SPRING 2015

DAPCEP

Saturdays!

Join your friends and make new ones while you explore the exciting worlds of science, technology, engineering & math!

35 courses including:

- Computer Programming
- Video Game Design
- ACT Prep
- Algebra, Trig & Calculus
- Biology + More!

14 locations* including:

- Oakland University
- University of Detroit Mercy
- U of M Dearborn
- Wayne State University

***Bus transportation available for some locations**

Grades 4 - 12

Classroom dates:

February 21

thru

March 28

ENROLLMENT STARTS December 26, 2014

www.dapcep.org

$25 Application fee • Free tuition • Report card or transcript required

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Parent Advisory Committee

DR. LINDA WOOD
Southfield Public Schools

DAPCEP

January, 2015

Dear Students and Parents,

Happy New Year!

In 2015, DAPCEP will celebrate 39 years of service to Metropolitan Detroit youth. To all our students, parents, teachers, alumni, volunteers, program partners, staff, board of directors, sponsors, and philanthropic community, we say, thank you.
Your commitment is unprecedented and sincerely valued.

DAPCEP is thrilled about 2015. Thanks to your input and ideas, we are planning an outstanding season of educational programming for children who are in Pre-K to 3rd grade. It is important to us to continue to listen to you to better understand your engagement with DAPCEP and what type of programming you would like to see now and in the future. So, please, talk to us!

Over the years, we have observed how this program changes lives by exposing, motivating, and preparing our youth for the future no matter what degree, career or entrepreneurial endeavor they pursue. We are honored that you have elected to invest your time and resources with us.

Thank you for allowing us to share these opportunities with you.
Welcome to DAPCEP!

Sincerely,

Jason D. Lee, Executive Director

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DAPCEP SUPPORTERS

DAPCEP is made possible by the generous support and collaboration of universities, corporations, foundations, churches, community organizations, public entities, alumni, friends, and parents.

CORPORATE, FOUNDATION & COMMUNITY PARTNERS

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Michigan Technological University
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University of Detroit Mercy
University of Michigan – Ann Arbor
University of Michigan – Dearborn
Wayne State University

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Hartford Memorial Baptist Church
Michigan Space Grant Consortium
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State of Michigan
Southfield Public Schools
Triumph Church

MISSION

The mission of **DAPCEP** is to increase the number of historically underrepresented students who aremotivated and prepared academically to pursue degrees leading to careers in Science, Technology,Engineering and Mathematics (STEM) related fields through K-12 supplemental educational programming.

ABOUT SATURDAYS

Every spring and fall, hundreds of students from across metropolitan Detroit participate in DAPCEP Saturday programming.

Through our partnerships with Michigan universities, community organizations, and corporations, we are able to offer students unique, hands-on courses in science, technology, engineering and mathematics.

Each course is comprised of a series of five (5), consecutive Saturday sessions held on a university or community campus. Students receive a certificate of completion and participate in a final showcase at the conclusion of the semester. Bus transportation is available for most courses.

Through the generous support of our sponsors, partners, alumni, parents, and community, we are able to provide these courses tuition-free to students. A $25 application fee is required, however, limited financial aid is available to eligible families.

DAPCEP has exposed, motivated, and prepared students for futures as engineers, doctors, scientists, entrepreneurs and more since 1976. To get a better understanding of the impact of the program, we encourage you to speak to current students, alumni, and parents who are all part of the DAPCEP family!

POLICY & PROCESS

Admissions

Due to a high number of applicants, acceptance into DAPCEP is not guaranteed. The DAPCEP program directors and selection committees consider all eligible applicants and make every effort to build a fair, qualified, and balanced base of students.

While every consideration is given to maximize fairness with as many students as possible receiving their first choice course selection, some students may receive their second choice course selection, and some may not be admitted at all. Prior to the start of the semester, students will receive a notification of acceptance or non-acceptance letter.

Application Period

Our application periods occur online during January for Spring programming, and during September for Fall programming. The application period for Spring 2015 Saturday programming is December 26, 2014 – January 23, 2015.

Application Process

1. Select a minimum of two courses, a first choice and a second choice, by noting the course code numbers.
2. Go to www.dapcep.org/apply
3. Click on "Apply to Saturdays".
4. Complete the application (*more detailed instructions for using the online system are available at* **www.dapcep.org/apply/applicationinstructions**).
5. Upload your student's report card or transcript.
6. Pay the $25 application fee via PayPal. (*limited financial aid available for eligible families; see below*).

Certification

1. Student must attend all class sessions. Any student who misses two (2) class sessions (regardless of circumstances) will not receive a certificate. Class sign-in sheets determine attendance.
2. Student shall not be tardy more than one (1) time or he/she will not receive a certificate.
3. If required by a particular course, students shall achieve 80% (B letter grade) or higher from the overall course.
4. Students must complete all homework assignments, take all exams, surveys, and complete a pre and post test.

