

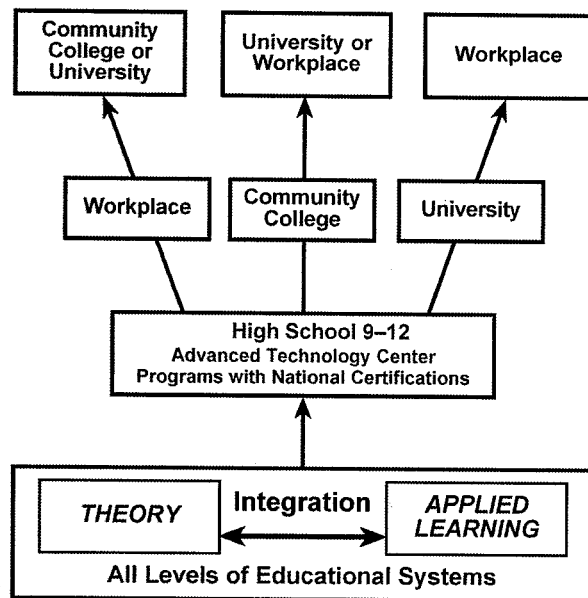


October 24, 2007

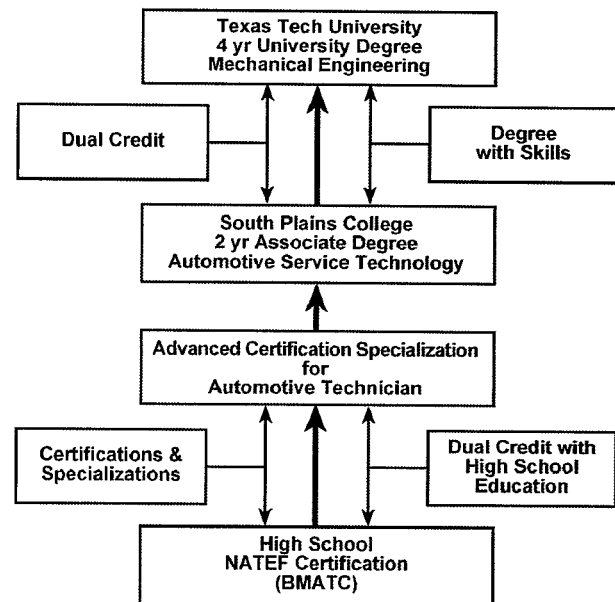
Seamless Automotive Technology Program

The need for capable automotive technicians and engineers led to a new educational model in which the essential concepts are an implicit integration of math and science with applied learning activities and career path flexibility for students. The teaching of fundamental math and science concepts in applied learning activities promotes student comprehension, accentuates the linkage of theory to the physical world, demonstrates the importance of understanding science and math concepts, and provides an exciting venue to increase student interest. Students need the flexibility to exit the process at various points to join the workforce with the knowledge and skills needed to be competitive or continue to higher educational levels.

The Texas Tech University College of Engineering, South Plains College, the Lubbock Independent School District and the Lubbock Economic Development Alliance have partnered to develop a Seamless Automotive Technology Curriculum based on this new educational model. The educational pathways provided by the Seamless Automotive Technology Curriculum allow high school students to participate in automotive programs without limiting their opportunities for college careers. The Seamless Automotive Technology Curriculum is designed to provide pathways for students completing the Lubbock Independent School District programs to continue their education at South Plains College and Texas Tech University with several exit and reentry points which provide students substantial flexibility and options.



Educational Model



Seamless Automotive Technology Pathways

The high school level of the process provides students the skills and capabilities needed to enter the workforce immediately as certified automotive technicians who can be very competitive in the job market. However, the high school program is also designed to be a college preparatory curriculum with some course work being accepted by South Plains College. Students continuing on to South



TEXAS TECH UNIVERSITY

College of Engineering

Department of Mechanical Engineering

Plains College may obtain a one year Certificate or an Associate of Applied Science degree in Automotive Service Technology. On completing their work at South Plains College, students again have the choice of entering the workforce — as a higher level technician — or continuing their education by transferring into the Mechanical Engineering program at Texas Tech University. On completion of Bachelor of Science in Mechanical Engineering, students once again have the option of joining the automotive industry as an engineer or continuing at Texas Tech University or another university for a Masters or Doctoral engineering degree. Finally students may elect at any transition point to enter the workforce for a year or two and then reenter the education pathway for additional training and education.

