Oakland Schools
TECHNICAL CAMPUSES

2025-2026 Course Catalog

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INTRODUCTION

The Oakland Schools Technical Campuses (OSTC) offers an educational partnership with 28 school districts in Oakland County. OSTC offers a broad array of science, technology, engineering, and business programs, designed to equip students for both post-secondary education and a rapidly changing workforce. Students have access to a rich, diversified curriculum that combines rigorous academics with hands-on learning opportunities across various fields, ensuring that they are well-prepared for the challenges of the modern job market.

OSTC caters to secondary students who are eager to explore subjects in greater depth while incorporating key math and science concepts directly related to their areas of study. The programs emphasize both theoretical knowledge and practical skills, ensuring students gain a well-rounded education. In addition to core subject matter, OSTC fosters an environment where students are encouraged to explore their interests through career-focused experiences, including industry competitions and leadership programs that enhance teamwork, critical thinking, and problem-solving skills.

At OSTC, students are not only prepared for immediate career opportunities but also supported in their academic and professional aspirations. Whether pursuing advanced studies at a university, community college, or technical school, OSTC equips students with the skills and confidence to succeed. The campuses provide a nurturing and challenging environment where students can thrive intellectually and technically, gaining the knowledge and experience they need to become the scientific, technical, and business leaders of tomorrow.

OAKLAND SCHOOLS TECHNICAL CAMPUS CAREER CLUSTERS

Agriscience and Environmental Technologies

Agriscience and Environmental Technologies prepares students with the knowledge and hands-on experience needed to succeed in both post-secondary education and the modern workforce. The curriculum explores a wide range of topics including hydroponics, veterinary science, sustainable agriculture, and environmental engineering and conservation. Students will delve into specialized areas such as fisheries and wildlife, forestry, greenhouse management, floral and landscape design, organic gardening, animal care, veterinary assisting, environmental science, and aquaculture. Through interactive projects and the use of advanced technology, students develop innovative and ethical solutions to real-world environmental challenges.

*** Available at the Northwest and Southwest Campuses**

Automotive Technology

The Automotive Technology Program is a hands-on, intensive course designed to equip students with the practical skills needed to succeed in a variety of automotive careers. The curriculum covers both basic and advanced automotive systems, including safety, customer service, engine repair, automatic transmissions, manual drivetrain and axles, suspension and steering, brakes, electrical/electronic systems, heating and air conditioning, engine performance, and diesel engine theory.

Students will apply what they've learned in a state-of-the-art automotive lab that mirrors current industry standards. The program is aligned with state and national licensing and credentialing requirements, and qualified students will have the opportunity to test for both state and national certifications.

The Maintenance Light Repair (MLR) track is a two-year program designed to provide students with foundational skills, preparing them for post-secondary education or entry-level positions in the automotive field. The track emphasizes gaining entry-level certifications and offers opportunities for internships to further develop practical experience.

*** Available at All Campuses**

Collision Repair and Refinishing

The Collision Repair and Refinishing Program is a hands-on, immersive course that prepares students with the skills to restore damaged vehicles to showroom-quality condition. Utilizing advanced painting, welding, and repair equipment in a state-of-the-art lab, students will learn to diagnose, repair, restore, and refinish vehicles to industry standards.

Students will also have the opportunity to apply artistic design techniques to create custom modifications, giving them the chance to explore creativity in vehicle restoration. Upon completion, qualified students can earn industry-recognized certifications and licenses, preparing them for successful careers in the automotive repair and refinishing industry.

*** Available at All Campuses**
**** Early College Option**

Computer Programming

Computer Programming equips students with a strong foundation in Information Technology, focusing on key areas such as web development and software programming. Through hands-on experience, students will learn to write code that drives game design, business applications, and even robotics. The curriculum offers opportunities to earn industry-recognized certifications in Java and HTML5, helping students stand out in a competitive tech landscape. Upon successful completion, students will be well-prepared to continue their education in Computer Science or Computer Engineering at both community colleges and universities.

*** Available at Northeast, Southeast and Southwest Campuses**
**** Early College Option**



Construction Technology

Students will gain skills to work in all areas of the construction field, including carpentry, interior/exterior finishing, electrical, plumbing, masonry, heating, ventilation, air conditioning, and refrigeration (HVAC/R), as well as home repair, building, and grounds maintenance.