Payment Policies

If you prefer to use a payment method other than PayPal, we will accept a cashier's check or money order. Once you have submitted your completed application and fee online, you will receive a payment receipt via email with your student's ID number listed. If you pay in person, you will receive a stamped receipt card. This receipt can be used as a reference if you have any questions regarding your student's acceptance or non-acceptance.

Families with Multiple Children

The fee is $25 per child or $100 for families with more than four children to enroll. Application fees for children in the same household can be included in one payment.

Refund Policy

Due to a high number of applicants, acceptance into DAPCEP is not guaranteed. No refunds for the $25 application fee will be provided. If a student is not selected for participation in DAPCEP, a credit voucher will be issued with the student's non-accept letter. The student will be encouraged to apply for the following semester, where the credit can be utilized.

Financial Aid Policy

DAPCEP offers limited financial assistance to eligible families. If you are approved for financial assistance, your application fee will be reduced to $12.50 per child. The financial aid application must be submitted during the application period. You will have two weeks from the date on the notification letter to pay the full or reduced application fee via cashier's checks or money order.

To be eligible for financial assistance, your family size and household income must fall within the limits of the chart below:

TOTAL FAMILY SIZE	ANNUAL INCOME	MONTHLY INCOME
1	$21,590	$1,800
2	$29,101	$2,426
3	$36,612	$3,051
4	$44,123	$3,677
5	$51,634	$4,303
6	$59,145	$4,929
7	$66,656	$5,555
8	$74,167	$6,181

You will need the following information to complete your financial aid application:

- Copies of your 2014 IRS Federal Form 1040, 1040A, 1040-EX US Individual Income Tax Return

Or

- Copies of all supporting documentation for household Non-Taxable Income such as: Social Security Income, Welfare, Child Support, Food Stamps, Workers' Compensation and Temporary Assistance for Needy Families (TANF).

If you need assistance or access to a computer, you are welcome to come to the DAPCEP office (M-F 9:00am – 4:00pm) during the application period.

ENROLL ONLINE: WWW.DAPCEP.ORG

Open Enrollment Dates:
December 26, 2014 - January 23, 2015

TO PAY WITH CASHIER'S CHECK OR MONEY ORDERS ONLY, PLEASE USE THE FOLLOWING LOCATIONS:

DAPCEP OFFICE
This location accepts all applications and answers questions. Assistance completing and printing the application is also available.

DAPCEP (Main Office)
Palms Building – Next to Filmore Theater
2111 Woodward, Suite 506-1
Detroit, MI 48201
Office Hours: 9 AM – 4 PM

METERED PARKING – Bring quarters, nickels or dimes! These spaces are checked regularly. Metered spaces are available on most surrounding streets.

COMERICA PARK - Parking is available in front of the Tiger's Stadium across from our office and generally costs $2.00- 3.00.

FOX THEATER – Entrance on Montcalm off Woodward. The cost is generally $2.00 - $3.00. Cost increase if there is an event.

OAKLAND UNIVERSITY
This location accepts completed, signed applications with report card/transcript attached and $25 application fee. No paper applications offered. No online assistance or printing. No copy service.

School of Engineering and Computer Science
Office of the Dean
248 Dodge Hall
Rochester, MI 48309
Free parking is available in Lot 1 on N. Foundation St.
Office Hours: 9AM – 3PM

UNIVERSITY OF MICHIGAN ANN ARBOR
This location accepts completed, signed applications with report card/transcript attached and $25 application fee. No paper applications offered. No online assistance or printing. No copy service.

1221 Bonisteel
Chrysler Center 153 Chrysler
Ann Arbor, MI 48109
Park in the loading dock/drive where you can leave your car while dropping off your application.
Look for the sign.
Office Hours: 9 AM – 3 PM

PLEASE NOTE

Students are expected to be at the bus locations 30 minutes before departure.

Parents can ask bus monitors for the approximate time for student pick up.

Some classes are not supported by the bus system and this is noted in the course description.

