MANAGEMENT AND LEADERSHIP KNOWLEDGE:

- Team management, development, and skill evaluation.
- Project administration and management.
- Supplier development.
- Speaker on Design and Innovation, personal management, and leadership topics.
- Self management and entrepreneurship.
- 5S and TQM champion.
- ISO 9000 champion.

DESIGN KNOWLEDGE

- Advanced design conceptualization for new products.
- Strategic design for product design and engineering.
- Management of innovation.
- User-Centered Design: optimization of usability and product interaction through user experience (UX – Journey Wheel) practices.
- Advance driver and passenger packaging practices.
- Automotive and mass transportation interior component design.
- Product design.
- Interface design.
- Biomimicry and Biomechanics.
- Sustainable design.
- Styling: applying brand character cues and marketing directions, through advanced practices of product characterization.
- Knowledge of stylistic refinement practices to achieve visual harmony in terms of balance and proportion, as well as harmony of shape and form, contrast, color and texture.
- Knowledge of the latest technological and stylistic trends for the conceptualization of new products and components.
- Knowledge in the harmony and appearance processes, for the evaluation of colors, textures, grains, and finishes in plastic and metallic components, through color and harmony rooms or through Macbeth lighting booths. This evaluation is made with purpose of making interior componentry match, making the design theme look harmonious, avoiding problems of contrast or color saturation, as well as problems of metamerism.
- Advance mental maping.

COGNITIVE PSYCHOLOGY AND HUMAN FACTORS. KNOWLEDGE FOR COMPONENT AND HMI DESIGN:

- Deep knowledge in human factors and ergonomics to ensure that the user can have optimal usability inside of a driving compartment and passenger compartment.

- Good knowledge of Cognitive Psychology factors for the correct design of usability algorithms and heuristics, to ease the user interaction with control components and ensure its readability and comprehension, avoiding problems of cognitive delay.

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rodzmas@gmail.com
www.rodzmas.com

TECHNICAL SKILLS:

1. Transformation of thermoplastics: Design of components by Vacum-forming and injection molding.
2. Evaluation of class “A” appearance surfaces for release of components to engineering.
3. Evaluation of engineering “B” surfaces.
4. Evaluation of plastic injection components for their release to texturing processes.
5. Manufacturing of components in composite materials:
6. Transformation of thermoplastics and aluminum alloys by extrusion process.
7. Transformation of sheet metal.
8. Manufacturing by foundry.
9. Tubing bending process.
10. Prototyping of models, physical mockups and prototypes.
11. Welding metal processes.
12. AMEF and PSWC (Failure and Effect Mode Analysis, as well as Process Sequence Workflow Chart.)
13. Finishing processes for plastic and metal components.
14. Assembly and fastening techniques.
15. Structures and assemblies design
16. DFMA Knowledge: (Design For Manufacturing and Assembly)
17. Mechanisms design.

OTHER COMPLEMENTARY TECHNICAL SKILLS:

- Advanced CAD modeling of solids and surfaces in Rhinoceros.
- Use of graphic design programs: Adobe Illustrator and Photoshop.
- CAD rendering in Keyshot.
- Advanced sketching and stereotomy.
- Digital sketching and rendering using Wacom Cintiq and Sketch Book Pro.
- Virtual reality immersive design processes with Gravity Sketch with Oculus system. (under learning)
- Prototyping and handling of multiple physical and bench tools.
- Video editing

HUMAN DEVELOPMENT

Because as a designer I know that we must design for humanity and its balance with nature, I have got deep into understanding human development. As well as with a have been done with design and innovation. That is why I have been developing "QUMAN" a higher quality human being, through education by means of learning how to know how to think, how to know how to be, for developing the best attitude to know to do balanced design according with nature.

Please look for more information about me (Complete CV, acknowledgments and prizes, complete portfolio, photo galleries, etc.) at:

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https://www.behance.net/Jorge_Rodz
https://www.behance.net/RCDprojects

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TECHNICAL IN DETAL

1. **Transformation of thermoplastics: Design of components by Vacum-forming and injection molding.**

a) Vacum-forming with female molds and male molds.
b) Vacum-forming by injection of air with rubber membrane and opened cavity.
c) Vacum-forming by hydraulic pressure and hot membrane.
d) Plastic injection of componets with: PP, TPU, ABS, PC, PU, PE, PET and PRTG, TPO, Polyamide, PLA and PVC.
e) Injection blow molding for the manufacture of closed components like containers, bottles or similar parts.
f) Rotomolding forming. Design and Manufacturing of Rotomolded Components.
g) Rapid Injection Molding (RIM). PU and RPU: manufacture of bumpers, moldings, accessories and steering wheels.

2. Evaluation of class “A” appearance surfaces for release of components to engineering:

a) Evaluation of the “G” factor of tangency and continuity of surfacing.
b) Component draft angle evaluation, according to the design of the part and the texture assigned to it.
c) Evaluation of CAD construction by conics or simple equations to avoid complex surfaces with mathematical overload.
d) Evaluation of visual continuity by reflection of zebra techniques, as well of visual evaluation by ligh room reflection techniques.

3. Evaluation of engineering “B” surfaces.

a) Evaluation of nominal thicknesses in surface elements "B" to avoid sink marks in surface "A“.
b) Evaluation of fixation towers, reinforcing ribs, assembly flanges or assembly devices to assure assembly efficacy.
c) Plastic flow evaluation in the design of a component to avoid flow marks, air vent problems, bubbles or injection problems.
d) Evaluation of the design of the parting line in a component to prevent flash problems or poor matching of the tooling dies.
e) Structural evaluation of a plastic injection component to avoid warping, bending or twisting issues.
f) Evaluation of techniques and assembly features in components to avoid or reduce assembly problems and to optimize the integration of fasteners.