Students will build and maintain residential and commercial construction projects, operate power tools and heavy equipment for demolition and construction, and read blueprints for rough and finished carpentry, masonry, electrical and plumbing. This program of study will also prepare students who are interested in entering a post-secondary program in construction management. Students can earn Level 1, 2 or 3 in the JATC (Joint Apprenticeship and Training Committee) certification. This certification is recognized by all United Brotherhood of Carpenters (UBC) throughout the country.

*** Available at Northeast, Northwest and Southeast Campuses**

Cosmetology

The Cosmetology Program offers training in the classroom and lab setting. Students will apply content mastered in the areas of hair, nail and skincare services in the interactive, on-site salon. The content covered includes chemistry, anatomy, safety, electricity, salon ecology and business entrepreneurship. Students are required to attend additional sessions in the summers before Junior and Senior years in order to complete the 1500-hour State of Michigan Cosmetology requirement to then be eligible for the Cosmetology State of Michigan Licensing Exam. The Licensing Exam includes both a Practical Exam and Theory Exam. A student must pass both exams in order to earn a State of Michigan Cosmetology License.

*** Available at the Northeast Campus Only**

Criminal Justice

The Criminal Justice Program prepares students for a background in the criminal justice system. Curriculum includes three components of the system: law enforcement, courts and corrections. During the program, students are exposed to in-demand technical and foundational skills such as ethical responsibility, situational awareness, report writing and field note-taking, courtroom testimony, crime scene management, criminal law and investigation, health and safety, and trends affecting the corrections system. Additional specialized SWAT strategies, forensic investigative techniques to process crime scenes and application of counter-terrorism tactics are included in

the curriculum. Students will also learn about the roles of corrections, rehabilitation and probation in the criminal justice system. Students are required to participate in physical fitness each week to prepare for the post-secondary Michigan Commission on Law Enforcement Standards (MCOLES) certification.

*** Available at the Southeast Campus Only**

Culinary Arts/Hospitality

The Culinary Arts and Hospitality Program offers students a comprehensive introduction to the dynamic world of food service and hospitality, providing both practical skills and industry knowledge. Students will gain hands-on experience working in a state-of-the-art commercial kitchen while learning the essential aspects of restaurant operations, including menu design, food preparation, staffing and scheduling, and point-of-sale systems.

In addition to mastering culinary techniques, students will explore the business side of the industry, focusing on financial management, cost control, and marketing strategies. The program also covers key concepts in the broader travel, tourism, and hospitality industries, equipping students with the tools needed to succeed in diverse careers within these fields.

*** Available at All Campuses**

Cybersecurity Networking

Cybersecurity and Networking introduces students to essential security principles related to computer networks and operating systems. The course covers current threats, vulnerabilities, and security policies associated with electronic commerce, preparing students to understand the complexities of online security. Students will explore key concepts in risk management, security architecture, incident response, disaster recovery, and secure systems administration. Throughout the course, students will gain hands-on experience in designing, installing, and troubleshooting computer networks while applying practical skills in securing these systems. Students will engage in simulated environments, practicing ethical hacking to identify weaknesses and vulnerabilities in network systems. Additionally, they will develop and implement countermeasures to combat sophisticated cyber threats and protect critical systems from disruption or destruction.

*** Available at the Southeast and Southwest Campuses**

**** Early College Option**

Energy-Electrical Technologies

The Energy-Electrical Technologies program provides students with essential industry knowledge and hands-on experience, preparing them for careers as utility workers or in related fields. Through applied lab work, students will gain practical skills in residential and commercial electrical wiring, while exploring the key differences between residential, agricultural, commercial, and industrial wiring systems.

Students will also investigate various energy sources, including emerging green energy technologies, and learn how these innovations contribute to a sustainable future. The program offers opportunities to work alongside industry professionals, gaining real-world insights into how to power and maintain a secure, reliable electrical grid. This comprehensive curriculum equips students with the foundational knowledge and skills needed for a successful career in the evolving energy sector.