This curriculum provides much flexibility and many options for the student, To take full advantage of the flexibility and opportunities provided by the Seamless Automotive Technology Curriculum, students with help from their parents should begin planning their educational goals and pathways as early as the eighth grade. Students and parents are urged to explore the opportunities with faculty and advisors at the Byron Martin Advanced Technology Center, the South Plains College Technical Educational Division and the Texas Tech University College of Engineering.

The program also provides further enhancements to current educational endeavors including the coordination of laboratory experiences at all three levels to directly support and reinforce classroom studies and generate student enthusiasm. Such activities include involving Lubbock Independent School District students in dual credit laboratories at South Plains College and Texas Tech University; allowing Lubbock Independent School District and South Plains College students and faculty to participate in Texas Tech University vehicle research projects; and by specifically emphasizing creativity, critical thinking, and team work.

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**Seamless Automotive Curriculum
High School — Community College — University**

Program Leading to

**High School Diploma
Lubbock Independent School District**

**Associate of Applied Science in
Automotive Service Technology / Automotive Technology
South Plains College**

and

**Bachelor of Science in Mechanical Engineering
Texas Tech University**

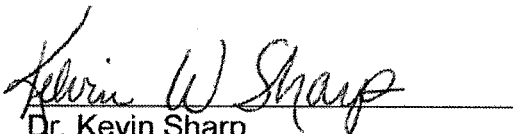
March 30, 2007



Mr. Wayne Havens
Superintendent
Lubbock Independent School District



Dr. Fred Hardin
Deputy Superintendent
Lubbock Independent School District



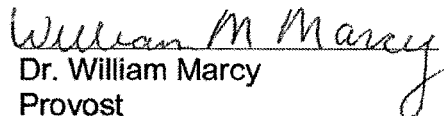
Dr. Kevin Sharp
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Dr. William Marcy
Provost
Texas Tech University

Seamless Automotive Curriculum

1 Objective

This curriculum was developed to provide students desiring careers in the automotive industry an educational blueprint which allows flexibility and options. The process begins with high school students and continues through community college and four year university engineering programs with several exit and reentry points.

The automotive industry and its supporting industries account for a major portion of the world's economy and employ the greatest share of the working population. Creative and innovative engineers are needed to design and develop the vehicles and transportation systems for the future. The understanding of vehicle systems and hands on experience gained through the high school and community college automotive programs are extremely valuable to developing engineers. Every effort has been made to ensure this curriculum will help students excel in automotive related careers at any level they prefer.

A major objective of this curriculum is to attract bright, creative young men and women into engineering in general and the automotive industry specifically by providing a flexible educational pathway.

2 Overview of the Curriculum

The high school level of the process will provide students with the skills and capabilities needed to enter the workforce immediately as a certified automotive technician who can be very competitive in the job market. However, the high school program is designed to be a college preparatory curriculum with some course work being accepted by South Plains College (SPC). Students continuing on to SPC may obtain a one year Certificate or an Associate of Applied Science degree (AAS). On completing their work at SPC, students again have the choice of entering the workforce — at a higher level position — or continuing their education by transferring into the Bachelor of Science in Mechanical Engineering (BSME) program at Texas Tech University (TTU). On completion of their BSME degree, students once again have the option of joining the automotive industry as an engineer or continuing at TTU or another university for a Masters or Doctoral engineering degree. Finally students may elect at any transition point to enter the workforce for a year or two and then reenter the education pathway for additional training.

This curriculum provides much flexibility and many options for the student; however, to ensure the most opportunities students with help from their parents should begin planning their education path as early as the eighth grade. Students and parents are urged to explore the opportunities with faculty and advisors at the Byron Martin Advanced Technology Center, the South Plains College Technical Educational Division and the Texas Tech University College of Engineering.

2 The Curriculum

The seamless automotive curriculum begins in high school with the automotive program at the Byron Martin Advanced Technology Center (BATC). The South Plains Tech Prep in partnership with SPC has developed a plan through which students may earn credits that are accepted by SPC toward a degree or certificate program. These programs are detailed in Appendix A.

SPC and TTU have developed a five year program that will provide students with an AAS degree in Automotive Service Technology from SPC and a BSME from TTU. This five year curriculum, presented in Appendix B, addresses bridging between the Automotive Service Technology program and the Mechanical Engineering program. The four semesters of Year 1 and Year 2 provide students with the courses necessary for their AAS degree in Automotive Service Technology from SPC. The two summer sessions are included to prepare students to begin Mechanical Engineering courses in the fall of the Year 3. Years 3, Year 4 and Year 5 complete requirements for a BSME from TTU.

