building a "man-size welding table" at your own home shop using only rebar and a few used metal bed frames. The information could save you hundreds of dollars, and you can customize it anyway that you want! Ever considered using your new welding skills to enhance the beauty of your home? Use your welding skills to build a decorative rebar-steel fence for your front yard. With the right design and fabrication, it could make your home the most attractive house in the neighborhood at a very reasonable cost. Check out the all the how-tos including a tool and materials list right here: Functional and beautiful yard art is one of many artistic applications of welding skills. Where can I find art welding training? Check with local arts and craft outlets to find other metal artists in your area. They can help you find nearby training classes. Otherwise, local community colleges can sometimes be a source for local technical training. I am sure New Jersey has many good opportunities for training. What type of welding would you recommend for smaller art projects? Nuts, bolts screws, spoons and the like? Hi, and thank you for the kind words. Some bolts are steel alloys, and some are mostly zinc. Some spoons are stainless steel, and some are silver plated copper. A TIG would be the most resourceful way to approach this varied field of materials and thicknesses, but I would encourage you to practice with your materials and learn how to join them through trial and error. An acetylene torch would also be a good way to approach this, as you may want to braze or solder some of these materials instead of welding them.

## Chapter 4 : best Metal art images on Pinterest in | Welding projects, Metal Art and Metal crafts

*Contemporary sculpture techniques: welded metal and fiberglass by John Baldwin, , Reinhold Pub. Corp. edition, in English.*

Carlos Plaza 7 Comments Written by: Armed with a welding torch, the Mexican-American artist forges breathtaking, towering sculptures that range from the epic to the macabre. The soaring metal fixture consists of a highly-detailed, golden eagle perched atop a prickly, lifelike cactus. The piece is a great example of welded art at its best. Madero in front of his sculpture representing the eagle and snake featured on the Mexican coat of arms. Luckily for us, Madero regularly posts photos and videos on his website. The website provides art-lovers and welders a sneak peek into new sculptures, as well as the grueling process involved in creating such stunning pieces. With his metal sculptures and illuminating videos, Madero is beginning to carve out a name for himself. The sculptor also offers advice for readers interested in pursuing their own artistic side through welding. How did you learn to weld, and how long have you been welding? The perfection of welds that I see technically skilled welders make absolutely astonish me! I believe that my shortcomings in technique are what pushed me to make such highly texturized works of art. When did you start trying to sculpt with metal? Did you have a mentor, or did you experiment on your own? My father Rogelio Madero, was a master sculptor who specialized in welded art. I grew up trying to imitate him. He did truly amazing things with his trusty old oxyacetylene torch and beat-up MIG welder. He began using welding techniques for his artwork back in the s, a true pioneer of metal art. I was extremely lucky to have him as a role model. How do you decide when to shoot a piece and when a piece is done? What you observed is completely intentional. Most of my clients were only exposed to the finished product: They never had the chance to appreciate the process of creation as a whole: This was frustrating for me. It was very important for me to show through pictures and videos the amount of craftsmanship that is involved. I strongly believe that inviting the potential client into the process could be just as important as the finished product itself. On that note, how do you prepare to sculpt? As in, how do you plan the look of your pieces before you start putting ideas into metal? Every piece is different; it really depends on what the client is looking for. Some pieces have a form and style that I am very familiar with. I can start visualizing it from the beginning. Others require a bit of research and planning. When I make speculative pieces [i. Some of the detail on your work is incredibly intricate. What kinds of welding processes and techniques do you use to accomplish some of your incredible visuals? It all just depends on the type of fabrication involved, and the type and amount of texturing I want to include in the piece. This really makes life fun for us at the workshop! What compelled you to start your company? It started back in through necessity. I began my career producing smaller sculptures that I could easily work on by myself. I was getting commissions for functional artwork, sculptured furniture, public art, and monumental sculptures. I realized that I needed to develop and train highly-skilled metal workers to assist me at the workshop. What would you say to people interested in learning to weld either as a trade or a form of expression? I would say, do it! No doubt in my mind. The most hardworking, trustworthy people I know are welders. You make great money, and the feeling you get when you go home at night after a hard day of actually making something that is tangible and beneficial to society is indescribable and unmatched by most other career choices. And it may even provide you with the opportunity to tinker around and do some great welded artwork on the side. I always had the suspicion that the future of the art world would be full of artists coming out of trade schools and welding shops. In truth, the art world is also filled with sculptors with no formal art school training, people without preconceived notions about what art should be. This is something that I am very passionate about. A lot of people have an interest and desire to express themselves through welding. Hopefully, this includes welders that may be reading this today.