Please be prompt in dropping off and picking up your student

DAPCEP BUS DEPOT LOCATIONS

Old DAPCEP Office

100 Farnsworth, Suite 249, Detroit, MI

BUS: The bus will be on Farnsworth

GOING TO
- Lawrence Technological University
- Oakland University
- University of Michigan Dearborn

Chandler Park Academy

High School Building
20254 Kelly Rd., Harper Woods, MI

BUS: The bus will be in the High School parking lot

GOING TO
- All classes held at UAW-GM
- Lawrence Technological University
- Triumph Church/Wayne State University
- University of Detroit Mercy

Lawrence Technological University

20220 Ten Mile Rd., Southfield, MI

BUS: The bus will be in the High School parking lot

GOING TO
- All classes held at UAW-GM
- Oakland University
- Triumph Church/Wayne State University
- University of Michigan Dearborn
- University of Michigan Ann Arbor

TRANSPORTATION ROUTES ARE SUBJECT TO CHANGE OR CANCELLATION BASED ON THE NUMBER OF STUDENT RESERVATIONS

PROGRAM DIRECTORS

BLUE CROSS BLUE SHIELD
Patrece Cade
313-448-6752

CREATION STATION
Keith D. Young
313-288-2252

DETROIT ZOOLOGICAL SOCIETY
Margaret Casazza
248-336-5813

FOCUS HOPE
Raylynn Henry
313-494-4422

IMHOTEP
Robert Saxon Jr.
734-347-1298

KIDPRENEUR
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OAKLAND UNIVERSITY
Chris Kobus
248-370-2489

SENSIBLE BUSINESS CONSULTING GROUP
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SUPER ACHIEVERS (EXAM EXPERTS) LEARNING ACADEMY
Michael Mayberry
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Dr. Brenda Hague
248-822-0897

UNIVERSITY OF MICHIGAN ANN ARBOR
Hans Sowder
734-647-7124

UNIVERSITY OF MICHIGAN DEARBORN
Dean Keshav Varde
Lisa Miller
313-593-5510

UNIVERSITY OF DETROIT MERCY
Arneshia Austin
313-993-1435

WAYNE STATE UNIVERSITY
Patrina Carper
313-577-3040
or
313-731-2184

Elementary School

GRADE	PROGRAM PARTNER	COURSE NAME	CODE	TIME
4	University of Detroit Mercy	Forensic Crime Stoppers	20500	8:30AM - 11AM
5	University of Detroit Mercy	World In Motion 2.0	20510	8:30AM - 11AM

4th GRADE

FORENSIC CRIME STOPPERS

University of Detroit Mercy

Students in this fourth grade program are presented with a crime to solve. Each week students will explore different systems of the human body through hands-on investigations. Students will gather evidence to determine which suspect is the criminal as they learn about issues related to health and nutrition. Students will present their solution to this "Who-Done-It" on the last Saturday of the program.

A parent or guardian is required to attend and participate in at least two sessions.
Bus transportation NOT provided.

5th GRADE

WORLD IN MOTION 2.0 - THE HYDROGEN FUEL CELL

University of Detroit Mercy

The World in Motion is a physics-based activity developed by the Society of Automotive Engineers. Totally hands-on, the class explores concepts of motion, force, inertia, velocity and air drag in a team setting.

Bus transportation is not available for this course.

Middle School

GRADE	PROGRAM PARTNER	COURSE NAME	CODE	TIME
6	Wayne State University	Pre Engineering Math (Part II)	21005	9AM - 12PM
7	Motivating Factors (Exam Experts)	Math Matters!	22505	9AM - 12PM
7	Wayne State University	Intermediate Math	21035	9AM - 12PM
7	Wayne State University	Intro to Computers	21010	9AM - 12PM
7	University of Michigan Detroit Center	Exploring Engineering	28055	9AM - 12PM
7-8	Kidpreneur	201-1 Scratch Computer Programming	28200	9AM - 12PM
7-8	Motivating Factors (Exam Experts)	Writing, Research & Composition	22515	9AM - 12PM
7-8	Pewabic Pottery	Science of Ceramics	25005	10AM - 12:30PM
7-8	University of Michigan Dearborn	Computer Programming	21505	9AM - 12:30PM
7-8	Detroit Zoological Society	What Can You Do at the Detroit Zoo?	23510	9AM - 12PM
7-8	Oakland University	Video Game Design	27120	9AM - 12PM
7-8	University of Detroit Mercy	TRANSIT	20560	9AM - 12PM
8	Wayne State University	Algebra	21015	9AM - 12PM

6th GRADE

PRE-ENGINEERING MATH (PART II)

Wayne State University

This is an interactive course for 6th grade students covering topics in the DAPCEP supplemental math course. Topics for the SPRING include: algebraic ideas and equations. All applicants must have a minimum GPA of 2.0 or greater and no excessive absences will be eligible for acceptance into the class. The SPRING course content is DIFFERENT than the FALL 6th Grade Pre-Engineering Math course content. **To be eligible for a certificate students must complete all classroom and homework assignments, and must take the pre and post-test.**

7th GRADE

MATH MATTERS!

