

EDUCATION
AT FULL
SPEED™

2020 RACE REPORT

VOLUME 12

SCHOOL OF AUTOMOTIVE
MACHINISTS & TECHNOLOGY

SAM TECH

EST 1985



BLOCK | CYLINDER HEAD | CNC | EFI CALIBRATION | ASSOCIATE OF APPLIED SCIENCES

SAM Tech PROGRAMS



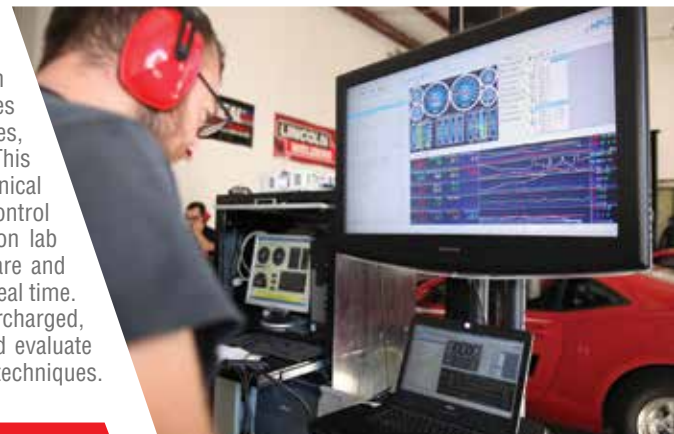
BLOCK MACHINING The objective of the **Automotive Engine/Block Machining** program is to qualify the student as an automotive machinist/race team crew member. Although the actual machining process will be the emphasis of the program, a thorough education on theory of operation of the modern race engine will be presented. The student will explore the basic theory and concepts of internal combustion engine operation, then move into more specific and complex areas including cylinder pressure, airflow, volumetric efficiency, high RPM valve train geometry, and horsepower/torque as demonstrated on both engine and chassis dynos. Although no previous experience is required, this program is intended for the mechanically inclined student with a serious work ethic. Students will work directly on the School race cars, in the facility and at the track. They will be exposed to true race engines and drivetrains. This will include data acquisition, weather station correction factors, MSD ignition systems, EFI programming, carburetion tuning, clutch set-up, gear and converter combinations.

CYLINDER HEAD MACHINING The objective of the **Automotive Engine/Cylinder Head Machining** program is to train the student as a performance cylinder head machinist for the race engine industry. The theory and role of the cylinder head in the engine operation will be thoroughly covered in the classroom. Airflow characteristics and their effect on performance will be highlighted in all areas of this program. The complex relationship of flow bench numbers versus horsepower will be examined during lab hours. Students will learn the how and why of the many components of a cylinder head assembly. Intake manifold design from cast to fabricated sheet metal will be studied in terms of cubic inch and RPM range in relationship to cross sectional area and runner taper. The art of creating maximum efficiency and horsepower through precision component assembly combinations will be taught to the students. The knowledge learned will facilitate the student's success in the motorsports industry.



CNC MACHINING The program objective of the **Automotive Engine/CNC Machining** course is to qualify graduates to be capable of understanding and performing machining operations utilizing Computer Numerically Controlled Machining Centers. The program will include both classroom and hands-on lab instruction. The primary emphasis of this program will be the application of CNC machining techniques to improve performance of cylinder heads and engine blocks. Students will thoroughly explore the utilization of 5-Axis CNC Machining Centers as well as Coordinate Measuring Machine digitizing hardware and software applications and interfacing. Machine set-up, operation, and work piece preparation will be covered in detail. Special emphasis will be given to modification of high-performance and racing cylinder heads. Students will analyze and evaluate completed projects to quantify improvements, using racing industry standard equipment and techniques.

MOTORSPORTS EFI CALIBRATION The objective for the **Motorsports EFI Calibration** program is to qualify the student as an Automotive Performance Engine Tuner. The student will be capable of calibrating and troubleshooting the Engine Management System on the engine dynamometer, chassis dynamometer and at the racetrack. This program includes instruction in adding performance accessories, modifying power trains, tuning custom engines, suspension, exhaust systems, and using dynamometers and other diagnostic equipment. This program is intended for mechanically inclined students with a solid background in the mechanical system of an automotive engine and desire to extend that knowledge into the electronic control system in the automotive industry. The program will include both classroom and hands-on lab instruction. The student will learn and explore how to utilize various engine control software and dynamometers to alter engine operating parameters while observing the physical changes in real time. Specific tuning topics such as High Performance Naturally Aspirated, Turbo Charged, Supercharged, Nitrous, and data acquisition will be covered in detail. The student will learn to analyze and evaluate completed projects to quantify improvements, using racing industry standard equipment and techniques.



