



Colorado Association of Black Professional Engineers and Scientists

OUR MISSION...

The Colorado Association of Black Professional Engineers and Scientists (CABPES) mission is to encourage and assist African-American and other under-represented minority youth in the pursuit and attainment of career choices in engineering and applied science professions. The organization was incorporated in the state of Colorado in 1980.

Our Goals and Objectives...

- To stimulate interests among under-represented youth to pursue careers in engineering and applied science.
- To develop solid math skills essential for success in these careers.
- To inspire higher academic achievement among under-represented students through professional role models and mentors.
- To provide exposure to cutting-edge technologies

OUR HISTORY...

CABPES has a long history of serving the community by identifying educational needs and by providing programs that encourage and assist African American and other underrepresented youth in the pursuit and attainment of career choices in the engineering and applied science professions.

A group of African American engineers in the 1970's started the Colorado Association of Black Professional Engineers and Scientists (CABPES). These individuals came together through their shared desire to increase the representation of minorities in the technical professions.

In 1980, CABPES established the Junior Engineering Technical Society (JETS) Chapter (later named Junior Engineers, Tomorrow's Scientists). The purpose of the JETS Program is to provide middle school and high school students' exposure to careers in engineering and applied science.

In 1982 (to further assist the students to succeed in school and attend college to study engineering) the Math Enrichment Program (MEP) was created to provide traditional math tutoring and homework assistance. A computer-aided math tutorial program has since been added.

In 1986, members of the Denver Chapter of the Hampton University Alumni Association started an SAT tutorial program to prepare high school students for taking the SAT College Entrance Examination and in 1988, CABPES offered to collaborate with this worthwhile endeavor. Again, CABPES added a program that furthered the organization's goal of having students attend college to study engineering.

During the fall 1989, the CABPES Technical Resource Center was established. It provides a centralized place where students receive hands-on training in engineering classes and math tutoring.

Since 1990, CABPES has expanded the JETS program to include classes in Architecture, Basic Programming, C+ Programming, Civil Programming, Electronics, Introduction to Internet and Mechanical Engineering. Recently, the Math Enrichment Program (MEP) was enhanced to ensure students receive the homework help they need, but more importantly to help students develop the necessary skills to succeed in their math classes. CABPES also offers seminars throughout the year to both students and parents on a variety of topics such as careers in engineering, public speaking, money management and planning for college.



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CABPES TODAY...

CABPES continues to evolve into a dynamic, highly regarded resource that is constantly re-positioning itself to meet the ever-changing needs of the community. In order to meet its goal of producing engineering and technical professionals, CABPES realizes the need to assess the entire student experience from grades 6-12 and offer assistance, not only to the students, but to the families as well.

Counseling and guidance is offered to students who are preparing for college, from high school course selection to financial planning and college selection. Assistance is available to help students apply for hundreds of scholarships that are available to them. Additionally, CABPES partners with local corporations and civic groups to provide internships and work experiences for its students.

CABPES is truly a success story with many, many of its students becoming engineers, scientists and business people, contributing to the community.

CABPES encourages its participants to become involved in the community. Applications for both college scholarships and college entrance request examples of students' community involvement and leadership experiences. CABPES offers numerous opportunities to assist students in building their "college entrance resumes" while gaining invaluable poise and self confidence.

The Widening Our World (WOW) Program was initiated to pair CABPES students with senior citizens wanting to learn computer skills. Senior citizens benefit from the computer training and relationship with WOW student volunteers and students learn a valuable lesson about working in their community.



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CABPES COURSE DESCRIPTIONS – JETS PROGRAM

ARCHITECTURE

Course Prerequisites: None

Grade Level: Students must be in grades 10, 11 or 12

Maximum Class Size: 10 students

Course Description:

The Architecture class includes a variety of activities to introduce the students to this exciting profession. They learn about the importance of the internal and external relationships of buildings and review the four basic steps to good design: (1) site analysis, (2) architectural program, (3) site design and (4) design of spaces and details. Students participate in a number of activities that demonstrate these key architectural concepts. They construct study models, attend lectures by architecture professionals and attend a class with the Civil Engineering students to learn about urban planning. Each year the class chooses a project to design. This project presents the students with an opportunity to experience the process steps necessary for completing an actual architectural project. Each student is assigned to a design team and each team is responsible for certain elements of the project. The students discuss and exhibit their work at the May banquet.