## Chapter 5 : Basic Welding Equipment and Techniques for Metal Art Sculpture and the Beginner Welder | F

*Contemporary sculpture techniques: welded metal and fiberglass / Photographic supervision: Doug Stewart Reinhold Pub. Corp New York Corp New York Australian/Harvard Citation.*

The Art of Welding Famous Metal Artists and Sculptures Welding refers to a fabrication process that causes coalescence between materials such as metals, thermoplastics, and others. In welding, heat is used to melt the workpieces, and a filler material is used to form a weld pool or molten material. When the weld pool solidifies, a strong joint will be formed. Welding is an important process for the construction of various objects and structures, and it can be applied to the creation of functional objects as well as works of art, such as sculptures. The process of welding functional objects is often uncomplicated, because it is performed with the sole purpose of joining materials together. Sculptural welding, on the other hand, requires extensive knowledge and skill, because it involves welding materials of different shapes and colors. Here are links to more information about the art of welding. A foundation that is dedicated to promoting appreciation for the works of Alexander Calder, a famous sculptor who had perfected the art of sculptural welding. Website dedicated to American sculptor David Smith. Biography of renowned sculptor Antoine Pevsner, who is highly regarded for his innovative welding techniques. Official website of Anthony Caro, one of the most important contemporary English sculptors. Comprehensive information about modern American sculptor Richard Hunt. Biography of Spanish artist and sculptor Julio Gonzalez, who was a master of sculptural welding. Website that contains biography and images of the works of American sculptress Beverly Pepper. Website constructed in remembrance of pioneer modern sculptress Eila Hiltunen. Famous Sculptures Worker and Kolkhoz Woman: Picture and description of the Large Arch, a famous sculpture by Henry Moore. The welded steel sculpture Odalisque by Anthony Caro. Information about the Maternity, an abstract steel sculpture by Julio Gonzalez. Article that discusses the Harlem Hybrid sculpture by Richard Hunt. Ohio University Sculpture Program: Join the Ohio University undergraduate sculpture program to learn the art of welding. New York University Art Workshops: Information on sculpture welding and other workshops that are available at the New York University. California Institute of Art Welding Course: Course information for sculpture and art welding studies at the California Institute of Art. Austin Community College Welding: Excellent welding course from the Austin Community College. Southwestern Oregon Community College Welding: Article about art welding class at the Southwestern Oregon Community College. Art Welding Class from The Crucible: Learn sculpture welding from The Crucible, a non-profit organization that offers fine and industrial arts courses. Projects Relief Art Welding Project: A project that requires students to create a welded relief art mural. A wonderful collection of unique art welding projects. Sculpture Welding Project Ideas: Create wonderful metal sculptures with these art welding project ideas. Supplies Plasma Cutting Tables: CNC plasma cutting tables for architectural iron work and projects. List of tools that are commonly used for welding. Terms for welding equipment and processes. Welding Devices and Supplies: An article that provides information about welding devices and supplies.

## Chapter 6 : Temporary Art? Outdoor Sculptures in Fiberglass-Reinforced Polyester (Article)

*5. Contemporary sculpture techniques: welded metal and fiberglass.Å'Photographic supervision: Doug Stewart. 5.*