Motivating Factors (Exam Experts) - UAW GM, 200 Walker St., Detroit, MI 48207

This is an interactive course for 6th grade students covering topics in the DAPCEP supplemental math course. Topics for the SPRING include: algebraic ideas and equations. All applicants must have a minimum GPA of 2.0 or greater and no excessive absences will be eligible for acceptance into the class. The SPRING course content is DIFFERENT than the FALL 6th Grade Pre-Engineering Math course content. **To be eligible for a certificate students must complete all classroom and homework assignments, and must take the pre and post-test.**

INTRO TO COMPUTERS

Wayne State University

This course will provide students with a basic working knowledge of computers. Topics covered will include binary numbers, keyboarding, MS Office applications, Internet usage and wizard-based web page creation. To be eligible for a certificate students must complete all classroom and homework assignments, and must take the pre and post-test.

EXPLORING ENGINEERING

University of Michigan Detroit Center - 3363 Woodward Ave., Detroit, MI 48201

Exploring Engineering will be offered at UM's Detroit Center will provide a unique view of the different engineering disciplines and the tremendous impact that engineers have on the world around us. Through this five week program, current 7th graders will have the opportunity to explore a variety of engineering departments through presentations, hands-on activities and a tour of UM's engineering campus. This course will highlight the diverse nature of the engineering field and allow students to make informed choices about a variety of engineering programs and possible future careers. This course is offered by the UM Ann Arbor campus.

7th - 8th GRADE

201-1 SCRATCH COMPUTER PROGRAMMING

Kidpreneur - UAW GM, 200 Walker St., Detroit, MI 48207

The Coding 201-1 class is for 7th-8th graders to learn about computer programming by using the popular M.I.T. software called Scratch to design and develop a video game. The goal of the class is to begin with the fundamentals of computer programming by learning how to debug and develop a game through coding. The students will complete group exercises as well as individual projects to eventually experience the process of developing a game and make it into a business/startup. Former students are welcome to enroll. The instructors will work with former students and adjust the curriculum accordingly.

WRITING, RESEARCH, AND COMPOSITION FOR FUTURE ENGINEERS

Motivating Factors (Exam Experts) - UAW GM, 200 Walker St., Detroit, MI 48207

In this valuable course, students will learn specific technical writing strategies and techniques to compose effective essays, for daily studies and college applications. Students will learn techniques in the following areas: persuasive and informative writing, internet research, effective proofreading, punctuation and grammar, continuity and outlining, effective sentence structure, and more!

SCIENCE OF CERAMICS

Pewabic Pottery - 10125 Jefferson Ave., Detroit, MI

The objective of the course is to develop students' logical thinking process that will help them to plan, design and develop solutions to simple engineering and math problems using programming. The students will be exposed to develop short computer programs to problems using basic computer language QB. The students will be taught the basics of programming, variables, logical statement, input/output, etc. At the end of the course students should be able to write short programs, store them and retrieve from other locations.

Transportation is NOT available.

COMPUTER PROGRAMMING

University of Michigan Dearborn

The objective of the course is to develop students' logical thinking process that will help them to plan, design and develop solutions to simple engineering and math problems using programming. The students will be exposed to develop short computer programs to problems using basic computer language QB. The students will be taught the basics of programming, variables, logical statement, input/output, etc. At the end of the course students should be able to write short programs, store them and retrieve from other locations.

SATURDAY COURSES

WHAT CAN YO DO AT THE DETROIT ZOO?

Detroit Zoological Society - Detroit Zoo, 8450 W. Ten Mile Rd., Royal Oak, MI 48067

Have you ever wondered what it takes to work at a zoo? Come and explore the many STEMM careers we have to offer! Learn how to carefully observe animals and chart your findings like the Zoo's animal welfare staff. Discover how to test water quality and why it's vital for the animals that reside here. Get a behind-the-scenes peak at what it takes to design an animal habitat. Meet with a veterinarian and tour the animal hospital. And more! **Transportation is NOT available.**

VIDEO GAME DESIGN

Oakland University

In this program students learn how to plan, program and realize the creation of video games that can be played on PCs. Students will also learn about various career opportunities available in the games industry and the types of colleges or universities that have programs that will allow them to enter into the field of games creation with ease.

TRANSIT: SMART MOVES

University of Detroit Mercy

Students will learn about the world of transportation engineering. Students will engage in hands on activities in today's top transportation design recreated through Lego robotics. Students will also have labs, and discussions taught by MDOT professionals and guest keynotes to transform transportation for a greener tomorrow.