Lead Advisor: Rudolph Brown

Rudolph Brown (Rudy) graduated from Tuskegee University with a Bachelor's and Master's Degrees in Architecture. He has an extensive career in architecture, having worked many years for the National Park Services and the USDA Forest Services. In 2003, he established his own firm, RV Brown, Architect. Recently, Rudy founded and serves as head coach for the Colorado Ravens, a youth development organization. He joined CABPES as the Lead Advisor for the Architectural Program in 1998.

BASIC PROGRAMMING

Course Prerequisites: None

Grade Level: Students must be in grades 6, 7 or 8

Maximum Class Size: 10 students

Course Description:

The Basic Programming course is designed to introduce students to the fundamentals of programming by providing each student with a "hands-on" computer experience. The students have the opportunity to formulate a sound programming foundation along with some exposure to the internal and external components of the computer. Students are responsible for loading various software packages on to their individual computers, including Qbasic and Visual Basic, both products of the Microsoft Corporation. Qbasic is used to introduce the students to the fundamental concepts of programming. These concepts include key words, variable, data types, branch conditions, and logic. Once these concepts are understood, Visual Basic is used to learn some of the more advanced concepts, including objects, properties, forms, actions, and events.

Lead Advisor: Melodie Brooks

Melodie Brooks is a Denver native, having graduated from George Washington High School and earning a Bachelor's of Science degree at Lincoln University. She also received a Master's Degree in Computer Information from the University of Denver. Melodie has been employed by Avaya, Inc. for the past 23 years, where she performs system verification on PBX systems. She has been a CABPES adult volunteer and the Lead Advisor of the Basic Programming Class for 15 years. Melodie loves working with children and, in addition to her work at CABPES, she coaches basketball year round and is the chairperson for the Ski-For-Kids winter program.



C+ Programming

Course Prerequisites: JETS Basic Programming Course; Basic Mathematics; Introductory Algebra

Grade Level: Students must be in grades 9, 10, 11 or 12

Maximum Class Size: 6 students

Course Description:

The C+ Programming class introduces students to one of the most widely-used and highly regarded programming languages in the world today. Ninety percent of the computer programs used are programmed using the 'C' language. The 'C' programming language is also a basis for C++ and Java. Learning the 'C' language also helps the beginning programmer really understand the architecture of a computer. Knowledge of key computer components such as RAM, ROM and the CPU is a necessity for successful programming. The class begins by focusing on a computer's architecture by detailing how the human generated program is distilled down to a "computer readable" program by the use of the 'C' compiler. Students then can see how the language utilizes computer architecture by doing things such as reading and writing to memory locations and assigning values to memory locations. Most weeks, class time is spent introducing new aspects of the computer language, and participating in interactive demonstrations. During the last quarter of class, their knowledge of the language is brought together into a final project.

Lead Advisor: David Hinds

David holds a Bachelor's of Science Degree in Electrical Engineering from the University of Delaware, and a Master's of Science Degree in Electrical Engineering from Princeton University. In 1996, David joined Denver's Lucent Technologies - Bell Laboratories, which is now Avaya Inc. Currently, David is a Senior Manager in Avaya's Solution Realization Organization. Since 1996, David has been a member of CABPES and an instructor in the Electrical Engineering and Electronics Group. For the past five years, he has served as Secretary of the CABPES Board of Directors and Lead Advisor for the C+ Programming course.

CIVIL ENGINEERING

Course Prerequisites: None

Grade Level: Students must be in grades 8, 9, 10, 11 or 12

Maximum Class Size: 12 students

Course Description:

The Civil Engineering Program is advised by local members of the American Society of Civil Engineers Younger Members Group and course work includes a variety of topics covering all facets of civil engineering: transportation, urban planning, structures, water/wastewater, surveying, and bridge design. "Cities of the Future" is the theme for this year's class. After learning about each component of a city – such as roads and bridges, the students will come up with ideas of how these things might be constructed in the future. The students will plan and construct a scale model of their "City of the Future" over the course of the school year. The year-end project will be a team bridge building competition.