A certain simplicity and restraint characteristic of most Sinhalese work is present evenâ€¦ Elements and principles of sculptural design The two most important elements of sculptureâ€" mass and space â€"are, of course, separable only in thought. All sculpture is made of a material substance that has mass and exists in three-dimensional space. The mass of sculpture is thus the solid, material, space-occupying bulk that is contained within its surfaces. Space enters into the design of sculpture in three main ways: Volume, surface, light and shade, and colour are supporting elements of sculpture. Elements of design The amount of importance attached to either mass or space in the design of sculpture varies considerably. In 20th-century works by Antoine Pevsner or Naum Gabo , on the other hand, mass is reduced to a minimum, consisting only of transparent sheets of plastic or thin metal rods. The solid form of the components themselves is of little importance; their main function is to create movement through space and to enclose space. In works by such 20th-century sculptors as Henry Moore and Barbara Hepworth , the elements of space and mass are treated as more or less equal partners. It is not possible to see the whole of a fully three-dimensional form at once. The observer can only see the whole of it if he turns it around or goes around it himself. For this reason it is sometimes mistakenly assumed that sculpture must be designed primarily to present a series of satisfactory projective views and that this multiplicity of views constitutes the main difference between sculpture and the pictorial arts, which present only one view of their subject. Such an attitude toward sculpture ignores the fact that it is possible to apprehend solid forms as volumes , to conceive an idea of them in the round from any one aspect. A great deal of sculpture is designed to be apprehended primarily as volume. A single volume is the fundamental unit of three-dimensional solid form that can be conceived in the round. Some sculptures consist of only one volume, others are configurations of a number of volumes. The human figure is often treated by sculptors as a configuration of volumes, each of which corresponds to a major part of the body, such as the head, neck, thorax, and thigh. Holes and cavities in sculpture, which are as carefully shaped as the solid forms and are of equal importance to the overall design, are sometimes referred to as negative volumes. The surfaces of sculpture are in fact all that one actually sees. It is from their inflections that one makes inferences about the internal structure of the sculpture. A surface has, so to speak, two aspects: The expressive character of different kinds of surfaces is of the utmost importance in sculpture. Double-curved convex surfaces suggest fullness, containment, enclosure, the outward pressure of internal forces. In the aesthetics of Indian sculpture such surfaces have a special metaphysical significance. Representing the encroachment of space into the mass of the sculpture, concave surfaces suggest the action of external forces and are often indicative of collapse or erosion. Flat surfaces tend to convey a feeling of material hardness and rigidity; they are unbending or unyielding, unaffected by either internal or external pressures. Surfaces that are convex in one curvature and concave in the other can suggest the operation of internal pressures and at the same time a receptivity to the influence of external forces. They are associated with growth, with expansion into space. Unlike the painter, who creates light effects within the work, the sculptor manipulates actual light on the work. The distribution of light and shade over the forms of his work depends upon the direction and intensity of light from external sources. Nevertheless, to some extent he can determine the kinds of effect this external light will have. If he knows where the work is to be sited, he can adapt it to the kind of light it is likely to receive. The brilliant overhead sunlight of Egypt and India demands a different treatment from the dim interior light of a northern medieval cathedral. Then again, it is possible to create effects of light and shade, or chiaroscuro, by cutting or modeling deep, shadow-catching hollows and prominent, highlighted ridges. Many late Gothic sculptors used light and shade as a powerful expressive feature of their work, aiming at a mysterious obscurity, with forms broken by shadow emerging from a dark background. Greek , Indian , and most Italian Renaissance sculptors shaped the forms of their work to receive light in a way that makes the whole work radiantly clear. The

colouring of sculpture may be either natural or applied. In the recent past, sculptors became more aware than ever before of the inherent beauty of sculptural materials. More recently, however, there has been a growing tendency to use bright artificial colouring as an important element in the design of sculpture. In the ancient world and during the Middle Ages almost all sculpture was artificially coloured, usually in a bold and decorative rather than a naturalistic manner. The sculptured portal of a cathedral, for example, would be coloured and gilded with all the brilliance of a contemporary illuminated manuscript. Combinations of differently coloured materials, such as the ivory and gold of some Greek sculpture, were not unknown before the 17th century; but the early Baroque sculptor Gian Lorenzo Bernini greatly extended the practice by combining variously coloured marbles with white marble and gilt bronze. Principles of design It is doubtful whether any principles of design are universal in the art of sculpture, for the principles that govern the organization of the elements of sculpture into expressive compositions differ from style to style. In fact, distinctions made among the major styles of sculpture are largely based on a recognition of differences in the principles of design that underlie them. Thus, the art historian Erwin Panofsky was attempting to define a difference of principle in the design of Romanesque and Gothic sculpture when he stated that the forms of Romanesque were conceived as projections from a plane outside themselves, while those of Gothic were conceived as being centred on an axis within themselves. The principles of sculptural design govern the approaches of sculptors to such fundamental matters as orientation , proportion, scale, articulation, and balance. For conceiving and describing the orientation of the forms of sculpture in relation to each other, to a spectator, and to their surroundings, some kind of spatial scheme of reference is required. This is provided by a system of axes and planes of reference. An axis is an imaginary centre line through a symmetrical or near symmetrical volume or group of volumes that suggests the gravitational pivot of the mass. Thus, all the main components of the human body have axes of their own, while an upright figure has a single vertical axis running through its entire length. Volumes may rotate or tilt on their axes. Planes of reference are imaginary planes to which the movements, positions, and directions of volumes, axes, and surfaces may be referred. The principal planes of reference are the frontal, the horizontal, and the two profile planes. The principles that govern the characteristic poses and spatial compositions of upright figures in different styles of sculpture are formulated with reference to axes and the four cardinal planes: Proportional relations exist among linear dimensions, areas, and volumes and masses. All three types of proportion coexist and interact in sculpture, contributing to its expressiveness and beauty. Attitudes toward proportion differ considerably among sculptors. Some sculptors, both abstract and figurative, use mathematical systems of proportion; for example, the refinement and idealization of natural human proportions was a major preoccupation of Greek sculptors. Indian sculptors employed iconometric canons, or systems of carefully related proportions, that determined the proportions of all significant dimensions of the human figure. African and other tribal sculptors base the proportions of their figures on the subjective importance of the parts of the body. Unnatural proportions may be used for expressive purposes or to accommodate a sculpture to its surroundings. Sometimes it is necessary to adapt the proportions of sculpture to suit its position in relation to a viewer. A figure sited high on a building, for example, is usually made larger in its upper parts in order to counteract the effects of foreshortening. This should be allowed for when a sculpture intended for such a position is exhibited on eye level in a museum. The scale of sculpture must sometimes be considered in relation to the scale of its surroundings. When it is one element in a larger complex, such as the facade of a building, it must be in scale with the rest. Another important consideration that sculptors must take into account when designing outdoor sculpture is the tendency of sculpture in the open airâ€”particularly when viewed against the skyâ€”to appear less massive than it does in a studio. In ancient and medieval sculpture the relative scale of the figures in a composition is often determined by their importance; e. This is sometimes known as hierarchic scale. The joining of one form to another may be accomplished in a variety of ways. In much of the work of the 19th-century French sculptor Auguste Rodin , there are no clear boundaries, and one form is merged with another in an impressionistic manner to create a continuously flowing surface. In works by the Greek sculptor