*** Available at the Northwest and Southeast Campuses**

Engineering, Robotics & Mechatronics *NCAA Approved

The Engineering, Robotics, and Mechatronics Program offers an interdisciplinary curriculum that integrates electronics, engineering, manufacturing, and robotics. Students will engage in the design, creation, and optimization of advanced robotic, hydraulic, pneumatic, electrical, electronic, and mechanical systems. Through hands-on projects and collaborative challenges, students will develop the skills to creatively solve complex engineering problems, applying both theoretical knowledge and practical expertise.

The program emphasizes the use of cutting-edge CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) and CNC (Computer Numerical Control) technologies, providing students with a strong foundation in modern design processes and manufacturing techniques. Additionally, students will gain valuable experience in power systems, machine operation, quality assurance, fabrication, and the design cycle, preparing them for real-world applications in engineering and technology fields.

*** Available at All Campuses**

**** Early College Option**

Entrepreneurship and Advanced Marketing

The Entrepreneurship and Advanced Marketing course equips students with essential business, leadership, and marketing skills needed to succeed in today's competitive marketplace. Students will gain hands-on experience in creating effective advertisements, developing social media strategies, and planning and executing special events. The curriculum provides a solid foundation in business fundamentals while preparing students with the knowledge and tools necessary to manage and run their own businesses. Students will explore advanced marketing techniques and business strategies, gaining practical insights into consumer behavior, brand development, and digital marketing.

*** Available at All Campuses**

**** Early College Option**

Graphic and Communication Design

Graphic and Communication Design will prepare for careers that communicate ideas and information to the public and include the areas of graphic communication, graphic design and interactive multimedia/ animation skills and processes. Students will design and create dynamic brand identifications, products, animations and digital media, while creating a personal portfolio showcasing their ideas and talents.

Students will be introduced to a variety of digital media used in online advertising, social-media marketing and website implementation, including video production and post-production, animation and motion graphics. Additionally, this program provides training opportunities in screen-printing, press operations and bindery, page layout and illustration, advertising design, and marketing presentations used in "real-world" projects.

*** Available at Northwest, Southeast and Southwest Campuses**

**** Early College Option**



Health Sciences

The Health Sciences cluster provides students with core and foundation skills for health fields such as medical assisting, laboratory, medical office technology, dental assisting, optical technology, nursing, and pharmacy. Students will gain a comprehensive understanding of the core health sciences curriculum, which includes critical topics such as safety protocols, anatomy and physiology, asepsis, medical ethics, medical terminology, pharmacology, disease prevention, and office procedures. Additional training opportunities are available in phlebotomist, EKG technician, sports safety, radiology aide, surgical technical aide, respiratory therapy aide, occupational therapist, physical therapist, dietary aide, and medical records and billing.

*** Available at All Campuses**
**** Early College Option**

Machining

Machining uses advanced equipment and innovative techniques to create many technologically advanced machined projects. Students will design, invent, and build precision parts and tools that are integral to industries worldwide. Certified professionals will teach students how to program and operate industrial CNC machines to create products from engineering blueprints and specifications. The curriculum also includes core foundational skills for design processes, power, machines, quality insurance and fabrication.

*** Available at the Northeast Campus Only**
**** Early College Option**

Medium/Heavy Truck Equipment

Medium/Heavy Equipment prepares students to be proficient with shop tools and equipment while maintaining and repairing semi-trucks, bulldozers, backhoe loaders, etc. The HETT (Heavy Equipment & Truck Technology) program is divided into units of study. Units include Shop Lab (Drilling, tapping, torch cutting, arc/mig welding, etc.), Engine Service (Troubleshooting, diagnosis, cylinder head, overhaul), Electrical (Basic electricity, batteries, starters, charging) and Hydraulic and Air Brakes.

*** Available at the Southwest Campus Only**

Welding

Welding prepares students to use a wide array of skills to control fire, electricity and heat to design, dismantle and fabricate a wide range of products. Students will use advanced equipment and techniques to join, cut, bend, and manipulate metal as they develop the skill, confidence, work ethic and stamina necessary for a high-paying career anywhere in the world. The curriculum includes core foundational skills for design processes, power, machines, quality insurance and fabrication. Students will develop the confidence, work ethic, and stamina required for a successful career in welding, preparing them for high-paying opportunities in industries such as construction, manufacturing, aerospace, and more.