Lead Advisor: Laura LaRiviere

Laura is a civil engineer, employed by Boyle Engineering Corporation, with a background in water resources. She holds a Bachelor of Science's degree in Civil Engineering from Purdue University and a ME in Civil Engineering from Texas A&M University. She is a licensed professional engineer in the State of Colorado. This is Laura's 5th year as an advisor with the JETS civil engineering class.



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ELECTRONICS/ELECTRICAL ENGINEERING

Course Prerequisites: None

Grade Level: Students must be in grades 6, 7, 8, 9, 10, 11 or 12

Maximum Class Size: 14 students (6 slots reserved for high school students)

Course Description

This program is a beginner's introduction to electronics, giving students exposure to basic electrical concepts, as well as the opportunity to gain insight into what is involved in a career in electrical engineering. Students explore electronics through discussions and demonstrations in basic electronics principles, components and products. Discussion topics include the structure of the atom, concepts of voltage, current, resistance, frequency, digital logic and how engineers develop a product. Students participate in "hands-on" labs built around the class discussions, in which they learn concepts such as Ohm's Law and how to use electronic test equipment.

Lead Advisor: Ron Fontenot

Ron is a technical manager with Avaya, Inc. Ron first approached the Colorado Association of Black Professional Engineers and Scientists (CABPES) with the idea of establishing a JETS Program (Junior Engineers Tomorrow's Scientists) in 1980. JETS classes began in 1981 and have expanded throughout the years. Ron has taught the Electronics/Electrical Engineering class at CABPES for 25 years. In 2005, Ron was recognized by 9 Who Care and Channel 7 Everyday Heroes for his work at CABPES.

INTRODUCTION TO INTERNET

Course Prerequisites: General knowledge of PCs, basic keyboarding skills & an insatiable desire to learn

Grade Level: Students must be in grades 6, 7, 8, 9, 10, 11 or 12

Maximum Class Size: 10 students

Course Description

The primary goal of this course is to raise the students' level of understanding and use of the Internet. The class begins with a refresher on how a PC works and history of the Internet. After introductory lessons, throughout the next three lessons, they cover subjects such as--how to connect to the Internet, the nuts and bolts of web browsers, how to explore the Internet more efficiently and how e-mail works. In the second half of the class, they explore topics such as--how to design a website, HTML-the programming language for the Internet, and what makes a website more popular. Finally, they wrap up the class with a final project--creating a personal website.

Lead Advisor: John Henson

John is an Electrical Engineer, having spent 25 years of his career a product manager at Avaya, Inc (Lucent Technologies) where he was involved with the Black manager's organization, ABLE, helping with professional development. He is a graduate of Prairie View University. John joined CABPES eight years ago and served as an assistant advisor before becoming lead advisor for the Introduction to Internet course two years ago.



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MECHANICAL ENGINEERING

Course Prerequisites: Algebra and Basic Physics

Grade Level: Students must be in grades 10, 11 or 12

Maximum Class Size: 10 students

Course Description

The Mechanical Engineering course is designed to introduce students to the fundamentals of mechanical engineering. The course is general and practical, emphasizing the major aspects of mechanical engineering taught at the college level, and how these fundamentals are applied in the real world. The students are introduced to the principles of statics and dynamics, strength of materials, fluids, and machine design through hands-on experience, classroom problems, professor and guest lectures, videos and field trips. The course culminates with a final project where the methods learned in class are applied to the development and resolution of a mechanical engineering problem and presented at the annual banquet.

Co-Advisor: Brian J. Levitt

Brian graduated in 1972 from Colorado State University with a Bachelor's of Science degree in Mechanical Engineering and earned a Master's of Science in Management degree from Colorado Technical University in 2001. Brian is currently a senior mechanical engineer for the Industrial Process – Oil, Gas and Chemicals division for Washington Group International, where he supports the mechanical effort in the design of materials handling systems. Brian joined CABPES in 2001.

Co-Advisor: Kira Sanders

Kira graduated from the University of Colorado with a Bachelor's of Science Degree in Mechanical Engineering in 1999 and a Masters of Engineering in 2004. Kira is a mechanical engineer for Washington Group International where she currently supports various mechanical efforts in the Industrial Process- Oil, Gas and Chemicals division. Kira is a CABPES success story having gone through the program as a JETS student (1989-1994). Kira came back to CABPES as an advisor in 2001 and is a member of the CABPES Board of Directors.