APPENDIX A South Plains Tech Prep *partnering with* South Plains College

Automotive Service Technology/ Automotive Technology (AAS) and Certificate—CIP: 47.0604

6-year Tech Prep plan

The following high school Tech Prep courses count as **college credit** for the South Plains College courses listed. Students enrolled in Tech Prep classes at high schools **with articulation agreements** in place may receive college credit **in the degree program listed**.

High School Tech Prep Courses			South Plains College Courses		
Name	Peims	Abb	Name	Abb	Hrs
Automotive Technician I	12579102	AUTOTECH	Intro/Theory of Auto Tech	AUMT 1301	3
Automotive Technician II	12579103	AUTOTEC2	Auto Suspension & Steering	AUMT 1316	3
Automotive Technician II	12579103	AUTOTEC2	Automotive Brake Systems	AUMT 1410	4
NATEF Certified Programs			Automotive Electrical Systems	AUMT 1407	4
			Automotive Engine Perf. Ana. I	AUMT 2417	4
Bus. Comp. Info. Sys. I	12011200	BEGBCIS 1	Intro to Computers (Elective)	ITSC 1401	4
or					
Bus. Comp. Info. Sys. II	12031300	ADVBCIS 1	Intro to Computers (Elective)	ITSC 1401	4

example:	Local CTE courses
keyboarding	
other CTE courses	



The 4-year plan **can** include other CTE courses that logically fit into a student's coherent sequence of courses but **do not articulate** into college credit.

Students enrolling in this degree program at South Plains College, or any other participating community college, must fill out a form in the registrar's office requesting that their Tech Prep course(s) be added to their college transcript. Credit will be added to the transcript upon completion of 6 college hours.

Some high schools offer Advanced Technical Credit courses that articulate to participating community colleges. ATC courses may be taught in addition to (or as well as) the above tech prep courses. ATC high school teachers must have the ATC training certificate on file at their high school before the PEIMS codes may be used for the ATC courses.

Schools do not have to offer ATC courses in order to receive Tech Prep credit.

ATC = Advanced Technical Credit (Not the Byron Martin Advanced Technology Center)

Automotive Service Technology (AAS)

South Plains College program offered at Levelland Campus

First Semester

AUMT 1301 Introduction and Theory of Automotive Technology *	3
AUMT 1316 Automotive Suspension and Steering Systems*	3
AUMT 1407 Automotive Electrical Systems**	4
AUMT 1410 Automotive Brake Systems*	4
MATH Elective***	3
<hr/>	
Total Semester Hours	17

Second Semester

AUMT 1419 Automotive Engine Repair	4
AUMT 1306 Automotive Engine Removal and Installation	3
AUMT 1445 Automotive Heating and Air Conditioning	4
Approved Elective I***	3
ENGL 1301 Composition I	3
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Total Semester Hours	17

Third Semester

AUMT 2417 Automotive Engine Performance Analysis I**	4
AUMT 2421 Automotive Electrical Lighting	4
AUMT 2413 Automotive Drive Train and Axles	4
Approved Elective II ***	3
SPCH 1321 Business and Professional Speech	3
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Total Semester Hours	18

Fourth Semester

AUMT 2425 Automotive Automatic Transmission and Transaxle	4
AUMT 2434 Automotive Engine Performance Analysis II	4
AUMT 2328 Automotive Service	3
Humanities/Fine Arts***	3
Social/Behavioral Science***	3
<hr/>	
Total Semester Hours	17

* Tech Prep courses that articulate with high school.

** Tech Prep courses that articulate through NATEF certified high school programs.

*** Consult advisor for proper choice of course.

Automotive Technology Associate Degree

South Plains College program offered at offered at the Byron Martin Advanced Technology Center

First Semester

AUMT 1301 Introduction and Theory of Automotive Technology*	3
AUMT 1407 Automotive Electrical Systems**	4
AUMT 2413 Automotive Drive Train and Axles	4
COSC 1401 Introduction Computer Sciences	4
or	
ITSC 1401 Introduction to Computers*	4
Total Semester Hours	15

Second Semester

AUMT 1445 Automotive Heating and Air Conditioning	4
AUMT 2417 Automotive Engine Performance Analysis I**	4
AUMT 2421 Automotive Electrical Lighting	4
MATH Elective***	3
Total Semester Hours	15

Summer Session

AUMT 1166 Practicum–Auto/Automotive Mechanic/Technician***	
Or	
AUMT 2328 Automotive Service***	1/3
ENGL 1301 Composition I	3
READ 1314 Technical and Scientific Reading	3
Total Semester Hours	7/9