*** Available at Northeast, Southeast and Southwest Campuses**
**** Early College Option**

OSTC ACADEMIC COURSES

Anatomy & Physiology *NCAA Approved

Anatomy and Physiology offers a foundational look into the structure and function of the human body. It provides a broad overview of major body systems—including the skeletal, muscular, circulatory, respiratory, digestive, nervous, and immune systems. Students will investigate how these systems work independently and together to maintain health and homeostasis.

Through hands-on activities, interactive models, simple dissections, and multimedia resources, students will explore the basics of human biology while developing an appreciation for health science careers. This course emphasizes observation, critical thinking, and real-world connections to healthcare and wellness.

Biotechnology *NCAA Approved

This hands-on course introduces students to the fascinating world of biotechnology and its impact on health, agriculture, forensics, and the environment. Students will explore the science behind DNA, genetics, and molecular biology while learning basic lab skills such as micropipetting, gel electrophoresis, DNA extraction, and bacterial transformation.

Through engaging labs and real-world case studies, students will investigate how biotech innovations are used to develop medicines, solve crimes, improve crops, and address global challenges.

Engineering, Robotics, Mechatronics (ERM) *NCAA Approved

Engineering, Robotics, and Mechatronics (ERM) offers an interdisciplinary curriculum that integrates electronics, engineering, manufacturing, and robotics. Students will engage in the design, creation, and optimization of advanced robotic, hydraulic, pneumatic, electrical, electronic, and mechanical systems. Through hands-on projects and collaborative challenges, students will develop the skills to creatively solve complex engineering problems, applying both theoretical knowledge and practical expertise.

ERM emphasizes the use of cutting-edge CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) and CNC (Computer Numerical Control) technologies, providing students with a strong foundation in modern design processes and manufacturing techniques. Additionally, students will gain valuable experience in power systems, machine operation, quality assurance, fabrication, and the design cycle, preparing them for real-world applications in engineering and technology fields.

Functional Biochemistry

This course introduces students to the chemical processes that power life. Blending concepts from biology and chemistry, Biochemistry explores the molecular building blocks of living organisms—carbohydrates, lipids, proteins, and nucleic acids—and how they interact to sustain biological functions.

Students will study metabolism, enzyme activity, cell respiration, and molecular genetics, gaining insight into how biochemistry is applied in medicine, nutrition, agriculture, and biotechnology. Through hands-on labs, experiments, and case studies, students will develop lab skills, critical thinking, and a deeper understanding of the chemical foundation of life.

Math for Agriscience & Environmental Technologies

This course equips students with essential mathematical skills applied in real-world agricultural, horticultural, and environmental science contexts. Students will learn to calculate square footage, soil/mulch volume, and slope for effective landscaping and hardscape design. They will analyze plant growth rates in controlled greenhouse experiments, compute precise veterinary medication dosages based on animal weight, and estimate forestry yields through sample plot

extrapolation. This course emphasizes mathematical reasoning, data analysis, and applied problem-solving to prepare learners for industry demands.

Math for Collision Repair & Refinishing

This course provides students with the practical math skills needed for success in the collision repair and refinishing industry. Emphasis is placed on linear measurement using both SAE (Standard) and metric systems. Students will practice comparative measurements, calculate area and volume for surface prep and material use, and apply mixing ratios and percentages for paint and coating formulas. Additional topics include converting between measurement systems and performing price calculations and budgeting costs.

Math for Computer Programming

This course equips students with the mathematical foundations essential for computer programming and software development. Students will learn to develop algorithms to solve problems efficiently and use conditional statements to control program logic and flow. Emphasis is placed on understanding and applying the order of operations, fundamental concepts in probability and statistics, as well as number systems and principles of discrete mathematics.

Math for Construction Technology

This course provides students with the essential math skills used in construction technology. Students will apply area calculations to estimate materials such as carpet, paint, and shingles, and use volume formulas to determine the amount of concrete needed for projects. Trigonometry concepts are incorporated to calculate roofing angles and rafter lengths, while geometry principles support roof framing and structural design. The course also emphasizes practical skills like converting fractions to decimals and vice versa, a routine task in construction measurements.