ASSOCIATE OF APPLIED SCIENCES The objective of the **Associate of Applied Sciences Degree** in Automotive Engine/Block & Cylinder Head Machining is to qualify the student as an automotive block and cylinder head machinist. In addition to the technical courses, students will take Introduction to Communications, College Algebra, Introduction to Physics, English Composition, and Sociology to complete the degree. The program provides an ideal foundation for professional development and continuing higher education. The addition of this degree program represents a significant, additional educational commitment by the school and a huge opportunity for the students. Former graduates of the **Automotive Engine/Block & Cylinder Head Machining** programs may return to school to complete the Associate of Applied Science Degree.

SAM Tech Graduates in The NHRA Factory Stock Showdown



The SAMTech.edu NHRA Factory Stock Showdown mirrors the 1960s and '70s when auto manufacturers used drag racing as an effective way to showcase their latest performance models. The cars featured in Factory Stock are purpose-built race cars, but they bear a striking resemblance to their street-going counterparts, which is one of the many elements that have made the class popular. Factory Stock rules also mandate a 9-inch wide rear tire, which presents a challenge for teams attempting to harness approximately 1,400 horsepower. With Factory Stockers, there is often a fine line between spinning the rear tires and launching into a giant wheelstand, so power management is key. The fan favorite class features intense side-by-side competition between supercharged factory-built muscle cars from Chevrolet, Dodge, and Ford, enjoyed another record-breaking season both on and off the track. More than 40 drivers took part in at least one event, and the Chevrolet Performance U.S. Nationals featured the class' first 32-car field.

the title just by making qualifying passes at the event. Skillman earned the championship in his first year in the Factory Stock class. – Kevin McKenna, *National Dragster*

SAM Tech is a natural sponsor for the class as several teams employ SAM Tech Graduates. Ray Barton Racing Engines hired Travis Hilger. Stanfield Racing Engines has hired two graduates, Conner Statler and Collin Jackson, and Kramer Racing hired Chris Vang. Hilger works with five teams that have Barton Engines, Jackson and Statler work with four teams, and Vang balances his time between Kramer's Pro Stock Team and COPO in the Showdown. Each of the graduates work tirelessly in the shop and on race weekend to make sure the engines and cars are ready for race day. There are a lot of variables that can make or break the weekend and the guys are always working on suspensions, power management, gearing, and even swapping engines between rounds to help get to victory lane. The Barton powered team had two drivers finish in the top 10. The Stanfield team won the Topeka and had two drivers make the final, with Stephen Bell winning over Arthur Kohn. Kohn would have a great season finishing second in points to Skillman. The Kramer team would also find success with their KB Racing powered COPO when they won the St. Louis race.

Drew Skillman clinched the 2019 SAM Tech.edu Factory Stock Showdown championship at the close of qualifying Saturday at the AAA Texas NHRA Fall Nationals in Dallas. Following an impressive three-win season, Skillman, in his Ford Cobra Jet built, a commanding lead in the standings and locked up



Travis Hilger

Ray Barton Racing Engines
Block, Head, CNC, EFI,
Associate Degree



Collin Jackson

Stanfield Racing Engines
Block, Head



Conner Statler

Stanfield Racing Engines
Block, Head



Chris Vang

Kramer Racing
Block, Head



2019 Factory Stock Champion Drew Skillman and team

1 D. Skillman | 2 A. Kohn | 3 B. Skillman | 4 S. Bell | 5 B. Butner | 6 C. Holbrook | 7 R. Taylor | 8 D. Barton | 9 L. Pritchett | 10 S. Libersher

GRADUATES IN ACTION

SAM TECH GRADUATES ARE WORKING WITH THE BEST IN THE INDUSTRY FOR OUR EXTENDED LIST OF EMPLOYERS, VISIT US AT: WWW.SAMTECH.EDU