4. Evaluation of plastic injection components for their release to texturing processes.

a) Visual evaluation of a component already injected in the "Beta" phase (Not salable), through the silver painting process, to detect issues of poor execution of the CAD file, which generates problems of sink marks on "A" surfaces, flow marks, turbulence or knit marks, excess of flash, etc; Or bad manufacturing of the tooling; Or wrong execution of the pressure / heat variables during the manufacturing process.

b) Component injection evaluation during Try-outs.

c) Knowledge of the texturing process by acid abrasion. This knowledge makes it possible to understand the different types of textures that may be applicable to the components, depending on their morphological architecture or their draft angle in critical regions, which allows specifying the technique of application of the texture, the texture itself and the level. Of texture wash-out certain texture needs in case its draft angle requirement exceeds the draft angle of the part.

5. Manufacturing of components in composite materials:

a) Manufacture of parts in GRP (Glass Fiber Reinforced Plastic), Carbon Fiber and Kevlar. I know the main processes for the design and manufacturing of components with composite materials:

- FG application by a spray gun and polyester and epoxy resins.
- Application of pre-impregnated woven fivers, cured at room temperature with auxiliary manual techniques and vacuum pumps to manufacture a single sheet membrane type.
- Application of pre-impregnated woven fivers with curing through autoclave with controlled suction pump.
- Construction of "sandwich" type composite materials with "Honey comb" type panels manufactured in an autoclave with controllable pressure and temperature for the development of ultralight components.
- Manufacture of PV or FC profiles by means of mechanical pultrusion manufacturing process using epoxy resins.

6. Transformation of thermoplastics and aluminum alloys by extrusion process.

I have the knowledge for the design and manufacture of profiles, moldings or pipes, which must be manufactured in a linear way for many different uses and assemblies.

7. Transformation of sheet metal.

a) Sheet plate bending by Presbrake.
b) Metaloflexia (bracket and component manufacturing process using laser cutting and bending of sheet metal) for the manufacture of supports, housings and metallic structures.
c) Stamping and punching of steel and aluminum sheet metal.
d) Forging of steel.

8. Manufacturing by foundry.

a) Aluminum and Zamak die casting by open and closed cavity.
b) Sand casting of steel, aluminum and copper.

9. Tubing bending process.

I have knowledge for the design and supervision of the manufacture of components that use bent tubular profiles, this knowledge allows me to design a component with the appropriate bend radii, depending on the thickness of the tube, the section of the tube and the gauge of the tube. I know the process of double 2D and 3D by CNC machinery.

10. Prototyping of models, physical mockups and prototypes: I know several techniques for the development of composed prototypes.

a) Development of stereotomy to form three-dimensional models.
b) CNC Milling machine process: Milling of polyurethane hard foam or wood by 3, 4, 5 and 6 axis Milling Machine
c) Rapid prototyping: Powder printing, plastic 3D printing and stereo lithography by SLA and SLS.
d) Machining of plastics and metals by means of a lathe and manual milling machine.
e) Assembly of models, prototypes and simulators through the use of components manufactured by several prototyping techniques.

11. Welding metal processes: I know some welding techniques, how to apply them and how to develop assemblies to make the most optimal and effective assemblies using welds.

a) Electric welding with electrode.
b) MIG and TIG process welding process.

12. AMEF and PSWC: I am capable of submit a component under the Failure and Effect Mode Analysis, as well as create the Process Sequence Workflow Chart if necessary.

13. Finishing processes for plastic and metal components:

a) Electrostatic micro-spray PU painting finishing process.
b) Electrolytic adhesion processes such as: Metal plating, metal galvanization and aluminum anodization.
c) Finishing process by sandblasting or "Sand-blastig"

14. Assembly and fastening techniques:

I have solid knowledge in diverse assembly techniques and devices for plastic and metal components, ranging from screw fasteners, rivets, snap-on or sliding fasteners, safety fasteners, noise and vibration isolation fasteners, and specialized adhesive methods that can range from high-strength double-adhesion tapes, to simple adhesives, by catalytic reaction, epoxy adhesives or adhesives and specialized formulation resins.

15. Structures and assemblies design.

I have knowledge for the development of tubular structures or frame designed under the metalloflexia technique (Laser Cutting of sheet and bending) or tubing profile welding. I know and use well the concepts of design by optimization of the MIE (Moment of inertia of a section) and the neutralization or favoring of bending, torsion or deformation effects by parallelogram, through the structural design by shear moment, bending moment and torsional moment. But also I know hoy to read FEA anaysis made to understand the critical section of a component or frame.

16. DFMA Knowledge:

a) Design for manufacturing (DFM). I develop the conceptualization of components considering the relevant and indicated manufacturing processes for each product and project.

b) Design for assembly (DFA). I develop the design of products based on understanding the right assembly sequence, necessary to avoid interference or component matching problems in products that integrate various components by “poka-yoke” strategies or by dynamic visualization.

c) Knowledge in design for assembly techniques for the development of correct gapping and matching between components, under processes of perceived appearance, such as designing by under or over flush surfacing to minimize of disharmonic effects in regions where more than two components converge.