Math for Cosmetology

This course provides students with practical math skills essential for success in the cosmetology industry. Topics include measurements and conversions used in mixing hair color, chemical solutions, and beauty products. Students will learn to calculate percentages, ratios, and

proportions for accurate product formulation and dosage. Additional focus is placed on budgeting, pricing services, and managing inventory to develop financial literacy within a salon setting.

Math for Criminal Justice

This course emphasizes mathematical skills and concepts applied specifically to forensic science and criminal investigations. Students will learn to analyze crime scene data, calculate probabilities, and interpret statistical evidence used in forensic analysis. Topics include measurements, ratios, percentages, algebraic problem solving, and basic geometry relevant to evidence collection and report writing.

Math for Culinary Arts & Hospitality

This course provides students with essential math skills tailored for careers in culinary arts and hospitality. Topics include converting weights and measures using both metric and imperial systems, understanding and applying baker's percentages for recipe scaling, and accurately costing recipes to manage food budgets and pricing. Students will develop practical skills in measurement conversions, portion control, and financial calculations critical to successful kitchen and hospitality operations.

Math for Cybersecurity Networking

This course develops the essential math skills used in cybersecurity and networking fields. Students will learn to interpret and convert between binary, decimal, and hexadecimal number systems, foundational to understanding digital communication and computer operations. This course also covers the use of formulas to calculate electrical properties such as voltage, current, and resistance, enabling students to troubleshoot hardware and network issues effectively. Practical problem-solving exercises reinforce the application of mathematical concepts to diagnose and resolve computer and network challenges.

Math for Energy-Electrical Technologies

This course provides students with the foundational math skills needed for careers in energy systems and electrical technology. Students will perform operations with whole numbers, fractions, decimals, and percentages, and apply geometric concepts to calculate lengths, perimeters, areas, volumes, and angles. The curriculum emphasizes electrical applications, including reading, tracking, and calculating electrical measurements. Students will convert between measurement

units and apply formulas to analyze and solve circuit-related problems. Students will also translate practical problems into mathematical expressions, use algebraic techniques, and solve simple equations.

Math for Engineering, Robotics & Mechatronics

This course develops math skills essential for success in engineering, robotics, and mechatronics. Students will learn to read and interpret blueprints, perform precision measurements using tools such as tape measures, calipers, scales, and micrometers, and apply measurement data to technical tasks. Unit conversion between and within metric and imperial systems is emphasized, including conversions involving feet, inches, fractions, millimeters, and centimeters. Students will also work with fractions, ratios, and proportions in contexts such as calculating gear ratios, speed, torque, and mechanical advantage.

Math for Entrepreneurship & Advanced Marketing

This course equips students with math skills essential for launching and managing a successful business. Through hands-on lessons and real-world examples, students will learn how to calculate profit and loss, use percentages for pricing strategies, and apply ratios and proportions to evaluate marketing and purchasing decisions. They'll also gain experience in interpreting and creating visual data representations such as bar, line and pie graphs to track trends and performance. The course introduces foundational data analysis techniques using averages to help students with making informed marketing decisions based on customer research. Finally, students will explore basic Excel functions to manage budgets, track sales, and visualize business data.

Math for Graphic & Communication Design

This course provides students with math skills essential for success in the graphic design and print production industries. The course emphasizes measurement and precision, starting with how to read rulers in both inches and centimeters and progressing to industry-specific units like points and picas. Students will practice converting between fractions, decimals, and various measurement systems, which are critical for layout, typography, and print specifications. Students

will learn how to estimate costs for design and production jobs, including calculating labor hours, material costs, and pricing for client work. Through this course, students will develop the quantitative reasoning needed for accurate design planning, budgeting, and production.

Math for Health Sciences

This course equips students with necessary math skills used daily in healthcare professions. Students will learn medical math concepts such as metric conversions, ratios and proportions, weights and measures, dosage calculations, and graphing vital signs or patient data. Emphasis is placed on accuracy, critical thinking, and problem-solving as students explore how math directly supports safe and effective patient care.