8th GRADE

ALGEBRA

Oakland University

The goal of the course is to develop the mathematical knowledge and skills, as well as the critical thinking, analytical and problem-solving skills fundamental to the study of mathematics in general and algebra in particular. The course begins with a study of the algebraic properties of numbers, variables, equalities, and inequalities. **To be eligible for a certificate students must complete all classroom and homework assignments, and must take the pre and post-test.**

Middle & High School

GRADE	PROGRAM PARTNER	COURSE NAME	CODE	TIME
7-9	Triumph Church	SMILE! "You're on Candid Camera"	20595	9AM - 12PM
7-9	Triumph Church	E-Robotics	23010	9AM - 12PM
7-10	Motivating Factors (Exam Experts)	Exam Experts ACT Level 1	22525	9AM - 12PM
7-10	Oakland University	Vex Robotics	22075	9AM - 12PM
8-9	IMHOTEP	Urban Design Workshop	27115	9AM - 12PM
8-10	University of Michigan Ann Arbor	Build it Bigger, Better, Stronger	28030	9AM - 1PM
8-10	University of Michigan Ann Arbor	Glow Blue! (Nuclear Engineering)	28010	9AM - 1PM
8-10	University of Michigan Ann Arbor	Pirates of Michigan	28015	9AM - 1PM
8-10	University of Michigan Ann Arbor	Hand it to Engineers	28050	9AM - 1PM
8-10	University of Michigan Ann Arbor	Water: Treat it Right!	28055	9AM - 1PM
8-10	University of Michigan Ann Arbor	Wonders of Flight	28025	9AM - 1PM
8-10	University of Michigan Ann Arbor	Engineering the World Around Us	28045	9AM - 1PM

7th - 9th GRADE

SMILE! "YOU'RE ON CANDID CAMERA

Triumph Church

Developing and using an electronic portfolio. Students create an electronic portfolio, selecting from a variety of strategies for development, organization, storage and presentation. Which includes adding digital audio and video clips to the portfolio. Third credit covers reading assignments, issues, and research on electronic portfolio development for a variety of ages and situations, including useful criteria for evaluating portfolios based on national or local standards.

E-ROBOTICS

Triumph Church

E-Robotics is an exploratory experience for middle school students which exposes them to opportunities often reserved for more affluent families. It is a course that allows students the opportunity to build and program a robot using Lego Mindstorms Education NXT Base Set. DAPCEP students are enabled to build and program real-life robotic solutions using servo motors, ultrasonic, sound, light, and touch sensors.

SATURDAY COURSES

7th - 10th GRADE

EXAM EXPERTS ACT CONQUERORS PROGRAM (LEVEL 1)

Motivating Factors (Exam Experts) - UAW GM, 200 Walker St., Detroit, MI 48207

Level 1 is an informative course will provide systemic, comprehensive training for the new ACT exam, utilizing ExamExperts' highly motivational Accelerated Retention Learning (ARL) training method. Students will complete 500 practice questions, and receive preparation in the following areas: substantive (content), procedural (technique), psychological (mental preparation), and physiological (nutrition). Subjects covered include English, mathematics, reading comprehension, writing and science reasoning. Major focus is placed upon building student confidence while eliminating test anxiety. Techniques for internet scholarship research are also taught.

VEX ROBOTICS

Oakland University

This introductory-level course for the serious student who has an interest in VEX Robotics. Employing a "problem-based classroom" teaching approach, the instructor will give the students the directions for building the basic claw bot and allow them to build in groups of 2 to 5 depending on class size. Once the robots are built, the instructors will teach basic RobotC programming. Students will work as they learn. Instructors will teach concepts and ideas as needed by each group. The course is administered over five Saturdays from 9 AM to 12 PM on the campus of Oakland University. Student success will be heavily dependent upon their commitment to excellence while in class. The admissions process will depend on the number of students who apply.

8th - 9th GRADE

URBAN DESIGN WORKSHOP

IMHOTEP

This course will provide opportunities for high school students of color to explore careers in architecture and planning and trains these students in basic architectural principals and computer-aided design (CAD) software. Students participate in an enhanced curriculum teaching them basic architectural principals and computer-aided drafting software. The training will give them basic drafting and presentations skills. Google Sketch Up, available for free on the internet, will be the primary software taught.

8th - 10th GRADE

BUILD IT BIGGER, BETTER, STRONGER!

University of Michigan Ann Arbor

Sponsored by the Department of Civil Engineering and the American Society of Civil Engineers, "Build it Bigger, Better, Stronger!" provides a hands-on learning experience for students interested in a future career in the field of Civil and Environmental Engineering. Students will challenge their peers in bridge building, engage in a surveying scavenger hunt, explore a sustainable facility, and build upon their math and science skills through a variety of interactive lessons.

GLOW BLUE

University of Michigan Ann Arbor

Sponsored by the top-ranked Department of Nuclear Engineering and Radiological Sciences, "Glow Blue" provides an introduction to basic physics, energy sources, and contemporary topics in nuclear engineering. Through hands-on activities and group discussions, students will learn the inner workings of a nuclear reactor, why there is a debate over nuclear energy, and how scientists use virtual reality to better understand radiation physics.