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CABPES COURSE DESCRIPTIONS – MEP PROGRAM

MEP PROGRAM

The CABPES Math Enrichment Program (MEP) will offer three different programs throughout the week to ensure students receive the homework help they need, but more importantly they develop the necessary skills to succeed in their math classes. The programs are as follows:

Middle School Math Intensive Program

This program will be offered Monday, Wednesday and Thursday evenings from 6:00 to 8:00 p.m. and will provide an intensive math program that teaches basic concepts of middle school math to ensure that students are not moved on to high school without having mastered these important skills. This program is designed for middle school students or high school students who test at a middle school level. This program will be taught by a certified math teacher. Because of the sequential nature of the teaching, attendance is mandatory.

Homework Help

Homework help with tutors will now be available Monday, Wednesday and Thursday evenings from 6:00 to 8:00 p.m. Students may attend any or all of these evenings. This program will be available to middle school students who test at grade level and high school students who test above the middle school level. Homework help for physics and chemistry will only be provided on Wednesday evenings. Please note that this is not an opportunity for students to do their homework, but instead an opportunity to learn the concepts that will provide them the skills to do their homework.

Computer-based Math Enrichment

On Wednesday evenings, an enrichment program will be offered utilizing computerized modules in Basic Math, 7th Grade Math, Pre-Algebra, Algebra I, Algebra II, Geometry and Calculus. Tutors will assist students as they work through the modules. This program is also available to middle school students who test at grade level and high school students who test above the middle school level.

Assuming they meet the qualifications, students can participate in both the Homework Help and the Computer-based Math Enrichment programs.



CABPES COURSE DESCRIPTIONS – SAT PROGRAM

SAT TUTORIAL PROGRAM

Course Prerequisites: None

Grade Level: Students must be in grades 10, 11 or 12

Maximum Class Size: 12 students

Course Description:

The SAT Tutorial Program is sponsored by the Colorado Association of Black Professional Engineers & Scientists in association with the Denver Chapter of the Hampton University Alumni Association. The course of study is offered for six weeks in both fall and spring semesters to sophomore, junior and senior high school students who are preparing themselves to take the Scholastic Aptitude Test.

The program goal is to assist students in their preparation for the SAT. We will familiarize the student with: (1) what is measured by the SAT, (2) the structure of the test. (3) test taking tips to enhance performance, (4) the major concepts of the test and (5) strategies for each test section. The course is based upon The College Board (the test maker) recommendations and utilizes their teaching materials, test taking skills and practice tests.

Classes meet on **Wednesday evenings** from **6:00 PM to 7:30 PM**. The fall semester SAT classes are: SEP 27, OCT 4, 11, 18, 25 & NOV 1. The spring semester SAT classes are: FEB 21, 28, MAR 7, 14, 21 & 28

Co-Advisor: John Young

John earned an undergraduate degree from Hampton University and an MBA at Clark-Atlanta University. He has extensive and varied experience in the corporate world, as well as the in the not-for-profit sector. John is co-owner of a real estate consulting business and is a sub-contractor to Gart Properties in Denver. John is the originator of the SAT Program and has been a volunteer with CABPES for 20 years.

Co-Advisor: Jane Doyle

Jane has a Bachelor of Science degree from Iowa State University in secondary education and taught at the high school level. Jane has also worked in both the corporate and not-for-profit sectors and is John Young's business partner. In addition to 8 years with CABPES, Jane has extensive volunteer experience with Girl Scouts-Mile Hi Council and Jefferson County Schools.