Praxiteles , the forms are softly and subtly blended by means of smooth, blurred transitions. The volumes of Indian sculpture and the surface anatomy of male figures in the style of the Greek sculptor Polyclitus are sharply defined and clearly articulated. First, the sculpture must have actual physical stability. This can be achieved by natural balanceâ€”that is, by making the sculpture stable enough in itself to stand firmlyâ€”which is easy enough to do with a four-legged animal or a reclining figure but not with a standing figure or a tall, thin sculpture, which must be secured to a base. The second aspect of balance is compositional. The interaction of forces and the distribution of weight within a composition may produce a state of either dynamic or static equilibrium. The third aspect of balance applies only to sculpture that represents a living figure. A live human figure balances on two feet by making constant movements and muscular adjustments. Such an effect can be conveyed in sculpture by subtle displacements of form and suggestions of tension and relaxation. Relationships to other arts Sculpture has long been closely related to architecture through its role as architectural decoration and also at the level of design. Architecture, like sculpture, is concerned with three-dimensional form; and, although the central problem in the design of buildings is the organization of space rather than mass, there are styles of architecture that are effective largely through the quality and organization of their solid forms. Ancient styles of stone architecture, particularly Egyptian , Greek, and Mexican, tend to treat their components in a sculptural manner. Moreover, most buildings viewed from the outside are compositions of masses. The growth of spatial sculpture is so intimately related to the opening up and lightening of architecture, which the development of modern building technology has made possible, that many 20th-century sculptors can be said to have treated their work in an architectural manner. Some forms of relief sculpture approach very closely the pictorial arts of painting, drawing , engraving, and so on. Teresa Santa Maria della Vittoria, Rome. The Ecstasy of St. Today there is a growing affinity between the work of industrial designers and sculptors. Sculptural modeling techniques, and sometimes sculptors themselves, are often involved, for example, in the initial stages of the design of new automobile bodies. The close relationships that exist between sculpture and the other visual arts are attested by the number of artists who have readily turned from one art to another; for example, Michelangelo, Bernini, Pisanello, Degas, and Picasso. Page 1 of 2.