Third Semester

AUMT 1316 Automotive Suspension and Steering*	3
AUMT 1410 Automotive Brake Systems*	4
AUMT 2434 Automotive Engine Performance Analysis II	4
Humanities/Fine Arts***	3
Total Semester Hours	14

Fourth Semester

AUMT 1419 Automotive Engine Repair	4
AUMT 2425 Automotive Automatic Transmission and Transaxle	4
PSYC 2301 General Psychology	3
SPCH 1321 Business and Professional Speech	3
Total Semester Hours	14

Summer Session

AUMT 2166 Practicum–Auto/Automotive Mechanic/Technician***	1
Total Semester Hours	1

* Tech Prep courses that articulate with high school.

** Tech Prep courses that articulate through NATEF certified high school programs.

*** Consult advisor for proper choice of course.

APPENDIX B Five Year Curriculum for AAS and BSME Degrees

Fall Year 1		Spring Year 1	
AUMT 1301 Intro and Theory of Auto Technology**	3	AUMT 1306 Auto Engine Removal and Installation	3
AUMT 1407 Auto Electrical Systems***	4	AUMT 1419 Auto Engine Repair	4
AUMT 1316 Auto Suspension and Steering Systems**	3	AUMT 1445 Auto Heating & AC	4
AUMT 1410 Auto Brake Systems**	4	ENGL 1301 Composition I	3
MATH 2413 Calculus I	4	MATH 2414 Calculus II (Approved Elective I)	4
TOTAL	18	TOTAL	18
Summer I Year 1		Summer II Year 1	
CHEM 1411 General Chemistry I	3	ENGR 1304 Engineering Graphics*	3
TOTAL	3	TOTAL	3
Fall Year 2		Spring Year 2	
AUMT 2421 Auto Electrical Lighting and Accessories	4	AUMT 2425 Auto Trans & Transaxle	4
AUMT 2413 Man Drive Train & Axles	4	AUMT 2434 Auto Engine Performance Analysis II	4
AUMT 2417 Auto Engine Performance Analysis I***	4	AUMT 2328 Automotive Service	4
SPCH 1321 Business and Professional Speech	3	ENGL 1302 Composition II	3
Humanities/Fine Arts Elective (Approved Elective II)	3	Social/Behavioral Science Elective	3
TOTAL	18	TOTAL	18
Summer I Year 2		Summer II Year 2	
PHYS 2425 Principles of Physics I	4	PHYS 2426 Principles of Physics II	4
TOTAL	4	TOTAL	4
Fall Year 3		Spring Year 3	
MATH 2350 Calculus III	3	MATH 3350 Higher Math. Eng I	3
M E 1315 Intro to Mech Eng	3	M E 2322 Eng. Thermo. I	3
M E 2311 Materials Science	3	M E 3328 Materials & Mech. Lab	3
M E 2364 Eng. Mechanics I	3	M E 3331 Dynamics	3
E E 3302 Fund. of E E	3	I E 3301 Eng Econ Anal	3
HIST 2300 History of US since 1876	3	Elective (History)	3
TOTAL	18	TOTAL	18
Fall Year 4		Spring Year 4	
M E 3464 Eng Mechanics II	4	M E 3322 Eng Thermo. II	3
M E 3164 Eng Mech. II Lab.	1	M E 3365 Intro. to Design	3
M E 3315 Computer-Aided Analysis	3	M E 3165 Intro. to Design (Lab.)	3
M E 3370 Fluid Mechanics	3	M E 3371 Heat Transfer	3
POLS 1301 Amer. Govt., Org.	3	Elective (Political Science)	3
TOTAL	14	TOTAL	15
Fall Year 5		Spring Year 5	
M E 4370, Eng Design I	3	M E 4371, Eng Design II	3
M E 4351, Thermal-Fluid Sys. Lab	3	M E 4334, Cont. Dynamic Sys.	3
M E 3433 Systems & Vibrations	3	MATH 3342, Math Stat Eng Sci	3
M E 4120 Senior Seminar	3	Elective (Math or Science)	3
Elective (Multicultural)†	3	Elective (Visual/Performing Arts)	3
TOTAL	15	TOTAL	15

* Indicates Dual Credit courses

** Indicates Tech Prep articulated courses

*** Indicates Tech Prep articulation credit from NATEF certified high schools

Summer courses can be replaced by equivalent TTU courses

Blue SPC courses that satisfy AAS degree requirements

Green SPC courses that satisfy part of BSME degree requirements

Black TTU courses that complete BSME degree requirements