2006-2007 SAT TEST SCHEDULE

Test Dates	Registration Deadlines *			
	U.S. Regular	U.S. Late (fee applies)	International Early	International Regular
October 14, 2006	Sep. 12, 2006	Sep. 20, 2006	N/A	Sep. 12, 2006
November 4, 2006	Sep. 29, 2006	Oct. 11, 2006	Sep. 13, 2006	Sep. 29, 2006
December 2, 2006	Nov. 1, 2006	Nov. 9, 2006	Oct. 11, 2006	Nov. 1, 2006
January 27, 2007	Dec. 20, 2006	Jan. 4, 2007	Dec. 6, 2006	Dec. 20, 2006
March 10, 2007	Feb. 2, 2007	Feb. 14, 2007	N/A	N/A
May 5, 2007	Mar. 29, 2007	Apr. 11, 2007	Mar. 14, 2007	Mar. 29, 2007
June 2, 2007	Apr. 27, 2007	May 9, 2007	Apr. 11, 2007	Apr. 27, 2007



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College/Business Investment Planning Seminars

CABPES will offer four seminars through the year to provide information for students and their parents on how to ensure that funds are available for the student's college education. These seminars will focus on managing, saving and investing funds.

The scheduled seminars are:

Tuesday, November 28, 2006	How to Raise a Money-Smart child
Tuesday, January 30, 2007	College Planning Strategies
Tuesday, March 27, 2007	Creating a Monthly Budget
Tuesday, April 24, 2007	Common Sense Investing (Rules of the Road)

Registration information will be distributed to families prior to the date of each course.



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CABPES in the Community

This year, the CABPES students will participate in a community service project to brighten the Thanksgiving holiday for 10 less fortunate families in our community. We strongly encourage all CABPES students (JETS, MEP and SAT) to become involved with this initiative. The project will be coordinated by CABPES staff under the auspices of the East Denver Collaboration, a Family to Family Initiative of Denver Human Services.

CABPES will be responsible for:

- Holding a food/toiletries/paper goods drive in November to collect items for Thanksgiving baskets.
- Assembling Thanksgiving baskets on November 16th with donated items, plus items procured by the East Denver Collaboration.
- Delivering Thanksgiving baskets to 10 families on November 18th.

There may be opportunities for other community service projects throughout the year. Families will be notified as these occur. This will give our students an opportunity to give back to the community and learn about volunteerism. We hope that all CABPES students will participate.



JANUARY 2007

8, 10 & 11	MEP CLASS
9.....	JETS CLASS
16.....	JETS CLASS
17 & 18	MEP CLASS
22, 24 & 25	MEP CLASS
23.....	JETS CLASS
29 & 31	MEP CLASS
30.....	Financial Seminar <i>"College Planning Strategies"</i>

FEBRUARY 2007

1.....	MEP CLASS
5, 7 & 8	MEP CLASS
6.....	JETS CLASS
12, 14 & 15	MEP CLASS
13.....	JETS CLASS
19, 21 & 22	MEP CLASS
20.....	Black History Month Event
21.....	SAT CLASS #1 BEGINS SAT Parent-Student Orientation
26 & 28	MEP CLASS
28.....	SAT CLASS #2

MARCH 2007

1.....	MEP CLASS
5, 7 & 8	MEP CLASS
6.....	JETS CLASS
7.....	SAT CLASS #3
12, 14 & 15	MEP CLASS
13.....	JETS CLASS
14.....	SAT CLASS #4
19, 21 & 22	MEP CLASS
20.....	Banquet Rehearsal - Banquet Participants Only
21.....	SAT CLASS # 5
26, 28 & 29	MEP CLASS
27.....	Financial Planning Seminar <i>"Creating a Monthly Budget"</i>
28.....	SAT CLASS #6 FINAL

APRIL 2007

2, 4 & 5	MEP CLASS
3.....	JETS CLASS
9, 11 & 12	MEP CLASS
10.....	JETS CLASS
16, 18 & 19	MEP CLASS
17.....	JETS CLASS (Make-up)
23, 25 & 26	MEP CLASS
24.....	Financial Planning Seminar <i>"Common Sense Investing"</i>
30.....	MEP CLASS



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MAY 2007

- 1.....Banquet Rehearsal - Participants Only
- 2 & 3 MEP CLASS
- 7 & 8 MEP CLASS
- 8.....Banquet Rehearsal - Participants Only
- 11.....Banquet Rehearsal - Participants Only - Sheraton Four Points
- 12.....***2007 Banquet - All Students - Sheraton Four Points***
- 14, 16 & 17 MEP CLASS
- 21, 23 & 24MEP CLASS – AS NEEDED



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