Automotive Fabrication & Welding Course

Full Course Outline

Course Title

Automotive Motorsport Fabrication – Beginner Level

Presented by: DCR Automotive Garage

Course Overview

This hands-on automotive fabrication course is designed to teach practical MIG and TIG welding techniques specifically for automotive and motorsport applications. The course focuses on real-world fabrication skills including welding thin automotive steel, tube work, bracket fabrication, and safe workshop practices.

This course is ideal for beginners to intermediate students who want to gain confidence working with metal in an automotive environment.

Course Objectives

By the end of this course, students will be able to: - Safely operate MIG and TIG welding equipment - Identify correct materials, fillers, and machine settings - Perform clean, strong welds on automotive-grade steel - Fabricate basic automotive components - Understand proper fit-up, tacking, and distortion control - Apply fabrication techniques used in motorsport environments

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Target Audience

- Automotive enthusiasts
- Motorsport builders
- Mechanics seeking fabrication skills
- DIY racers (drag, circuit, drift)
- Beginners with little to no welding experience

Course Duration & Format

Monthly Program (Beginner Level) - Duration: 1 Month - Schedule: Saturdays & Sundays - Total Sessions: 8 Classes - Class Time: 12:00 PM – 5:00 PM - Session Length: 5 Hours per class - Total Contact Time: 40 Hours

Maximum class size: 4–6 students

Module Breakdown

Module 1: Workshop Safety & Fundamentals

- Personal Protective Equipment (PPE)
- Fire safety and hazard awareness
- Grinder and cutting tool safety
- Gas bottle handling and storage
- Workshop etiquette and best practices

Module 2: Welding Theory Basics

- Understanding MIG vs TIG welding
- Welding power sources explained
- Electrical basics (voltage, amperage)
- Heat input and penetration
- Joint types and material thickness

Module 3: MIG Welding – Automotive Applications

- MIG welder setup and tuning
- Wire types and shielding gases
- Welding thin automotive sheet metal
- Plug welding and stitch welding
- Common welding defects and corrections

Practical Exercises: - Flat plate welds - Lap and fillet joints - Automotive-style brackets

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Module 4: TIG Welding – Precision & Control

- TIG machine setup
- Tungsten selection and preparation
- Filler rod selection
- Heat control and puddle management
- Welding thin steel and tubing

Practical Exercises: - Flat plate TIG welds - Tube-to-plate joints - Stainless steel practice

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Module 5: Fabrication Techniques

- Measuring, marking, and layout
- Cutting and preparation techniques
- Tube notching basics
- Fit-up and tack welding
- Managing weld distortion

Module 6: Automotive Fabrication Projects

Students will complete one or more practical projects such as: - Engine bay bracket - Exhaust hanger or mount - Intercooler piping section - Roll cage tube junction mock-up

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Tools & Equipment Used

- MIG welder
- TIG welder
- Angle grinders
- Welding table and clamps
- Tube notcher (manual)
- Measuring and marking tools

Materials Provided

- Mild steel coupons
- Tubing sections
- Welding wire and filler rods
- Gas and consumables

Assessment & Completion

- Continuous practical assessment
- Instructor feedback throughout
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Safety & Liability

- Mandatory safety briefing
- PPE required at all times
- Student liability waiver required

Instructor

Delivered by an experienced automotive fabricator with motorsport-focused fabrication experience.

Future Progression

- Advanced TIG Welding Module
- Roll Cage Fabrication Course
- One-on-One Private Training
- Motorsport-Specific Fabrication Workshops

Course Schedule (Monthly Weekend Program)

Week 1 - **Saturday (12:00 PM – 5:00 PM):** Safety briefing, workshop orientation, welding theory fundamentals - **Sunday (12:00 PM – 5:00 PM):** MIG welder setup, tuning, and basic practice

Week 2 - **Saturday (12:00 PM – 5:00 PM):** Automotive MIG welding, thin sheet metal techniques - **Sunday (12:00 PM – 5:00 PM):** Plug welds, joint preparation, and bracket fabrication

Week 3 - **Saturday (12:00 PM – 5:00 PM):** TIG welder setup, tungsten selection, heat control - **Sunday (12:00 PM – 5:00 PM):** TIG tube welding fundamentals and practice

Week 4 - **Saturday (12:00 PM – 5:00 PM):** Fabrication techniques, fit-up, and distortion control - **Sunday (12:00 PM – 5:00 PM):** Practical automotive fabrication project and course wrap-up

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Pricing & Enrollment

Course Fee: BBD $500 per student

Course fee includes: - All materials and consumables - Use of workshop tools and equipment - Safety briefing and supervision

Enrollment Requirements: - Minimum age: 18 years - Closed-toe shoes required - Long sleeves and pants recommended

Student Tool & PPE Requirements

Students are encouraged to bring: - Welding helmet (auto-darkening recommended) - Welding gloves - Safety glasses - Closed-toe footwear

Limited PPE may be provided if required.

Code of Conduct

Students are expected to: - Follow all safety instructions - Respect instructors and fellow students - Use tools and equipment responsibly - Maintain a clean and organized workspace

Failure to comply may result in removal from the course.

Liability Waiver & Safety Acknowledgement

All students must sign a liability waiver prior to participation, acknowledging: - Welding and fabrication involve inherent risks - Personal responsibility for safety compliance - Release of liability for the instructor and facility

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Branding & Presentation

This course may be branded under the hosting workshop or organization and presented as a professionally formatted PDF suitable for: - Digital distribution - Email enrollment packages - Printed handouts

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Instructor Credentials

Course delivered by an experienced automotive fabricator with motorsport and real-world fabrication experience.

Advanced Training Pathways

- Advanced TIG Welding
- Roll Cage Fabrication & Chassis Reinforcement
- Motorsport-Specific Fabrication
- Private One-on-One Training

End of Course Outline