## Chapter 7 : Modern sculpture - Wikipedia

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The preservation of outdoor sculptures differs fundamentally from the preservation of other artworks in an important respectâ€"they are on permanent exhibition without the protection of a building. Writing in the GCI Newsletter in , conservators Derek Pullen and Jackie Heuman described the long tradition of outdoor sculptures, identifying bronze and stone as the best surviving materials and pointing out the diverse management and conservation problems associated with these works of art. To avoid extensive and invasive treatments, regular maintenance of outdoor sculpture is crucial. While traditional bronze sculptures with either an applied patina or a naturally developed patina survive well, bronze and metal sculptures with a clear varnish or those painted in full color will last only as long as the coating stays intact. Discoloration and wear deface the appearance, while delamination of the coating induces corrosion and other damage of the metal underneath. A rather different material, in both production and appearance, is composite plastic fiberglass-reinforced polyester, also known as GRP. Although strong and lasting, this new twentieth-century material has its own issues of wear and deterioration and, when used for outdoor sculptures, its own particular conservation challenges. Artists have favored GRP for outdoor sculptures because it lasts outdoors, is strong, is easy to work with, and is available in any color. The material allows artists to actually produce the final sculptures themselves, and to create playful works on an impressively large scale. From about onward, artists such as Jean Dubuffet , Niki de Saint Phalle , and later Atelier Van Lieshout worked in GRP for their outdoor sculptures, colored either by mixing pigments into the polyester resin or by artistically painting the surface afterward. The retouching of Lifesaver Fountain, being carried out in  The process of making an artwork in GRP is complex. Niki de Saint Phalle constructed her early works by alternating fiberglass and polyester resin layers on a wire-mesh framework, painting them afterward. Her later works were produced from her designs by her assistants. Atelier Van Lieshout applies colored GRP over large wooden constructions of human and anatomical shapes cut out in foamed plastic. The final polyester layer in these cases is called the top coat. A different procedure for making an object in GRP involves molds, enabling series production and very smooth surfacesâ€"as, for example, with the Futuro houses designed by Matti Suuronen in  Early on, Jean Dubuffet experimented with reinforced plastic and transferred his painted polystyrene sculptures with the aid of molds into GRP that he painted afterward. The molds, often produced in GRP themselves, serve as the negative shape to form the GRP for the final artwork or for parts of it. The inside of the mold is treated with paraffin wax. Next, the gel coat, translucent or colored, is applied, and when it is half set, several layers of polyester resin and glass fiber are applied. After the complete GRP package is cured, the elements are removed from the mold, to be assembled into the final sculpture over a supportive frame. Colors can be mixed into the top or gel coat, but the artist can also choose from a great variety of commercial paint and varnish systems, including opaque, translucent, luster, and metallic paints. Maintenance, Prevention, and Conservation Regular surface cleaning is the basic maintenance of outdoor sculptures. Cleaning can be performed by trained staff using suitable cloths, sponges, and soft brushes, water, and neutral surfactants. More advanced cleaning, such as rinsing with low-pressure water combined with cloth and brushes, should be done only if needed and only if the material is sufficiently durable. This approach should be carried out cautiously by a conservator, as inappropriate cleaning mediums and tools can cause severe damage. This standard procedure for outdoor bronzes and painted metal sculptures also works well for artworks in GRP. Sunlight causes discoloration and, combined with rain, produces a dull and chalky surface after a decade or so. When the polyester wears down, water can enter the fiberglass reinforcing layer, causing mold growth and further damage after a period of frost. Larger breaks in the material can result in corrosion of the metal inner construction or in the rotting of any wooden structure inside. Actual damage, breaks, and tears or the flaking of the paint layer require repair.

Localized repair involves clearing away worn material. Preparing the area for a lasting fill and a stable retouching often entails irreversible loss of original material. Such a loss should be considered secondary to saving the entire sculpture and its appearance, as delaying intervention or doing nothing facilitates further decay and, in the end, costs more. Retouching in an aged paint layer, however, may stand out over time, as the original and repair layers age differently. No paint layer, protective coating, or varnish lasts forever outdoors, and recoating ultimately becomes inevitable. For a durable recoating of GRP, the best current coating system that most matches the original surface should be selected. Decisions on Treatment Several examples of the conservation of outdoor sculptures in GRP illustrate some of the treatment issues involved. Some of the many Niki de Saint Phalle painted GRP sculptures have sustained damage, fading, and delamination of paint and are in need of treatment. The Lifesaver Fountain in Duisburg, Germany a joint work with her artist husband Jean Tinguely , has recently been restored. The joints of the inner structure of the sculpture were strengthened by additional stainless steel profiles in order for the fountain to again be operated properly in its public space. Acrylic fillings were applied, and because total repainting was not yet necessary, localized paintingâ€”with translucent and opaque acrylic paint containing the same pigments as originally usedâ€”was carried out, with good results. A polyurethane clear coat was then applied to mimic the original. Jean Dubuffet experimented in realizing his monumental sculptures with reinforced plastic. The top part of the GRP tree has displayed good durability over almost forty years, as it still retains the original polyurethane paint layer from  In contrast, the large concrete construction, upon which visitors can walk, always needs regular care. Eight different types of paint layers applied there during the same forty years are proof of the complexity of choice in modern paint technology and of decisions to repaint the surface time and again. A wax layer was applied as a sacrificial protection layer for the GRP. This kind of physical reference material, in the long run, may be of greater help than the trade name of a paint system or material in preserving these sculptures in their outdoor settings, as moving the sculptures indoors can hardly be an option. Back in business in the 21st century," in Future Talks  Technology and Conservation of Modern Materials in Design: Getty Conservation Institute, , provides good guidelines for the regular maintenance of bronzes and other outdoor sculptures. Janet Bridgland New Delhi: Allied Publishers, , vol.

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