A.J. Foyt Racing • Automotive Specialists • BES Racing Engines • Brodix Cylinder Heads • Cosworth • CP-Carrillo • Dart Machinery • Don Prudhomme Racing • Don Schumacher Racing
Durham Racing Engines • Elan Motorsports Technologies • Elite Performance • Engine Power | PowerNation • Ferrea Racing Components • GM Global Propulsion System Racing
Hendrick Motorsports • Ilmor Engineering • Indy Cylinder Head • Innovation Marine • Jesel • Joe Gibbs Racing • John Force Racing • Johnson & Johnson Racing • Jon Kaase Racing
Kalitta Motorsports • Katech Engine Development • KB Racing • Keith Kraft Performance Engines • Kuntz & Co. Late Model Engines • Lingenfelter Performance • Livernois Motorsports
MAST Motorsports • McLaren Engines, Inc. • MTI Racing • Pat Musi Performance • Patterson Racing • Penske Racing • Procharger • Proline Racing • Ray Barton Racing Engines
Reher-Morrison Racing • Richard Childress Racing • Roush-Yates Industries • Shafiroff Race Engines • Sonny's Racing Engines • Stanfield Racing Engines • Sterling Performance
Sunset Performance • Toyota Motorsports • Trick Flow Specialties • Wilson Manifold

SAM Tech Named Military Friendly School for Eighth Time



2020 is the eighth straight year that SAM Tech has been designated a Military Friendly® School by Victory Media, the leader in successfully connecting the military and civilian worlds. The Military Friendly® Schools designation is awarded to the top 15 percent of colleges, universities and trade schools in the country that are doing the most to embrace military students, and to dedicate resources to ensure their success in the classroom and after graduation.

“Being named a Military Friendly School for eight years in a row is an honor in which we are very proud,” said Linda Massingill, Executive Director of the School of Automotive Machinists & Technology. “We appreciate all these veterans have sacrificed in defending this great country of ours. We are glad to be able to help them and their families in any way possible. We at SAM Tech understand the importance of continuing one’s education in an effort to find a career after military service.”

CLASS Projects:



2012 COPO 8.90@150.16 MPH
NHRA National Record Holder FS/X



2016 Cobra Jet 8.62@156.10 MPH
Driver Austin Ford / Owner Chuck Parker



1957 Bel Air Built by SAM Tech students in 56 days
Featured in Hot Rod Magazine & PowerNation TV



2016 COPO 7.97@173 MPH
Owner/Driver Glenn Pushis • Crew Chief Doug Thompson
Car Chief Steve Hilterbrand • Crew Mike Blamer



1967 Shelby 10.33@127.58 MPH NHRA C/SA
Driver Heather Ford Park



Nostalgia Funny Car 4.57@154 MPH
Owner Dooley and Sons
Driver Jeff Cameron



Engine Masters Challenge Extreme LS Champion
• 801@7100 HP • 619@5900 TQ

The 2019 Engine Masters Challenge saw SAM Tech return to their championship ways, winning the Extreme LS Class. This marks the fifth time SAM Tech has won an Engine Masters class. The student and instructor built engine is a 440 ci LSX Block with LS7 CID heads. This is an EFI combination, run on the Holley HP system. In addition to winning Extreme LS, SAM Tech took home the titles of Horsepower King and Torque Monster as the engine made the most horsepower and torque for both EMC classes. Congratulations to all the students and instructors, winning the Extreme LS class would not be possible without their months of dedication and hard work.



Race Engine Challenge 400 SB2 • Runner-Up
• 790@7000 HP • 643@5900 TQ

The 2019 Race Engine Challenge marked the first time SAM Tech competed in the event. SAM Tech students and instructors built a 400 cid SB2 Small Block Chevy. The team made the finals finishing as the runner-up to Eric Roycroft. Roycroft scored a 1641.2 to SAM Tech's 1636.4, this is a difference of about 4 horsepower over the RPM range of 4000 to 7500. The score is based on the formula (Average Horsepower X 1000) / Cubic Inch. SAM Tech would like to thank all the students and instructors for all their hard work. We also want to give special thanks to our sponsors and the event sponsors for all their hard work and support.



1972 Oldsmobile 455 10.83@119.68 MPH
Owner/Driver Brandon Bakies
2019 NHRA Fall Nationals Stock Champion



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