Math for Machining

This course develops essential math skills used in machining and manufacturing. Students will learn to read tape measures, micrometers, and vernier scales in both imperial and metric units, and convert between fractions, decimals, and measurement systems. The course covers applied algebra, geometry, and trigonometry for precise measurements and calculations. Students will also work with ratios for mixing coolants and calculate cutter speeds and feed rates to optimize machining processes.

Math for Medium/Heavy Truck & Equipment

This course focuses on the math skills needed in heavy-duty vehicle maintenance and repair. Students will work with compound fractions for calculations like BSFC (Brake Specific Fuel Consumption) and convert between fractions and decimals. The course covers the metric system, including unit prefixes and SAE equivalents, and teaches how to calculate cylinder volumes and understand pressure and flow in hydraulic systems. Students will also learn to read precision tools such as micrometers, calipers, and dial indicators in both metric and SAE units.

Math for Welding

This course develops the math skills welders need on the job. Students will learn to accurately read tape measures and apply essential math operations including adding, subtracting, multiplying, and dividing whole numbers and fractions to measure materials, calculate

dimensions, and prepare layouts. Emphasis is placed on precision and problem-solving to ensure quality welds and efficient fabrication in real-world welding and metalworking environments.

Personal Finance

Personal Finance is a practical, real-life course designed to equip students with the knowledge and skills needed to manage their money wisely and make informed financial decisions. This course covers essential topics such as budgeting, saving, banking, credit and debt, taxes, investing, insurance, and financial planning.

Through simulations, projects, and real-world scenarios, students will learn how to set financial goals, understand paychecks and benefits, plan for major purchases, and explore career earnings and expenses. The course emphasizes responsible decision-making and financial literacy for lifelong success.

****This course content satisfies the State of Michigan requirement and is embedded into all the CTE programs.**

Physics (ERM NW Campus Only)

Physics is a college-preparatory science course that explores the fundamental principles governing the natural world. Students will investigate motion, forces, energy, momentum, waves, electricity, magnetism, and basic concepts of modern physics. The course emphasizes scientific reasoning, mathematical problem-solving, and real-world applications.

Through hands-on labs, demonstrations, and projects, students will develop skills in data collection, analysis, and critical thinking. Physics helps students understand how the universe works—from the mechanics behind everyday motion to the forces shaping the cosmos—and lays a strong foundation for future studies in science, engineering, medicine, and technology.

PreCalculus/Calculus for Engineering, Robotics & Mechatronics (ERM NW Campus Only)

This course is designed to integrate the core concepts of Calculus with real-world applications in Engineering, Robotics, and Mechatronics (ERM). Students will study limits, derivatives, integrals, and the fundamentals of differential equations while applying these concepts to dynamic systems, motion control, optimization, and energy analysis in robotic and mechanical designs.

The course emphasizes the use of calculus to model and analyze physical systems—such as robotic arm movement, acceleration and torque, rate of change in circuits, and system efficiency. Students will engage in hands-on projects, use simulation software, and work with technologies such as sensors, microcontrollers, and CAD tools to see math in action.

Science for Agriscience & Environmental Technology

This course provides a comprehensive study of the biological and environmental systems that influence agriculture, natural resources, and ecosystem management. Students will explore energy transfer in plants through photosynthesis and cellular respiration, and examine how environmental factors impact these processes. Key topics include biodiversity, conservation biology, soil composition and structure, climate change, and sustainability. The course also covers principles of wildlife and habitat management, aquatic ecology sampling techniques, greenhouse plant propagation, and introductory veterinary pathology.

Science for Collision Repair & Refinishing

This course explores the scientific principles underlying modern collision repair and refinishing practices. Students will investigate and apply concepts within chemistry and physics. Additional topics emphasize topics in safety, precision, and understanding the science behind industry-standard tools, materials, and procedures.

Science for Computer Programming

This course explores the scientific and technological principles foundational to computer programming and modern computing fields. Students will study algorithm development to solve complex problems and gain an introduction to artificial intelligence concepts. Additional topics covered include investigation of data science fundamentals, robotics and cryptography principles.