SATURDAY COURSES

PIRATES OF MICHIGAN

University of Michigan Ann Arbor

Sponsored by the Department of Naval Architecture and Marine Engineering, "Pirates of Michigan" introduces students to the unique challenges facing engineers in an aqueous environment. Students will explore topics including hydrodynamics, marine engineering, ship design, underwater remote operated vehicles, and virtual reality.

HAND IT TO ENGINEERS

University of Michigan Ann Arbor

Sponsored by the Department of Biomedical Engineering and the Biomedical Engineering Society, "Hand it to Engineers" introduces students to the application of science and engineering principles to solve real medical problems. Students will draw inspiration from human anatomy and physiology to design and animate a prosthetic hand. In the process, students will gain hands-on experience interacting with electrical and mechanical systems. Lessons will also incorporate other key topics in biomedical engineering.

WATER: TREAT IT RIGHT!

University of Michigan Ann Arbor

Sponsored by the Civil and Environmental Engineering Department, "Water: Treat it Right!" will explore water treatment as a crucial aspect of sustaining our population and the environment, especially as our fresh water supplies diminish. Innovations to drinking and wastewater treatment allow for exciting potentials such as: resource recovery (harvesting valuable product from the waste in our water), power generation (gaining renewable energy from waste), and water reuse applications (creative use of wastewater in our homes and businesses). This course will be an introduction to the process of water treatment, including what happens to your water when it runs down the drain, and how it again comes out of your faucets. We will also focus on modern innovations to traditional wastewater treatment, which allow us to get the most out of our wastewater. Every drop counts… let's learn how to treat it right!

WONDERS OF FLIGHT

University of Michigan Ann Arbor

Sponsored by the Department of Aerospace Engineering and the Michigan Space Grant Consortium, "The Wonders of Flight" provides an overview of the physics of flight, including aerodynamics, jet propulsion, rocket fabrication, wind tunnel testing, and space exploration. The lessons and hands-on activities will challenge students to explore math, physics, astronomy, and aerospace engineering and include launching rockets and building balsa wood gliders.

ENGINEERING THE WORLD AROUND US

University of Michigan Ann Arbor

Engineering the world around us aims to give students an idea of what it means to be a mechanical engineer. The course specifically focuses on aspects of everyday life that mechanical engineers impact. Students will be introduced to the type of problems that modern mechanical engineers face and tools they use to tackle them. They will also learn the fundamental principles of mechanical engineering and then apply their problem solving skills to challenges that are mechanical in nature, such as designing a paper boat to hold as much weight as possible. With engineering anything is possible.

*** Transportation for all University of Michigan Ann Arbor courses will leave from Lawrence Tech location only ***

High School

GRADE	PROGRAM	COURSE	CODE	TIME
9-10	University of Detroit Mercy	Discovery of Life	20515	9AM - 12PM
9-10	University of Detroit Mercy	The Chemical World	20535	9AM - 12PM
9-10	University of Michigan Dearborn	Laboratory Science	21515	9AM - 12:30PM
9-10	Wayne State University	Exploring Renewable Energy	21050	9AM - 12PM
9-10	Wayne State University	Study Smarter Not Harder	21020	9AM - 12PM
9-10	Wayne State University	Think 3-D Geometry	21030	9AM - 12PM
9-11	University of Detroit Mercy	ACT Prep	20565	9AM - 12PM
9-12	Oakland University	Algebra II	22050	9AM - 12PM
9-12	Oakland University	Calculus	22035	9AM - 12PM
10	University of Michigan Ann Arbor	Engineering the World Around Us	28045	9AM - 1PM
10-11	University of Michigan Dearborn	ACT - SAT Math Prep	21520	9AM - 12:30PM
10-12	Oakland University	Chemistry 2	22070	9AM - 12PM
10-12	Triumph Church	Digital Character Design	20600	9AM - 12PM
10-12	Walker Miller Energy	Light up Detroit with LEDs!	29005	9AM - 12PM
11-12	Oakland University	ACT Prep	22070	9AM - 12PM
11-12	Focus Hope	Automation & Design	29000	9AM - 12PM
11-12	Blue Cross Blue Shield	Probability of Life	28100	9AM - 12PM
11-12	Wayne State University	Pre Calculus	21025	9AM - 12PM
11-12	Wayne State University	Intro to Engineering	21042	9AM - 12PM
12	Sensible Business	GAME ON: Maximizing Your College...Part 2	20590	9AM - 12PM

9th - 10th GRADE

DISCOVERY OF LIFE

University of Detroit Mercy

This biology course will cover the following topics in a lab setting: anatomy, physiology, predation, and ecology. There will be extensive dissections.

THE CHEMICAL WORLD

University of Detroit Mercy

This course is taught by Chemistry professors with significant support from the students of the Chemistry Club. Topics covered are: Electro-chemistry (using fruit to make batteries), density (mini submarine experiment), acids/bases (using cabbage as an indicator to test household products), polymers (classifying plastics, super absorbent polymers used in diapers), dye chemistry (Tie Dye T-shirts) and chromatography.

LABORATORY SCIENCE

University of Michigan Dearborn

This class is designed to expose students to elementary science through experiments in physics, chemistry, biology and environmental science. Students will conduct experiments in groups, present their findings and discuss their results. The experiments are designed to help students learn the underlying science concepts and how to apply them. The class will be conducted in a laboratory setting.

SATURDAY COURSES

EXPLORING RENEWABLE ENERGY

Wayne State University

This course will introduce students to a basic study of renewable energy. The course will specifically focus on sunshine and wind as major non-polluting sources of renewable energy. Students will familiarize themselves with topics in energy efficiency and conservation with a focus on converting the energy from wind, solar and hydrogen to usable energy. **To be eligible for a certificate, students must complete all classroom and homework assignments, and take the pre and post-test.**

STUDY SMARTER NOT HARDER

Wayne State University

This course will teach students how to become more proficient at studying. Students will build a strong foundation of learning skills which they can use to develop study skills, expand their knowledge base, build confidence in their learning ability and improve their grades. T**o be eligible for a certificate, students must complete all classroom and homework assignments, and take the pre and post-test.**

THINK 3-D GEOMETRY

Wayne State University

The purpose of this class is to familiarize students with geometry concepts and principles, and to assist them in developing three-dimensional thinking skills via solid geometry. Class will consist of lecture, group & individual work, question and answer time, homework, and quizzes. **To be eligible for a certificate, students must complete all classroom and homework assignments, and take the pre and post-test.**

9th - 11th GRADE

ACT PREP

University of Detroit Mercy

In this preparation course, students will learn to master concepts of the ACT Exam required to enter colleges and universities. Students will explore concepts in Math, Science, Reading and Computers to ensure a better understanding of each subject when preparing to take the exam.

9th - 12th GRADE

ALGEBRA II FOR ENGINEERS & SCIENTISTS

Oakland University

This rigorous course is for the high achieving student who has mastered concepts in Algebra. Topics of coverage include Parabolas, Ellipses, and Sequences. Employing a "flipped classroom" teaching approach, the instructor will review the lecture material and discuss its practical relevance for the first 30 minutes, then proceed to engage the students while they solve many sets of practice problems for the remaining time in the class. **Students must have a B or better in Mathematics to apply.**

CALCULUS I FOR ENGINEERS & SCIENTISTS

Oakland University

This rigorous course is for the high achieving student who has demonstrated success in Trigonometry and Algebra II. Topics of coverage include Limits and Continuity, Derivatives and Optimization, and Fundamental Theorems of Calculus. Employing a "flipped classroom" teaching approach, the instructor will review the lecture material and discuss its practical relevance then proceed to engage the students while they solve many sets of practice problems for the remaining time in the class. **Students must have a B or better in Mathematics to apply.**

SATURDAY COURSES

10th GRADE

ENGINEERING THE WORLD AROUND US!

University of Michigan Ann Arbor

Engineering the world around us aims to give students an idea of what it means to be a mechanical engineer. The course specifically focuses on aspects of everyday life that mechanical engineers impact. Students will be introduced to the type of problems that modern mechanical engineers face and tools they use to tackle them. They will also learn the fundamental principles of mechanical engineering and then apply their problem solving skills to challenges that are mechanical in nature, such as designing a paper boat to hold as much weight as possible. With engineering anything is possible.

10th - 11th GRADE

ACT & SAT MATH PREP

University of Michigan Dearborn

Students will learn fundamental mathematics needed to successfully execute math portion of ACT and SAT tests. Students will learn, analyze and practice basic mathematics and problems related to tests. This class is suited for students who are preparing to take ACT or SAT tests over the next six to 18 months.

10th - 12th GRADE

CHEMISTRY (PART II) FOR ENGINEERS AND SCIENTISTS

Oakland University

This introductory-level course is for the serious student who has demonstrated success in Physical Science, Biology, Chemistry (Part 1) here at OU. Employing a "problem-based classroom" teaching approach, the instructor will review the lecture material and discuss its practical relevance for the first 30 minutes, then proceed to engage the students while they solve many sets of practice problems for the remaining time in the class. The course is administered over five Saturdays from 9 AM to 12 PM on the campus of Oakland University. Student success will be heavily dependent upon their commitment to excellence while in class and their ability to view a 30 minute video (from home, school or library) during the week prior to the Saturday class. The admissions process, which is highly selective, involves consideration of math GPA and teacher recommendations. Chemistry at an introductory level is covered.