Science for Construction Technology

This course introduces the scientific principles essential to the construction industry, focusing on material science, structural engineering, physics, and sustainability. Students will study chemical

reactions that occur when construction materials are mixed or combined. Structural engineering concepts are explored to analyze and ensure the integrity and safety of building designs. Core physics principles, including forces, load distribution, and energy transfer, are applied to real-world construction scenarios. The course also addresses sustainability practices, emphasizing environmentally responsible building materials and energy-efficient design.

Science for Cosmetology

This course provides students with a comprehensive understanding of the scientific principles underlying cosmetology practices. Topics include the anatomy and physiology of the skin, hair, and nails; chemistry of cosmetic products; and the biological effects of treatments and chemicals on the body. This course also covers the physics of light and color as they relate to hair coloring and skin treatments, as well as the chemistry behind formulations such as shampoos, conditioners, and styling products.

Science for Criminal Justice

This course introduces students to the scientific principles and techniques essential to criminal justice and forensic investigations. Topics include forensic biology, chemistry, and physics as applied to crime scene analysis, evidence collection, and laboratory procedures. Students will study fingerprinting, DNA analysis, toxicology, and ballistics to understand how scientific methods support law enforcement.

Science for Culinary Arts & Hospitality

This course explores the scientific principles behind culinary techniques and food preparation. Students will study leavening agents such as air, baking soda, and baking powder and their roles in baking. The Maillard reaction and caramelization processes will be examined to understand flavor and color development in cooking. The course covers heat transfer methods including conduction, convection, and radiation, and their application to various cooking techniques. Students will also learn the science of emulsification and its importance in creating stable sauces and dressings.

Science for Cybersecurity Networking

This course introduces students to the scientific and technical principles underlying cybersecurity and network technologies. Topics include computer systems architecture, data transmission, encryption methods, and network protocols. Students will explore how scientific concepts such as binary systems, logic gates, and signal processing contribute to securing digital communications. Additionally, this course covers cybersecurity fundamentals, including threat detection, vulnerability analysis, and defensive strategies to protect information systems.

Science for Energy-Electrical Technologies

This course explores the scientific foundations of energy production, distribution, and electrical technology. Students will examine various sources of energy—including fossil fuels, solar, wind, and nuclear—and study their properties, efficiency, and environmental impact. Emphasis is placed on applying basic scientific principles to understand electricity and circuits, including current, voltage, resistance, and power.

Science for Engineering, Robotics & Mechatronics

This course introduces students to the scientific and technical principles that form the foundation of engineering, robotics, and mechatronics systems. Students will explore the function and application of simple machines, develop skills in CAD (Computer-Aided Design), and understand the process of CAM (Computer-Aided Manufacturing). Students will use both additive (3D printing) and subtractive (CNC machining) manufacturing techniques. In addition, practical application of robotic systems as well as understanding and applying circuit maintenance, safety and technology will be covered in the course.

Science for Entrepreneurship & Advanced Marketing

This course helps students connect science concepts with real-world business and marketing decisions. Students will explore how science plays a role in product design, packaging, sustainability, and consumer behavior. Through projects and experiments, students will learn how to think like both a scientist and an entrepreneur—evaluating products, understanding trends, and making smart, sustainable business choices. This course supports creativity, innovation, and critical thinking in industry.

Science for Graphic & Communication Design

This course introduces students to the science behind visual design and the production process in both print and digital media. Students will explore color theory and color management, learning how light, pigments, and digital color systems impact design choices and final outcomes. The course also covers materials science, focusing on how different types of paper, ink, and substrates affect print quality, durability, and appearance. In addition, students will study various printing processes to understand how each method works and when to use them effectively.

Science for Health Sciences

Through this course students will further build on their foundational understanding of the human body and how it functions in both health and disease. Students will build on their knowledge of Anatomy and Physiology, as well as focusing on Pathophysiology, examining common diseases and medical conditions, how they impact the body, and how they are diagnosed, treated, and prevented.

Science for Machining

This course introduces students to the scientific and technical foundations of modern machining. Topics include metallurgy and material hardness, metal cutting theory, and the relationship between materials and machining performance. Students will learn the basics of CNC programming, including program optimization, and will apply CAD and CAM software to design and produce precision parts.