DIGITAL CHARACTER DESIGN

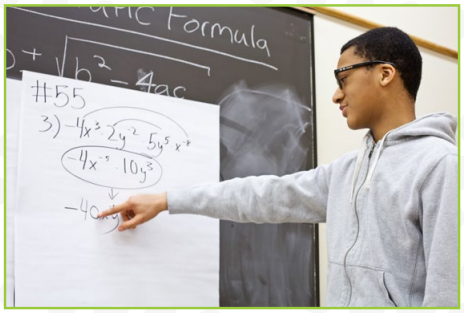
Triumph Church

Digital Character Designer: From Novice to Pro! is an exploratory experience for high school students which exposes them to various aspects of designing digital characters. Even though 6 weeks is not enough contact hours to allow the student to become a pro, this course is designed to show students the path necessary in becoming a novice of character digital designs to a PRO!

LIGHT UP DETROIT WITH LEDs!

Walker Miller Energy

Learn all about Light Emitting Diodes and how its transforming cities like Detroit and many others as we embarked on a journey in learning about advanced lighting technologies and associated career paths.



SATURDAY COURSES

11th - 12th GRADE

ACT PREP

Oakland University

This higher-level course is for the serious student who has an interest in preparing for the ACT exam. Employing a "problem-based classroom" teaching approach, the instructor will give the students a binder full of ACT practice problems. Students will complete problems in pairs and review them on the boards and with their peers. They will also review the material with the instructor. Students will work as they learn. Instructors will teach concepts and ideas as needed by the students. The type of problems will be based on the ACT curriculum and student needs. The course is administered over five Saturdays from 9 AM to 12 PM on the campus of Oakland University. Student success will be heavily dependent upon their commitment to excellence while in class. The admissions process will depend on the grade level of the student and how soon they will be taking the exam.

AUTOMATION & DESIGN

Focus: HOPE

This course contains hands-on, project based instruction designed to heighten students' interest in the STEM fields. Students will learn about the engineering design process, experience opportunities to use measurement when making a sketch or drawing or a prototype, and learn how to sketch using several different techniques, such as thumbnail and isometric sketching.

Students will also learn the basics of dimensioning and annotating drawings. Students will practice creating one- and two-point perspective and orthographic views, sometimes referred to as multiple views, of an object. Students will learn how to transfer a simple hand sketch to a three-dimensional (3D) model on a computer.

THE PROBABILITY OF LIFE

Blue Cross Blue Shield

This course will target math and sciences used by actuarial, underwriting, investor and marketing and highlight the different perspectives from blue cross. We will cover the difference between these areas and how each contributes to the success and bottom line of our company. **Bus transportation is not available for this course.**

PRE-CALCULUS

Wayne State University

The goal of the course is to develop the mathematical knowledge and skills, as well as the critical thinking, analytical and problem-solving skills fundamental to the study of mathematics in general and calculus in particular. The course begins with a study of the algebraic properties of numbers, variables, equalities, and inequalities. The concept of a function is introduced, and algebraic, geometric, and numerical techniques are used to study the properties of functions. Specific functions, such as the polynomial and exponential, are studied in more detail. After a brief introduction to the concepts of trigonometry, trigonometric functions are examined. **To be eligible for a certificate students must complete all classroom and homework assignments, and must take the pre and post-test.**

INTRO TO ENGINEERING

Wayne State University

This course introduces students to the profession, practice, and history of engineering, and its various disciplines. The importance of teams to the practice of engineering is demonstrated. Also core principles of engineering practice: design, teamwork, professional ethics. Fundamentals of materials science; emphasis on how material properties and behavior affect engineering applications. **To be eligible for a certificate students must complete all classroom and homework assignments, and must take the pre and post-test.**

12th GRADE

GAME ON: MAXIMIZING YOUR COLLEGE EXPERIENCE

Sensible Business: Technical and Leadership Institute - UAW GM, 200 Walker St., Detroit, MI 48207

This course is to provide a comprehensive training regimen to help students maximize their entire college experience and learn the secrets to earning a 6 figure income or higher. Students will be introduced to influential and successful entrepreneurs and executives from organizations such as Ford Motor Company, Detroit Medical Center, General Motors Corporation, B.L.A.C. Magazine, etc. Students will take part in hands on activities that challenge their current paradigms and will be able to accurately define goals for successful matriculation and completion of their collegiate careers. This course will ignite, excite and inspire students to excel far above their current state into the life they really want.