Science for Medium/Heavy Truck & Equipment

This course covers key scientific principles essential to the operation and maintenance of medium and heavy trucks and equipment. Students will study combustion theory, including the relationship between pressure, volume, and temperature (PV=nRT), and gain a basic understanding of emissions chemistry. The course also explores leverage and torque concepts important for mechanical systems, along with foundational electrical theory, comparing AC and DC currents. Additionally, students will learn about magnetism and its role in sensors.

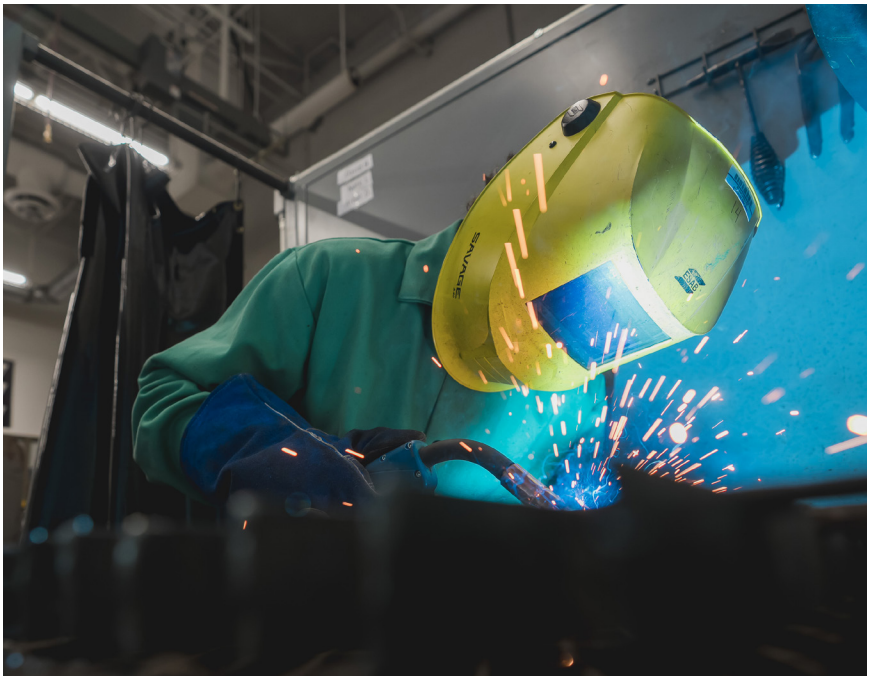
Science for Welding

This course explores the scientific principles behind welding processes and materials. Students will learn about gas mixtures used in welding, the fundamentals of metallurgy, and how metals respond to heat through thermal expansion and contraction. The course also covers the heat-affected zone and its impact on metal properties.

Technical Physics

Technical Physics is a hands-on, application-based course that explores the fundamental principles of physics through real-world problem solving and technical scenarios. Designed for students interested in engineering, skilled trades, or technology fields, this course emphasizes practical applications of motion, force, energy, electricity, waves, and simple machines.

Students will engage in labs, projects, and technical investigations that connect physics concepts to systems used in construction, manufacturing, automotive, robotics, and other STEM-related industries. The course integrates math skills, measurement, and data analysis with an emphasis on teamwork, critical thinking, and industry relevance.







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TECHNICAL CAMPUSES

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In accordance with state and federal law, Oakland Schools does not discriminate, nor permit discrimination, on the basis of race, color, national origin, ethnicity, religion, sex, (including pregnancy or parental status, gender identity, gender expression, and sexual orientation), disability, age, height, weight, familial status, marital status, military service, veteran status, genetic information, or any other legally protected status, in its educational programs and activities, employment, or enrollment. The District also provides equal access to the Boy Scouts and other designated youth groups.

For questions or complaints regarding unlawful discrimination or harassment, employees should contact the Assistant Superintendent of Human Resources, Personnel Management and Labor Relations at 248.209.2429 or HR@oakland@k12.mi.us. Students and others should contact the Civil Rights/Title IX Coordinator at 248.209.2185 or Jacqueline.Zablocki@oakland.k12.mi.us.